Teen Privacy and Social Learning: An On-going Reddit Analysis

Hongyi Dong, *Pennsylvania State University*   Priya C. Kumar, *Pennsylvania State University*

Abstract

Research on teen privacy often focuses on risk prevention, safety enhancement, and formal education, while the topic of how teens gain privacy-related knowledge and develop related skills in informal contexts remains under-explored. To understand how online interactions and discussions can support teens' social learning, we are conducting a thematic analysis of contents from teen subreddit communities. Our initial findings indicate that teens acquire privacy-related knowledge from engaging with peers and adults online, and that privacy breaches may also help them strengthen their privacy-related skills. We conclude by offering research and design implications on teens' sense of control over their privacy as well as parental communications.

1. Introduction

Teens (e.g., youth between 13-17 years old) are highly engaged online. While their platform preferences have shifted, reports indicate that teens use the internet "almost constantly" [11,16]. Research on teens' engagement shows that social media influences how they make privacy decisions and develop privacy management techniques [32].

Privacy in the context of teens' online lives and technology use is often investigated through the lenses of risk and harm prevention and protection [23,31]. Previous studies have uncovered how teens balance opportunities and risks online and called for designing to empower teenagers [1,2]. However, there are few studies that directly address the question of how teens make privacy-related decisions, and develop privacy-related knowledge. For instance, a UK-based study found that teens "learn by doing" as they engage in technology use [29].

Through a thematic analysis of Reddit contents, we attempt to understand teen voices "in the wild." Given that most previous research on privacy-related topics employed interviews and surveys [18,29], as well as app review comments [10], we focused on Reddit data to understand teens' experiences from a different source and perspective. The follow-

ing research questions motivate this study:

RQ1: How do teens respond to privacy breaches?

RQ2: How do teens learn to develop strategies to manage their privacy?

2. Related Works

2.1. Adolescence and Development of Privacy Skills

Despite the prevalence of literature on teens' privacy [18,22,23,31], some of this work overly dwells on the adverse effects of online experiences, thus overlooking the potential upsides [25]. While improving online safety for teens is important, we also need to understand how to empower them to make informed decisions surrounding their privacy, as adolescence marks the formative development of individuals' intellect and self-identity [8].

With the ease of access to networked technologies and various neurobiological changes that shape teens' sense of self, they open themselves up to vulnerabilities that could impact their mental well-being, as well as their online agency as they progress into adulthood [8]. These developmental attributes are particularly notable for the research of digital privacy: Research has shown that teens develop online safety skills over time as they gain experience and maturity [3]. Seeing that adolescence is a heightened period of learning and cognitive development [14], this presents a valuable opportunity for further research into this demographic.

2.2. Experiential and Social Learning

Research on privacy education typically focuses on formal educational settings and structured curricula. Acquiring privacy knowledge is seen as an essential component of digital citizenship and various literacies relevant to the information era [7]. But learning has different definitions based on the goal, the environment, and the learning process itself. In contrast to formal learning, that is "typically institutionally sponsored, classroom-based, and highly structured" [20], informal learning exhibits attributes that are described as organic, experienced-based, typically incidental, and that take place during "daily activities at work, home, leisure, in community" [6]. Unlike formal learning, this kind of learning could take place even if individuals are not conscious of its occurrence [21].

Research has shown that the social dimension is an important aspect of the learning process. Connected learning, an idea postulated by Ito et al., argues for interests and community-driven learning for youths that embraces "val-

ues of equity, social belonging, and participation" [13]. Various scholars have also studied the effects of social and collaborative learning through social media such as YouTube and Reddit, which indicated that the use of these technologies for informal learning leads to unique learning outcomes compared to classroom settings and structured education environments [12,17]. Scholars have also investigated how mobile users collaboratively support each other's privacy and security decisions, which suggests the potential for social learning of privacy information [4].

Counterintuitive to some research findings that technology should be designed to protect children from risk and harm, studies have shown that teens' risk-taking and exposure in their online lives can present as learning opportunities [15,18]. Wisniewski et al. highlighted the potential benefits of reasonable risk exposure online and how such experiential learning can inoculate them from future high-risk situations [30]. More recently, Livingstone et al. conducted a systematic review of research on young people's digital skills [19]. The team identified a gap for further exploration of how digital skills can support young people's risk-coping behaviors, suggesting that there is a need to understand how risky experiences can influence teens' decision-making.

3. Methodology

3.1. Data Collection

We began our research by analyzing a public archive of r/teenagers subreddit posts and comments.[1] This was achieved by filtering for the word "privacy" in the title or the submission text, which resulted in a total of 5069 unique posts; we also tested filtering for terms like "security" and "private" but found that the resulting posts were irrelevant to the topic (e.g., a joke post with the phrase "private school"). From there, we sorted the list by the comment count and individually assessed the top 20 posts. After reviewing and excluding certain posts (e.g., a selfie post titled "face hidden for my privacy"), we selected 13 unique posts from this list that contain a total of 24,298 comments.

While our original aim was to focus on r/teenagers, we also repeated the filtering process and assessed contents from related subreddits to judge their relevancy; these subreddits were recursively identified through suggestions listed in the community sidebar or mentioned in the comments. We excluded these subreddits for the lack of substantial related discussions, as posts have very low comments count, and teen participation.

- **Lack of substantial discussions**: BisexualTeens, feemagers, AskTeenGirls, AskTeenBoys, HighSchool, LGBTeens, TroubledTeens
- **Lack of teen participation**: AskParents, family

However, we did note that r/IndianTeenagers has sufficient discussions on the topic. Using the same selection process, we identified a list of 149 posts and selected the top 4 from this list, with a total of 1,015 comments.

In sum, we sampled 17 unique posts from r/teenagers and r/IndianTeenagers for a total of 25,313 comments, with post creation years ranging from 2018 to 2023.

3.2. Analysis

As Reddit is a text-based social media platform, our assumption was that there are meaningful insights embedded in the layers of conversations. Upon extracting the comments from individual posts, however, we realized that doing so flattened the hierarchy of comments, which led to a loss of context. To ensure that we could ground our study in the nested hierarchical structure of Reddit threads, we archived the HTML files and used them for analysis instead.

We conducted inductive thematic analysis for this work [5]. After an initial round of familiarization with a few posts in the dataset, the first author developed a list of potential candidate codes and generated a list of questions to help the formal analysis of all posts. He then selected comments while viewing them in threads, reviewing the context of conversations, and coded quotes in a spreadsheet. The codes were further compared and refined as the analysis progressed and more insights began to surface.

While the dataset contains more than 25,000 comments, many are bits of texts with minimal information (e.g., memes, banter, spam) or are deleted comments. We did not tally the total, but we estimated that around half of comments fall under these categories. For this reason, we focused on coding only the comments and threads that appeared to express meaningful sentiments (e.g., acknowledgement of advice, request for help) relevant to our research questions. We arrived at 151 coded entries in the end, with many entries containing multiple comment replies that constitute a full conversation.

4. Findings

Although most subscribers self-identified as teenagers (with a numeric age flair label), many adults also participated in discussions. Some chose to self-identify by using the "OLD" label, while others chose to proclaim in writing. We use "members" from here onward to refer to the general collective of teens and adults. For ethical considerations, we also opted to paraphrase stories shared by teens and obfuscated comments made by adults [9, 26].

4.1. RQ1: How do teens respond to privacy breaches?

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[1] Subreddit comments/submissions 2005-06 to 2023-12:
https://academictorrents.com/details/56aa49f9653ba545f48df2e33679f014d2829c10

4.1.1. Receiving explanations and insight from sharing their stories with the community

Many of the posts were created because a teen experienced some sort of privacy-invasive event. Through sharing their stories, they sought support and knowledge from other community members.

Being the only kid, my mom's really into what I do and worries a lot, and she has her reasons. Sure, there are texts I keep from my mom, but that doesn't mean they're bad. Some things just aren't meant for parents to see. I just want to figure out how to tell her that I need my space.

4.1.2. Protect their information and devise privacy strategies

Learning from negative experiences and from community inputs, some teens then began to think about protecting their data. This commenter explained how they installed a non-official version of an app for better access control:

Then the original poster could try getting a hacked Snapchat app. It's simple on Android, but a bit trickier on iOS, but still doable. That's what I use because my parents are the same way, and it's what I'm using right now.

4.1.3. Retaliate or resign

It is also prevalent that teens would choose to react and respond to privacy breaches more directly, especially in circumstances that involve older family members. Aside from emotional outbursts, knowing to lie about the existence of one's online activities and technology use could be seen as a more roundabout form of retaliation. But sometimes teens expressed resignation about their privacy, as one teen wrote *"try explaining that to my mum"* when recalling about their experience of communicating with their parents:

I'm from Pakistan and I'm telling you, if I made a fuss, I'd lose even the stuff I have and she'd ground me for ages. The smart move is to keep EVERYTHING secret. Like, all of it. Only share what you must so they don't start thinking you're keeping things from them.

4.1.4. Communicate and negotiate

In some cases, teens appeared to have learned how to improve their communication with their parents — even going as far as taking a stance on setting concrete boundaries.

I explained this to my mom. Now she hardly looks at my phone (not that there's much to see), and when she does check, she lets me watch and promises not to read my messages. I also told her, "My friends talk to ME, not you. Some stuff is private. It doesn't matter that you're my mom. You don't get to see everything."

4.2. RQ2: How do teens learn to develop strategies to manage their privacy?

4.2.1. Receiving help and perspectives from adults

Adults often chimed in to offer help and provide additional perspectives to teens who sought advice, sometimes echoing the benefit of learning from mistakes and risk exposure.

Trust, but verify... My parents used to talk to me as well and I did things that were stupid as well... Our job is to teach them and let them learn from their mistakes, but not necessarily let them make life altering ones.

My policy with my kids is "heavy seas make good captains." How can you possibly expect anyone to learn to navigate real dangers out there if they aren't actually out there learning how to deal with the online world?

4.2.2. Sharing and receiving technology tips and privacy management recommendations with one another

In response to requests for help, members voluntarily shared technology tips or ways to better one's privacy.

Firefox Focus is a nice browser if you don't want your history saved, Snapchat or Signal could work for your messaging needs, and always deleting your messages/activity should prevent prying eyes.

Teens also asked for specific privacy tips and tool suggestions, such as how to hide apps from prying parents and use VPNs as a workaround to website blocking:

Can you give us some tips?... Where would I hide apps like reddit?

Any good VPNs? A lot of them don't seem to let me access on my pc, but what about phone?

4.2.3. Discussing suggestions and debating opinions

Learning also appeared to take place among members as they discussed and debated with one another, which led to back-and-forth conversations spanning dozens of viewpoints.

If your parents treat the house like you don't live there when you are a teenager, then you have shitty parents. We deserve privacy and respect.

Reply: *You believe you deserve privacy and respect. If they believe you don't then that is your reality while you're under their roof. There's also some give and take, because you are young and still learning shit and all that. Sometimes the shit you hide is for a reason because you know it's wrong.*

However, there are often misconceptions surrounding legal standards and cultural norms. In the case below, a teen cited a US legal case to support students' right to post content on social media without being surveilled by their school, and was later told that the law does not apply in all situations.

This case is in blatant violation of the 1st amendment and the ruling of Tinker v. Des Moines (students have rights in school, including free speech unless it creates a disturbance).

Reply: *Everything rests on the shoulders of the parents, if they sign a paper saying the school can do whatever it wants to 'protect' the student, then the school can do that.*

5. Discussion

The value of community participation. Participating in online communities allowed teens to gain emotional support from other members, and their engagement also equipped them with new knowledge and could potentially lead to development of privacy-related skills. In particular, we noted the significance of the presence of adults in the community, especially engaging with other parents. Not only can adults help provide nuanced explanations and advise teens on how to deal complicated situations — which appeared to help teens' build privacy knowledge — their acknowledgement of teens' decision autonomy served as an important source of encouragement. While disagreements among members led to spats and occasional misinformation, the clash of opinions during debates could also generate informative insights and perspectives.

The smartphone generation. Smartphones are indeed a "constant companion" for today's teens [27], as most of the discussions surrounding privacy incidents and responses were related to ownership and control over one's smartphone. While there were talks of IoT or networking technologies, most help-seeking and advice-giving is related to smartphones and apps; when it comes to parental control devices, teens also spoke of the impacts on their smartphone habit. Hence, knowing one's way around a smartphone, such as knowing advanced functionalities to limit unauthorized access or learning how to hack one's smartphone to bypass app restrictions, are crucial for managing one's privacy. Overall, there was an atmosphere of advocacy for empowering oneself with tech-related knowledge, which is especially crucial in the face of excessive parental intervention through technological controls.

A persistent tug-of-war of being protected as a dependent versus having autonomy as an individual. Although we noticed some cultural differences, teens appear to be constantly battling for the lack of freedom and sense of control over their private lives. For late adolescents, the deprivation of autonomy and agency is especially impactful as they verge on entering adulthood. In a broader sense, learning to manage one's privacy through negative experiences goes beyond simple skills — it allows them to learn to be a capable individual that can navigate high-risk situations [30]. It also helps them to learn to nurture core communication and social skills that signify emotional maturity [28], whether it is taking on other's perspectives, respecting differences in opinions, or forgiving trespasses.

6. Research and Design Implications

Are there long-lasting effects of enduring privacy deprivation during adolescence? As experimental psychology reminds us that people can learn to become helpless through a constant lack of control over their circumstances [24], we noted many instances of teens expressing their frustrations with regarding the constant lack of privacy in their lives. Therefore, we encourage considerations of whether and how teenagers could be particularly vulnerable to long-term privacy deprivation. While the phenomenon of resignation may be short-term, a continued deprivation may have long-lasting adverse effects. In addition, over-protection can impact youths' development of privacy skills in the long run. These questions warrant a longitudinal investigation to help understand how privacy deprivation and over-protection can impact individuals differently.

What does it mean to design for managed independence for teens' smartphone use? Risk-exposure and negative experiences can help teens develop privacy skills, but teens still need protection from dangers they may not be equipped to handle. How can we design flexible parental supervision tools, that also gives teens a reasonable amount of privacy? Surveying existing parental control technologies, we noted that they place exceeding power in the hands of the parents, not allowing teens to have any say in the decision-making process.[2] Therefore, we sense that there is an opportunity to explore design solutions for managed independence that could facilitate communication and build healthier relationships between guardians and their teens.

7. Limitations and Conclusions

The demographic of Reddit is mostly English-speakers and US-based users.[3] Despite our inclusion of posts from r/IndianTeenagers in the dataset, it is not sufficient to capture the differences across broader sociocultural contexts. We also relied on users' self-reported age to determine their identity, and while the first author examined random user accounts' post history to help make this judgement, we do not have definite proof as to whether the self-identified teen users are actually teens.

To conclude, our thematic analysis of Reddit teen communities revealed the value of community participation for teens' development of privacy knowledge, as well as how contemporary teens' privacy control is connected to smartphone use. We also observed a pattern of teens struggling to grasp their agency and autonomy as their social role shifts between as a dependent and an individual. These insights have significant implications for future research on teen privacy and the design of technologies for family use.

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[2] For example: https://www.bark.us, https://meetcircle.com

[3] Reddit Web Traffic Statistics: https://www.semrush.com/website/reddit.com/overview

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