‘They’re Not Risky’ vs ‘It Can Ruin Your Whole Life’: How Parent-Child Dyads Differ in their Understandings of Online Risk

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Abstract. Encountering or engaging in risky online behavior is an inherent aspect of being an online user. In particular, youth are vulnerable to such risky behavior, making it important to know how they understand and think about this risk-taking behavior. Similarly, with parents being some of the first and most prominent influencers on youth’s online knowledge and behavior, it is important to know about parents’ understanding and how they attempt to protect and influence their children’s knowledge and behavior. In this qualitative study, we conducted semi-structured interviews with 40 youth/parent dyads with youth in 3rd-12th grades in the United States. The purpose of this study was to understand more about how youth think about and engage in online risk and risk-taking behavior, and how their parents view and attempt to influence this knowledge. We found that youth of all ages have nuanced ideas about online risk—including viewing online risk as a source of resilience development, growth and learning—and that these ideas are often in contrast to how their parents view the same concept. Youth are more likely than their parents to view online risk as context-dependent and agentive but are less likely than their parents to think about or understand the consequences of online risky behavior. We use these findings to discuss implications for parents, youth, education and tool providers, and future research.

Keywords: Online Risk · Risky Online Behavior · Cybersecurity · Youth · Parents · Dyads

1 Introduction

Engaging in risky behavior is part of the human experience, and the rate at which youth participate in risky behavior steadily increases in frequency as youth grow from childhood, through adolescence, and into young adulthood [33]. Although youth risk-taking is popularly thought of as impulsive and negative behavior, investigations of

This material is based on work supported by the UMD and NIST Professional Research Experience Program (PREP) under Award Number 70NANB18H165.

A. Coman and S. Vasilache (Eds.): HCII 2023, LNCS 14026, pp. 529–547, 2023.
https://doi.org/10.1007/978-3-031-35927-9_36

risk-taking suggest that it is often planned and exploratory in nature, and that learning how to navigate risk is an important part of learning [7, 26]. In other words, youth's relationship with "risky behavior" is complex, and deserving of attention. As "being online" has become a simple fact of existence for US youth, and their repertoire of online activities only increases as they get older [2], it is important to explore how the complexities of youth risk-taking behavior extend into the online space.

We know that youth participate in a variety of risky behaviors online (e.g. [19]), and also that the very act of being online carries the inherent risk of exposure to inappropriate content [12]. We also know that parents are worried about their children's online use, and more than nine-in-ten parents feel responsible for protecting their children from inappropriate and risky online content [4]. The studies that help generate the above understandings are often specific in scope, focusing, for example, on narrow age groups (e.g. [21]), specific categories of risk like sexual exposure (e.g. [20]), or parents' concerns and risk-mediation efforts (e.g. [36]). While these specific investigations are valuable, what is missing from the conversation is a broader understanding of how youth and parents conceptualize youth online risk-taking behavior, how these conceptualizations compare in youth/parent pairs, and how they can help inform youth education from a family perspective.

To contribute to these broader understandings, we interviewed 40 youth/parent dyads with youth in 3rd-12th grades to answer the following research questions:

1. How do youth define and understand online risk?
2. How do parents understand youth online risk-taking?
3. What is the alignment between youth and parent understandings of youth online risk-taking?
4. What is the perceived role of parents in youth online risk-taking knowledge and behavior?

2 Related Research

2.1 Youth Online Risk-Taking

Research suggests that there are two distinct differences in the internet use and risk-taking behavior of younger children and their teenage counterparts. First, though most young children and pre-teens have internet access, their access tends to be more limited and monitored than their older counterparts [28]. Second, reports of risk-taking behavior, understandings of risk, and the types of danger and risks encountered all increase for older youth [11].

Children and Pre-Teens. For the most part, younger children take fewer and less extreme online risks, likely due in part to their frequently more restricted access and use [11, 17]. However, it does not mean that younger children are immune from unsafe experiences or taking more dangerous risks; in a study of 1700 primary school students in 4th-6th grades, 40% of participants had experienced and felt shocked by inappropriate content, and 7.5% of study participants reported meeting a stranger from online in real life with 21% of that group doing so alone [30]. Encouragingly, multiple studies show that even young children tend to be aware that risks exist, which is important

because awareness is the first step in taking action [2]. However, this awareness of risk is sometimes met with an incomplete understanding of what online risks are, more specifically, or a lack of understanding of how to respond [2]. In a study of pre-teen online practices and risk-taking in New Zealand, the 39 nine- to 12-year-old participants reported few options responding to experienced risks, and the responses were usually reactionary (i.e. closing inappropriate pages) versus preventative [22]. Additionally, participants viewed some risk-laden encounters like cyberbullying as inevitable and equally likely to happen to everyone regardless of behavior.

Unlike these youth's assessment of risk as being inevitable and equal, the literature suggests that exposure to risk is not randomized and equal across subpopulations. Rather, there are characteristics that create unequal risk exposure and risk-taking behavior even in younger youth. Across the board, younger children are at a higher risk of cyber scams [11], and those with vulnerable off-line circumstances like family challenges, low self-esteem, special education needs, physical disabilities, and communication disabilities are more likely to engage in risky online behavior [11, 13]. Socio-economic status may also influence the availability of risk-taking opportunities. In a study that examined online risk alongside socioeconomic factors, students from the lowest-economically ranked participating school were more likely to talk about social networking and things like "Facebook popularity" despite only being nine and 10 years old [22]. Additionally, although these students comprised only one fifth of the study's sample, they reported being online the most—which increases the amount of time available to encounter or take risks—and represented 83% of reported Facebook contact risks, 70% of unknown friend request reports, and two thirds of cyberbullying comments [22]. Finally, some studies suggest that gender influences younger youth's risk-taking exposure and behavior; multiple studies suggest that even though girls are heavier users of social media, boys display more risky behavior and girls are more inclined to practice better security behavior [6, 11].

Teenagers. Teen risk-taking behavior looks slightly different and is more prolific than that of younger children. In a study of 68 teens' weekly online risk behavior and encounters, 82% reported experiencing at least one risk event, and participants averaged three total risk events over the course of the two-month study. Encouragingly, 87% of the risks recorded were low to medium[1] in nature—like a friend posting an unflattering photo online—meaning they posed zero or minimal long term consequences and elicited little to no emotional response from the teen. Of these low to medium level risks, 84% were encountered by the youth but not sought [35]. Research also indicates that teenagers are generally aware of what risky behaviors are, particularly when it comes to social media [37], but also tend to downplay the severity of online risks or become desensitized to them [35].

Unsurprisingly, teens who are categorized as "high risk" offline also tend to be more high-risk online in terms of risk-taking and risk exposure. Interviews with 8 foster families found that foster teens—whose life experiences often leave them prone to attention- and affection-seeking behavior—partake in risky online behaviors like meeting up with strangers in real life and sexually explicit exchanges [5]. Similarly, teens who have low self-esteem or self-image can sometimes encounter more risk online if they use internet connections as a means of escape [7]. For example, if a student has fewer friends at

[1] Risk level metrics/measures mentioned in this literature review reflect the language of cited articles and are not defined by the National Institute of Standards and Technology.

school and low self-esteem, the internet offers a space to "reinvent" oneself, which can be a positive thing, but can also lead to risk-taking behaviors like meeting strangers online to make new friends. Alternately, students who have positive social relationships with parents, teachers and friends tend to carry those positive relationships online where they engage with friends and peers and are less prone to encountering or taking risks [7, 29]. Other forms of "high risk" behavior can be created and perpetuated by online experiences themselves: experiencing a negative or dangerous event—particularly on social media—can lead to PTSD symptoms, which in turn makes children vulnerable to engaging in more risk as a coping mechanism [23].

Finally, teenagers experience internet addiction more than their younger counterparts, which creates more exposure to encountering or taking online risks. Specifically, teenage boys are more likely to display addictive tendencies than girls [14], with those addictive tendencies often revolving around high-risk activities like sexual exchanges and violent games that increase in frequency with age [25]. While resilience has been found to help protect teens and plays a moderating role between both online risk exposure and negative impacts and addiction and risk exposure [34], resilience is deeply intertwined with efficacy, and youth need guidance and knowledge about cybersecurity and safety in order to develop and benefit from resilience.

2.2 The Developmental Role of Risk

Adolescent development theories have been increasingly rejecting negative stereotypes of "impulsive" youth risk-taking, instead pointing out the developmental importance of exploratory risk-taking behavior that results in learning and resilience [26]. Research is beginning to make its way into examinations of youth's online risk-taking behavior as well [32]. Wiseniewski and colleagues [34] applied adolescent risk theory—an approach traditionally used to examine offline adolescent risk choices like substance abuse and sexual promiscuity—in a survey of 75 teenagers' responses to online risk exposure. The study found that the more resilient teenagers in their study were able to encounter "higher levels of online risk without incurring serious, psychological harm," and suggested that allowing teens more freedom to explore online was an important way to develop the resilience needed to navigate future encountered risk [34]. Other studies have similar conclusions, finding that resilience helps create a balance between the numerous benefits of online opportunities and the potential exposure to risky content or behavior that inevitably arises alongside these opportunities [31], and that learning how to actively cope with risky online situations enhances resilience and lessens the long-term effects of experiencing online stressors [23].

Studies that examine youth's responses to experiencing online risk also show that such responses to risk exposure are nuanced and do often reflect resilience in the face of encountered risk. For example, a large-scale survey of 25,101 European children aged 9–16 found that few youth who reported encountering risky content or interactions online—for example, sexting or communicating with a stranger—reported that the experience was harmful, negative or troubling [28]. Further, when those youth did encounter an online risk, many of the youth had a range of strategies including blocking suspicious strangers and reporting the incident online, and a majority reported knowing what to do in the face of undesirable interactions on the internet [28].

Finally, when thinking about resilience it is important to consider the level of risk that leads to the promotion of resilience and agency. From a developmental perspective, resilience is most likely to be built through the process of learning to navigating low to medium-level risks, and is more difficult to develop in the face of repeated exposure to extreme risk [23, 26]. Fortunately, studies suggest that a vast majority of the risks that youth tend to encounter carry a low to medium level of risk [35], suggesting that being free to experience and learn how to navigate online risks is actually an important part of youth's participation as strong and safe online users. Indeed, in these low to medium level risk scenarios, youth reactions to encountered risk included ignoring the situation, taking active measures to confront the situation, removing themselves from the risky scenario, fixing the problem, and asking for help [35]. Through this process of choosing appropriate reactions to lower-level risky scenarios, teens are able to build positive online social skills and risk resilience which in turn equip them with the skills needed to navigate future potentially risky scenarios.

2.3 The Role of Parents in Youth Online Behavior

Despite a resilience approach to youth online risk-taking suggesting the importance of experiencing risk to learn and grow, youth should not be alone in their efforts. For all youth, social relationships including friends and teachers but especially parents provide a source of support and bear weight on risk-taking awareness and behavior [28]. Youth of all ages report parents as an important resource in understanding and mitigating exposure to online risk [28]. In general, younger youth tend to experience more supervision than their teenage counterparts, and that supervision has been shown to have the potential to positively impact youth's online risk-taking behaviors. In a study of 1700 4th–6th grade students' internet use and supervision, those who reported some level of parental oversight were more likely to know everyone they interacted with online (versus interacting with strangers), and less likely to pass personal details and photos to unknown people than students who reported no parental oversight at all [30]. Similarly, in a study of the risks that 68 teenagers took over the course of eight weeks, only eight reported incidents involved high-risk situations, and parents were actively involved in mediating these high-risk incidents [35].

Finally, when it comes to parental risk mediation, the way parents choose to approach mediation and the relationships fostered by those approaches are important. In general, strong parent relationships have been shown to be risk-protective [10], while a lack of strong parent relationships can increase youth's exposure to risk and decrease their resilience in the face of online risks [16]. Further, mediation technique matters: more restrictive and suppressive forms of mediation (e.g. monitoring apps, access restriction) resulting in youth being less likely to disclose their online behaviors to their parents [18], and also being less able to learn how to develop resilience in the face of risk [34]. Alternately, "enabling mediation" [15] and other active mediation techniques—including interactions like asking questions, discussing, or modeling practices—have positive and resilience-building impacts on youth [24].

3 Methods

To understand how youth and parents define and understand youth online risk-taking, we conducted semi-structured interviews with 40 youth/parent dyads in spring 2021.

3.1 Recruitment and Participants

This study was approved by the Institutional Review Board (IRB) of (blinded for review). A contracting research firm recruited 40 youth/parent dyads using a preexisting user database. These dyads included four youth from each grade from 3rd through 12th and one of their parents. The youth participants ranged in age from eight to 18, with 21 identifying as male and 19 identifying as female. The parent participants ranged in age from 31 to 59, with 35 identifying as female and five identifying as male. For the purposes of data collection and analysis, dyads were sorted by youth grade into three categories: elementary school (ES; 3rd through 5th grades), middle school (MS; 6th through 8th grades), and high school (HS; 9th through 12th grades). In total, there were 12 ES dyads, 12 MS dyads, and 16 HS dyads.

3.2 Instruments

Data were collected using a pre-interview questionnaire and a semi-structured interview. The two instruments were designed to be mutually inclusive. The questionnaire collected demographic data, basic definitions, and positions about risky online behaviors and served as a pre-thinking exercise for participants for the interview. The interviews were curated to allow participants to expand upon and discuss their answers from the questionnaire.

The questionnaires were scaffolded to appropriately suit participants' age and role, resulting in three versions: one for youth participants in grades 3–5, one for youth participants in grades 6–12, and one for parent participants. The two youth questionnaires were identical in question number and content, with the only differences being the rephrasing of questions and response options in age-appropriate language. The youth questionnaires included questions about demographic information; general technology use; and online risk. The parent questionnaire consisted of the same topics but was longer because parents were asked about both themselves and their children.

The semi-structured interview protocols were similarly scaffolded to appropriately suit participants' ages and roles. A semi-structured interview format was chosen for this study because of the afforded ability to both predictably discuss common topics with each participant, while also acknowledging that the variety of participants' knowledges and experiences surrounding online privacy, security, and risk would require some flexibility in the nature of follow-up questions and discussion 1. The two youth interview protocols were identical in scope, sequence, and content, with the only differences being attributable to adjustments for age-appropriate language or question phrasing. Youth participants were asked anchor questions about their knowledge of and behavior surrounding online risk, and parent participants were asked anchor questions about both their own knowledge of online risk as well as how they view their child's knowledge and behavior surrounding online risk.

Two members of the research team—one quantitative expert and one qualitative expert—created an initial draft of the questionnaires and semi-structured interview protocol tools using the research questions and extant literature as a guide. From there, the content and quality of both data collection tools were refined over the course of an iterative four step process. First, a survey expert evaluated the questionnaire tool and provided feedback on the formation of the questions, clarity, and response options. Second, research colleagues and four K-12 teachers evaluated the content of both tools and provided feedback on the phrasing of questions in both tools considering the audiences, as well as the alignment of the questions with the research questions. Third, two members of the research team used a talk-aloud protocol to conduct cognitive interviews of both tools with three youth (one elementary schooler, one middle schooler, and one high schooler). Finally, the tools and data collection procedure were piloted with three youth/parent dyads 8. After each iteration of review, both the questionnaire and interview tools were revised by the researchers based on comments, feedback, and youth responses/behavior during the cognitive interviews and pilots.

3.3 Procedure

All data collection occurred remotely over Zoom[2] and was audio-recorded for transcription. The youth/parent dyads signed informed consent and assent forms (for youth older than 12) and were briefed about the study together. After the briefing, the parents and youth completed the pre-interview questionnaires and interview process separately to reduce the chances of influencing each other's responses. We requested that parents complete the interview process first followed by the youth second to reduce any youth impression that we may be talking with their parents about their (youth's) interview responses. All dyads agreed to this structure except two, who swapped due to time obligations. Each of the 40 data collection Zoom calls were scheduled for 90 min, and the first author conducted all 80 interviews for consistency. Participants were compensated for their time with cash gift cards: parents received $75 and youth received $25. All data were collected anonymously, and the data collection process yielded 80 complete questionnaires and 546 pages of single-spaced interview transcripts.

3.4 Data Analysis

The qualitative data analysis for this study proceeded across two cycles and contained both inductive and deductive coding [27]. Cycle one began with the creation of a code deck by all three researchers using the research questions, extant literature, pilot interview data, and researcher memos from the interviews, and resulted in 84 first-cycle codes. This initial code deck was used by the first and third author to code a random selection of nine full dyad transcripts (three from each grade band) using NVivo coding software. As this coding took place, the two researchers also used inductive codes to label findings not

[2] Any mention of commercial products or reference to commercial organizations is for information only; it does not imply recommendation or endorsement by the National Institute of Standards and Technology nor does it imply that the products mentioned are necessarily the best available for the purpose.

otherwise covered in the deductive code book. The full research team then met to discuss the results of the initial coding cycle, resolve any coding discrepancies, and refine the code deck. This process was repeated two more times with different samples of three dyad transcripts to fully refine the code deck. Once this process was complete, the first and third author coded all 40 dyad transcripts.

After first-round coding was complete, the research team met to discuss patterns and themes using the research questions to frame the conversations. To fully capitalize on the analytic possibilities of our dyadic structure, we chose a progressive analysis strategy that involved four steps: (1) examining participants at the individual level, (2) comparing participants *within* the same peer groups (youth within each grade band, then all youth, then all parents), (3) comparing participants *across* peer groups (comparing all grade bands, then all grade bands with their respective parents, then all youth with all parents), (4) comparing pairs at the dyad level (individual youths with their parents), and finally, (5) comparing all dyads.

4 Results

The results of this study are evidenced with direct quotes from participants and cited with an alphanumeric identifier. In the identifiers, the "Y" or "P" indicates "youth" or "parent," the number is the dyad code, and the ES/MS/HS indicates whether the youth participant of that dyad was an elementary (3^{rd}–5^{th}), middle (6^{th}–8^{th}), or high school (9^{th}–12^{th}) student. For example, P04MS would be the parent of dyad number 4, whose child is in middle school.

4.1 How Do Youth Define and Understand Online Risk?

Youth Definitions of Online Risk. Our youth participants primarily defined online risk through the use of example. These examples included both taken (i.e., choice-based) and encountered (i.e., external forces finding them) risks. Their risk examples fell into 7 main categories: gaming, going to suspicious websites, being hacked, interacting with strangers, being targeted by strangers to reveal information, sharing sensitive information with others, and social media. Youth's provided risk examples showed no consistent patterns across ages or grade bands with the exception of social media, which was more frequently cited by middle and high schoolers. The range of these categories suggests that youth feel like being online, in general, poses some inherent risks, and that an online user is accepting some level of risk by engaging in common activities like gaming, web-browsing, and using social media.

How Youth Understand Online Risk. The range of youth's definitions and the way they talked about risky activities revealed that youth understandings of online risk are nuanced. Youth recognized that risk-taking is not monolithic, and that some risks are riskier than others. For example, when asked about whether he makes risky choices online, Y07ES explained that "I usually don't, really. Maybe rarely, just once in a while, but it's usually not that big of a risk. Like maybe…my friend will just send [a Zoom link] in Gmail or something and I could press the link…they're not risky [risks]." Y30HS similarly discussed the idea that online risks are varied in nature and added the element

of individual context, explaining that online risk and its consequences "depends on what kind of person you are. If you're a school kid, then yes [there are consequences to certain risks], but if you're an adult just trying to make money, that's a different thing." For these youth, the idea of "online risk" was context-dependent and varied across situations and people. In these ways, youth saw themselves as having agency in the risk-taking process by deciding which risks were low-impact or worth the potential benefit, and generally felt positively about their ability to make sound risk assessments and choices.

There were two notable factors that influenced how youth understood the "riskiness" of different risks, and how they determined which risks were worth taking. The first factor was the availability of risk mitigation strategies. Youth participants named a variety of risk mitigation strategies, including exiting suspicious-looking websites, not responding to messages from strangers, getting help from their parents, and only posting or providing certain amounts of personal information (e.g., only using a first name). Most of these mitigation strategies were described as being reactive versus proactive in nature. For example, Y20MS did a virus scan after accidentally clicking on a link that took him to a website full of "not so good stuff" to "make sure that there's nothing on my computer." Y33MS explained that "once I've seen that it says 'insecure' at the top, I've gone immediately out of it…once it says insecure I'm out of there." When youth felt like they were aware of a mitigation strategy to counteract certain risks, these risks were deemed more acceptable or less risky. This was demonstrated by Y04HS, who admitted that "I use pirate movie sites because some of the movies I want to watch are like $40 and I don't want to pay $40…I know it's risky, but I've been doing it for years, and I know I've learned how to avoid the pop-ups by quickly closing it and [using a monitoring app]." Youth across grade bands cited risk-taking rationales, with middle and high school youth being more likely than their elementary counterparts to offer a risk-taking rationale or mitigation strategy for the risks they described.

The second factor influencing youth's thinking about risk was their understanding of trust and who can and cannot be trusted online. Trust emerged as an important component of youth's assessment of how risky certain risks are—or if certain activities were risky at all—and their decisions about whether to make certain potentially risky choices. For example, Y12ES clarified that "no one really that you don't trust should know your private information," and Y26ES noted that "some websites you can't trust at all."

In terms of risk-taking reasoning, while some youth attributed risky behavior to ignorance or stupidity, youth across ages and grade bands explained that risks were often taken for some sort of benefit that justified the risk. These risk-taking reasons included social benefits like making new friends and getting followers on social media, as well as non-social benefits like receiving a reward or accessing content, or satiating a curiosity. For example, Y21MS explained a TikTok trend that she participated in in which "there would be like 30 people inside of a group chat," and the 30 people would make different group chats so everyone could "just like each other's posts and stuff to get more likes and followers." Y21MS noted that while such groups "could get overwhelming" and that joining group texts with strangers was risky, she chose to participate "for the beginning so I got the follow and the like." Similarly, Y16ES described making a risky choice in an online game to share an in-game reward with a stranger. She acknowledged that "I knew it was risky because they might just leave the game…but I thought maybe they could be telling the truth."

The youth in this study downplayed the consequences of risky online behavior, articulating that many consequences either did not apply to them or could be mitigated through a variety of strategies. This understanding often led the youth to conclude that they were not making risky online choices. For example, when asked if they make any risky choices online, Y11HS concluded "No. I always asked to download things…I probably haven't done any risky things on the computer." Similarly, Y24HS noted that "I try not to [take risks] just because I know the consequences, and if I'm ever involved in one, I would just try to remove myself from it." Some youth also implied that the potential reward of some risks made the risk worth it, and couple of youth even went so far as to point out that some risks have positive outcomes like meeting "a nice person" (Y18ES) and "providing moments of failure in order to learn" (Y22HS). This idea of positive risk-taking was eloquently summed up by Y02MS, who explained that "there's not just bad people on the internet, so maybe you could make a friend. Which might be a risk, but it might be a good one to take if you ever meet that friend and they turn out to be who they say they are and they're nice."

Finally, some of youth's understandings about consequences seemed attributable to experience bias, with many of the youth who reported making risky choices online noting that these risky choices either did not have consequences, or had very minor consequences that were able to be mitigated. These consequence-less risks included everything from clicking on a presumed safe meme website from a friend that turned out to be an inauthentic link (Y20MS), to sharing a full name and home address in a math game chat room (Y35HS). Regardless of the reason, the youth's comments about the consequences of risky online behavior collectively demonstrated understandings that *either* risk is not an overly worrisome threat because "nothing probably will happen because nothing happened to me" (Y03MS), *or* that online risk-taking is something that other kids do, but that "I stay pretty safe" (Y06ES).

Youth Risk-Taking Behavior. When asked if they could remember taking any risks online or engaging in any risky behavior, the youth participants' responses were mixed and held no patterns based on grade range. There was a near-even split between youth who admitted taking a risk and youth who felt like they did not take risks, and there were no patterns in risk admissions or denials across ages or grade bands. Among youth who described making a risky choice, a majority of the described risks were in the past and made when the youth were younger. Examples include Y02MS who named a risk that happened when she was in third grade, and Y35HS whose risk story began with "when I was a small child…" All of the described risks were related to games or online entertainment, social media, sharing personal information within games or social media, or web browsing. Several youth spoke of their risks reflectively as points of growth. Y39HS described the risky choice of clicking on a "fishy" link before concluding that "I did have to click on it and learn from my mistake." Y02MS faced no consequences from her risky choice of secretly opening a Pinterest account in third grade, but described the incident as "not the best choice and it made me think more about it."

The rationales of the youth who felt that they did *not* take risks online varied, but, when provided, were all connected to some sort of preventative risk mitigation strategy that the youth had in place. These mitigation strategies included, in order of frequency: knowing to remove themselves from a potentially risky situation or website before any

damage could be done; getting parental permission; staying on a few known sites; and using false information to protect personal information.

With a couple of notable exceptions—like Y35HS who shared their full name and address online—youth participants' defining examples, personal examples, and understandings about risky online behavior and its consequences were low-impact, and none carried serious consequences. The youth in this study overwhelmingly viewed online risk-taking behavior to be a nuanced and multi-faceted aspect of existing in the online world. This led to the youth being risk-tolerant of the risks that they could identify, and undeterred from participating in the online space, even when aspects of that space may contain risk.

4.2 How Do Parents Understand Youth Online Risk-Taking, and What is the Alignment Between Youth and Parent Understandings?

The parents in this study believed that youth their kids' age took the following risks online: interacting with strangers, over-sharing personal information, making poor security choices, viewing inappropriate content, and using social media and games. While this list topically overlaps the youth's risk definitions, there was less alignment of stated risks at the dyad level than at the full group level (i.e., individual youth/parent pairs were not frequently naming the same youth risks). For example, when asked what kinds of risks youth her daughter's age take online, P32MS named the choice-based risk of "downloading random things." While this was a response echoed amongst youth participants, it was not reflected by P32MS's daughter, who envisioned online risk as being interactive, and defined risky online behavior as "people you don't know very well asking for personal information."

Parents of younger youth tended to be more worried about their kids viewing inappropriate content and interacting with strangers. P06ES worries that youth her son's age are at risk of "giving up too much information, telling a person they don't know where they live because they assume it's a kid [and] a person can lure them." P26ES worried about her son talking to strangers on games and apps. In contrast, parents of older youth were generally more worried about poor security choices and the long-term consequences of over sharing on social media. For example, P11HS worried about her son "just doing something stupid and then it's on the internet forever and it can ruin your whole life…when I think of risky behavior, that's what I think of. I think of him doing something stupid and it's going to haunt him when he's an adult."

Across the board parents agreed that most youth online risk-taking was attributed to one of four things: "not knowing what they're clicking on [or] knowing what exactly they're doing" (P10ES), "a lapse of judgement" (P36HS), "the peer pressure…the friends" (P19MS), or "their desires and things they want" (P16ES). These understandings of risk-taking reasoning varied by the age of the children, with parents of elementary school youth attributing risk-taking reasoning to ignorance, middle school parents being the most worried about peer pressure, and high school parents finding the primary reasons for risk-taking to be social positioning and lapses of judgement or foresight. Middle and high school parents were also the most likely to conclude that "they (youth) are at the age of risky behavior, right?" (P02MS), suggesting that encountering risk online is

an expected outcome of being a young online user. Unlike youth participants, no parents suggested that risk-taking might be beneficial or named any positive risk-taking reasonings.

Like the youth, there was an even split between parents who believed that their kids did *not* take risks online, and those that were sure that their kids *did* take risks online. Also like the youth participants, parents who believed that their child took online risks most commonly cited low-impact risks with only mild potential consequences like "going to different sites…[or] getting onto Discord on different server groups (P19MS), posting "weird pictures or little TikTok dances" (P10ES), and "befriend[ing] people who she's met online" (P21MS).

Though both parent and youth participant groups *as a whole* were evenly split on whether or not the youth in this study were risk-takers online, this alignment did not exist at the dyad level. Of the 19 youth who said they did not take risks online, six had a parent that specifically named a risk their child had taken, and another two parents were sure but did not provide examples. Similarly, 14 parents were sure their children were taking risks online, but only seven of these children agreed. Dyad 33 was an interesting example of this potential disconnect in action. When asked if he had made any risky choices online, Y33MS responded in the overall negative, explaining that he has "gone on risky websites, but then once I've seen that it says insecure on the top, I've gone immediately out of it." In comparison, P33MS felt sure that her son had made unmitigated risky choices online, describing an incident in which he and some friends were talking about another boy in their class in a way that "could eventually lead to something that is bullying" and that such behavior might be "use[d] against [him]" in the future. This example illustrates discrepancies born of different ideas about what risky online behavior is: P33MS saw risk in the possibility of future reputational damage and the shared idea across parents in this study that "once you put it on the internet, it is there forever," whereas Y33MS was conceptualizing risk as something that can be avoided with a set of mitigation strategies.

4.3 What is the Perceived Role of Parents in Youth Online Risk-Taking Knowledge and Behavior?

Ten parents and 10 youth *overall* named parents as a resource for support with risky online choices and their consequences. However, only three dyads were aligned on this point. Specifically, the parents of elementary schoolers who felt like their children were not risk takers also frequently described themselves as risk-mitigators, though there was little alignment in terms of what their youth were actually doing or little impact on their or their child's awareness of risk. For example, P22HS explained that various kids Y22HS's age make risky choices including things like sending "garbage texts," but that "I know he doesn't…[because] I check his phone." Y22HS, however, commented that "I know I've done something stupid in terms of social media" and described giving his number to a bot in a "click to win something" site that proceeded to send him lots of spam texts. In this example, P22HS was attempting to mitigate through device—and specifically text—monitoring, and felt secure about her son's online risk-taking because of that monitoring. In reality, however, there was evidence of risky behavior in the very texts that she was checking, and she either did not notice it, did not check at the right time, or did not flag the risk.

Further, youth and parents talked about parents-as-mitigators slightly differently. The youth who cited their parents as a risk resource noted things like "[they] (parents) just said that I could tell them if anything happened that made me feel uncomfortable or scared or unsafe…and were telling me if I needed a username for something what it should be or what it should look like" (Y02MS) and "plus I have my mom, who can also fix things for me" (Y04HS). For these and other youth who mentioned parents as a mitigating support, parents emerged as a trustworthy place to troubleshoot outcomes of risky choices that youth were not able to fully deal with on their own. One parent reflected a similar sentiment, explaining that "completely shutting them off…I just don't think that's a solution either. Because then, I'm just afraid that she will stop sharing things with me…the channel of communication would be completely cut off' (P18ES). Many other parents, however, imagined themselves as risk supports through the mitigating work of limiting access to spaces and opportunities to take risks. For example, P33MS noted that her son "is just not going to be allowed to join social media for some time," and P22HS checks her son's phone to see if he is engaging in risky behaviors. Despite these monitoring efforts, however, parental monitoring was not related to whether youth reported making risky choices, with youth of high-monitoring parents still reporting making risky online choices at similar rates to their non- or less-monitored peers.

Of the 15 parents who did not think their children took risks online, five were elementary school parents. Of these five, all but one positioned themselves and their role as mitigators or gatekeepers of safety as a rationale for their response. By contrast, the 10 middle and high school parents who felt that their children were not risk takers cited either personality-based reasons or did not provide a rationale for their response.

Similarly, of the parents who felt like their children were risk-takers, the parents of elementary and middle school youth referenced themselves and their roles as mitigators in their understandings of their children's risk-taking.

Finally, in both youth and parent understandings of parents-as-mitigators of youth online risk-taking, the primary mitigation strategies included conversations and device monitoring. In particular, conversations about risky choices and their consequences had the most directly observable impact on youth's understanding of risk and online risk-taking. For example, P24HS described sexting as a particularly risky choice for youth her son's age and reported that "he and I have definitely talked about that…I told him about [an] incident and how serious it was, and how this kid's future is pretty much ruined just for a stupid mistake." This conversation was seemingly echoed when Y24HS gave "sending inappropriate things to others…[and] sharing private pictures" as examples of risky online choices that should be avoided. Additionally, a few youth described their parents as "fixers" who were available in the case of emergency, like Y07ES who noted that "my dad had to once again get rid of the virus [and] put in a new security thing" when his online gaming led to a computer virus.

5 Discussion

Previous studies have suggested that youth do not perceive many online risks as being particularly harmful or negative and do not frequently encounter high-risk scenarios in their online lives [28, 35], and that youth of all ages are prepared with strategies

to combat online risk when they do encounter it [28, 23]. Our study supported these previous findings with 40 youth in the United States through a unique, dyadic lens that examined broad understandings of youth risk-taking understandings from the family perspective.

The youth participants in our study primarily named mild risks and displayed a confidence in their conversations of risky online situations that—even if it was at times misplaced—created a sense of empowerment surrounding online risk. While it is possible that the youth's naming of few and mild risks could have been attributable to the context of the study (i.e., youth may be uninclined to admit to engaging in risky behavior to a relative stranger over Zoom), their named risks in general, lack of concern about consequences, and reported use of mitigation strategies collectively point to other possibilities about how youth envision online risk. The youth displayed a real and active understanding of risk mitigation that suggested a prevailing view of online risk-taking as navigable, part of the process of being online, and occasionally even beneficial. Collectively, these understandings suggest that youth—albeit subconsciously—approach online risk-taking from a resilience perspective and are prepared to capitalize on risk as an opportunity for learning and growth [26]. This holds important implications for how we think about teaching youth about online risk, and points to the importance of including resilience building, understandings of trust, and mitigation strategies into conversations about youth's online behavior. Common across allof these learning points is the necessity of reflection and intentional action. This necessity also points to the importance of helping youth recognize and weigh the outcomes of different responses to encountered risks, as well as the consequences of different risky choices so they can make informed decisions surrounding how to respond to risky online situations.

The parents in this study were not aligned with their youth in terms of their understandings of risky online behavior and were more likely than their children to view risk more simplistically as something that needs to be prevented to protect their youth from negative consequences. This was reflected in the number of parents who used restrictive monitoring techniques to help prevent certain risks from happening, particularly with their younger children. Because of this disconnect, youth were most likely to learn from their parents (if at all) when risk outcomes were negative but did not experience opportunities to learn from their parents how to do risk cost/benefit analysis, or what to do when the benefits of taking a risk might outweigh the costs. This is particularly problematic given the youth's views of risky choices as being agentive and, when viewed alongside the fact that a high number of parents did not believe that their children were taking online risks, revealed some challenges.

As a few youth and parents in this study confirmed, parents can be a valuable resource for helping youth learn how to navigate encountering online risks [10]. This is especially true when parents practice "enabling mediation" [15] and talk with their children about online risk, responses options, and how to navigate encountering risk online. However, the combination of restrictive monitoring approaches—which did not demonstrably impact youth's risky encounters in this study and which can negatively impact youth's willingness to seek their parents out as supports [18]—with the amount of parents who do not recognize or want to admit that their children actually take risks hampers the degree to which parents are able to serve as a guide in building their child's risk resilience.

This creates a situation where parents are well-positioned to help empower their children to be more resilient and conscientious risk-takers but are unable to do so due to an incomplete understanding of the importance of informed youth risk-taking and reflection. This points to the importance of working with parents to be more risk-tolerant, to shift their understanding of risk to being growth-mindset in nature, and to recognize their own potential in proactively helping their children become more risk resilient and risk reflective as online users.

5.1 Implications

This study has implications for parents, those designing tools and education for youth and parents, and future research. First, our study and others like it [28] show not only that youth understand online risk as a concept, but also that they are interested in thinking about how to mitigate it and be resilient [26] to keep themselves, their accounts, and their devices safe online. This study also suggests, however, that youth may not always be the best at recognizing some of their own risk-taking behavior or its consequences and need the most support and feedback in these areas. This requires that parents adopt the same understandings—that risk is an inevitable and even important part of youth's online lives, and that youth need support with navigating the potential consequences of their choices—and approach working with their youth as risk supports. To do this, parents might choose to re-frame online risk as a growth opportunity instead of as something that youth will "get in trouble" for doing, and work to clearly establish themselves as a support and conversation partner instead of a rule enforcer. Parents might also choose to replace or supplement their device monitoring (e.g., checking cell phones and setting use limits) with conversations and proactive feedback about different online actions, the consequences of those actions, and what steps youth might take to mitigate or avoid those consequences. Tool providers and those who create educational and support tools for parents should also keep these goals in mind, and design parent and family supports that encourage conversations about risky online behavior and give feedback about different risky choices and risk responses. Further, tool and content providers that cater to youth could also integrate opportunities to help youth recognize, reflect on, and choose appropriate mitigation strategies in response to various online risks into their tools and platforms.

This study also leaves room for important future research in the online youth risk-taking space. Our study captured youth and parent perceptions about youth online risk-taking at a single moment in time, but also revealed that both parent and youth understandings about youth online risk-taking may change as youth age from young children into young adults. This presents opportunities for meaningful longitudinal projects to track risk understandings and self-reported behavior of dyads over time to investigate how perceptions and youth/parent interactions about online risk develop over time, and how these changing interactions impact youth knowledge and behavior. Additionally, as we know that parents want and need more support in terms of helping their children be safe online users, research examining the effectiveness of different parent and youth education tools could provide valuable insight into how to best help parents and youth work to support youth's online risk understandings and behaviors.

6 Limitations

This study had several limitations related to its methodology and procedure. First, because of the COVID-19 pandemic, interviews for this study happened via video platform. This meant that, although we requested that individual participants complete the interview privately, there was a nonzero chance of youth/parent participants overhearing and influencing each other's responses or responding with the possibility of being overheard by others. Further, we asked participants to self-report taken risks online—a potentially uncomfortable or sensitive topic to discuss with a researcher via video—which likely influenced the responses or the degree of description in the responses that we received. Collectively, these limitations mean that it is possible that risky choices and encountered risks were underreported. Data for this study also belong to a broader investigation of youth and parent understandings about youth's online privacy, security and risk knowledge. In this greater study, the conversations about risk featured in this paper came after conversations about online privacy and security, which could have led to potential order effects impacting participant responses.

Second, to be eligible for this study, participants had to have access to video-capable technology, have a parent in the home with time to participate, and be interested in participating in a youth/parent dyadic study. By design, these sampling criteria excluded dyadic pairs with parents who were working or otherwise busy during data collection hours (4–9 pm) or who did not have the technological tools to participate, and included pairs with a parent who was drawn to participate in such a study, possibly impacting the results.

Finally, our study was limited by its cross-sectional design focusing only on parents and youth at one point in time. This study was not longitudinal, meaning we could compare dyads within and across age groups, but could not examine the progression of parental influence and youth knowledge of the same dyads over time. Further, our theoretical approach requires an understanding that youth knowledge is impacted by a variety of factors including things like school and peers, but we only examined the influence of parents. Each of these design limitations offer important potential directions for future research focusing on longitudinal data and/or more holistic approaches to understanding how a variety of factors are influencing youth at different ages.

7 Conclusion

The 40 parent-child dyad pairs in this qualitative study demonstrated a misalignment across their understandings of risk, risk-taking behavior, and the consequences of risky behavior online. The 3rd-12th grade youth were more likely than their parents to view risk flexibly, agentively, and as a context-dependent concept, but demonstrated little awareness of the consequences of online risk and were not always able to recognize risky situations or choices they have engaged in online. Conversely, the parents were more conscious of the consequences of youth online risk-taking behavior but were less likely than their children to view risk as nuanced or as an opportunity for learning or growth. In short, neither group on their own had a complete understanding of risky online behavior and have much to learn from each other.

Ongoing efforts to support families with nuanced understandings about risk and risk mitigation strategies are an important next step in thinking about how to prepare youth to be confident, resilient online users. With taking and encountering risks being an inevitable aspect of being an online user, youth should continue to view risk-taking as an agentive concept, but also incorporate realistic understandings about the possible consequences of risky behavior so that they can learn to mitigate potential harmful effects of such risky behavior. Similarly, because parents play such an active and important role in youth online learning, parents should move towards understanding most online risk as a learning opportunity for growth rather than something "bad" that needs to be avoided. Overall, the more that we can help prepare parents to hold these more flexible ideas and to have constructive conversations with their children surrounding online risk and mitigating the consequences of risky online behavior, the more resilient youth online users can become.

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