

Towards a Social Ecological Approach to Supporting Caseworkers in Promoting the Online Safety of Youth in Foster Care

KARLA BADILLO-URQUIOLA, University of Notre Dame, USA

ZAINAB AGHA, Vanderbilt University, USA

DANIELLE ABAQUITA, University of Central Florida, USA

SCOTT B. HARPIN, University of Colorado, USA

PAMELA J. WISNIEWSKI, Vanderbilt University, USA

This research examines how caseworkers collaborate with foster families to address adolescent online safety. We interviewed 32 caseworkers who worked with teens (ages 13-17) in foster care within the past 5 years. Using thematic analysis, we found that case managers are most concerned about sexual-related risks that result in physical abuse (e.g., sex trafficking) or online interactions that facilitated offline risks (e.g., runaway, illegal drug activity), rather than risks that only manifested in virtual spaces. Yet, inadequate training and insufficient support left caseworkers at a loss for how to address these challenges on top of their already heavy caseloads, often making online safety an afterthought. We call on the foster care system to place a higher priority in providing collaborative and socio-technical ecological support for caseworkers, foster parents, and children, so that early risk prevention in online spaces can support the safety and well-being of foster youth offline.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**.

Additional Key Words and Phrases: Child Welfare, Adolescent Online Safety, Case Managers, Social Ecological Support

ACM Reference Format:

Karla Badillo-Urquiola, Zainab Agha, Danielle Abaquita, Scott B. Harpin, and Pamela J. Wisniewski. 2024. Towards a Social Ecological Approach to Supporting Caseworkers in Promoting the Online Safety of Youth in Foster Care. *Proc. ACM Hum.-Comput. Interact.* 8, CSCW1, Article 135 (April 2024), 28 pages. <https://doi.org/10.1145/3637412>

1 INTRODUCTION

Child welfare workers (i.e., case managers) in the United States play a critical role in supporting families [66]; they serve as liaisons between foster parents, youth, and agencies, ensuring families receive the adequate training and services to support foster youth's well-being. Unfortunately, many child welfare agencies are under-staffed and under-resourced, resulting in caseworkers managing as many as 130 cases or more per year and leading to high turnover rates; some states have turnover rates as high as 30 percent [21]. These challenges often prevent case managers from providing the

Authors' addresses: Karla Badillo-Urquiola, kbadillou@nd.edu, University of Notre Dame, South Bend, Indiana, USA; Zainab Agha, zainab.gha@vanderbilt.edu, Vanderbilt University, Nashville, TN, USA; Danielle Abaquita, denielle.abaquita@gmail.com, University of Central Florida, Orlando, FL, USA; Scott B. Harpin, scott.harpin@cuanschutz.edu, University of Colorado, Aurora, Colorado, USA; Pamela J. Wisniewski, pamela.wisniewski@vanderbilt.edu, Vanderbilt University, Nashville, TN, USA.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than the author(s) must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.

© 2024 Copyright held by the owner/author(s). Publication rights licensed to ACM.

ACM 2573-0142/2024/4-ART135

<https://doi.org/10.1145/3637412>

appropriate support to families. Additionally, foster youth are particularly vulnerable to a variety of mental- and physical-health risks [70] such as suicide [16] and high-risk sexual behaviors, which may lead to increased chances of pregnancy and sexually transmitted infections [36]. This makes case workers responsible for the physical safety of foster youth, as well as their socio-emotional well-being. However, what happens when these challenges are combined with the ever-growing access to the internet and personal mobile devices [7, 58]?

Research has shown that adolescents (between 13-17) are at a unique developmental stage where they are prone to online risks because they often seek out new experiences that involve risks [13]. Teens in foster care are even more susceptible to higher levels of online risks [9], because of their past adversities. In prior work by Badillo-Urquiola et al. [10], foster parents confirmed that teens in foster care experience high risks, such as sex trafficking. Yet, foster parents often lacked the technology expertise to effectively manage 2teens' user of technology. As a result, they resorted to restrictive practices. This caused a tension for foster parents between trying to keep teens safe and providing them normalcy. Foster parents mostly attributed their challenges to a lack of support from caseworkers and foster care agencies [10]. To triangulate Badillo-Urquiola et al.'s [10] findings regarding adolescent online safety concerns based on the perspective of foster parents, we aimed to investigate this topic from the perspective of caseworkers. Our goal in doing this was to increase our understanding and problem-solving capacity in Human-Computer Interaction (HCI) [57] for better supporting adolescent online safety in the context of the child welfare system. While foster youth are ultimately the primary stakeholders when discussing their online safety, this research takes a social ecological perspective on youth resilience [72] that acknowledges that each child is embedded in a social ecological support system that can take a protective role against adversity. In the case of foster youth, foster parents and caseworkers are two important secondary stakeholders that play this important role. Therefore, to understand how case managers work to address the online safety concerns of foster youth (ages 13-17), we posed the following high-level research question:

- **RQ1:** *According to caseworkers, what are the most prevalent risks encountered online by youth in foster care?*
- **RQ2:** *How are caseworkers trained to manage these situations?*
- **RQ3:** *How do caseworkers work with foster families to address online safety concerns?*

To answer these questions, we conducted semi-structured interviews with 32 caseworkers that had managed cases of teenagers between the ages of 13-17 years old within the last five years. We used thematic analyses [14] to understand how case managers address online safety concerns and the types of training they receive to prepare them for these challenges. We found that even though caseworkers talked about risks related to foster youth running away from their foster care homes, participating in illegal drug activity, and engaging in physical fights, caseworkers were most concerned about online sexual risks, emphasizing on those related to sexual exploitation (e.g., sex trafficking). This was mostly a result of case managers primarily being trained to focus on more severe risks that occurred in the physical realm and often not receiving more general online safety training. Case managers felt that while they received a lot of training on more imminent risks, like sex trafficking, it was often inadequate. They also felt that they are overburdened with responsibilities in managing online safety compared to other stakeholders (like foster parents or residential homes). To further investigate this interplay between case managers and foster parents, we compared our results with those of Badillo-Urquiola et al.'s [10] recent interview study with foster parents on how they managed the online safety and technology use of foster youth at home. Our comparison confirmed that both caseworkers and foster parents do not receive proper preparation or training to be able to manage adolescent online risks, and struggle with being

overburdened by responsibilities. Yet, the key finding from this comparison was that caseworkers have more authority than foster parents in terms of the child's case plan, yet caseworkers are less aware of the risks youth experience. Foster parents, while having less authority, are more aware of the risks their teens face.

Ultimately, our findings urge researchers to question whether online safety should be prioritized within the child welfare system and at what level. We strengthened our comparison by utilizing the Social Ecological Model of Resilience as a theoretical lens to analyze our findings. This framework posits that an individual's resilience is shaped by a multifaceted of factors embedded within several interconnected systems (e.g., individual, community, society, etc.). We conclude by recommending areas within the social ecological model of adolescent resilience where programs, practices, and policies can be enhanced. In summary, our work makes the following contributions:

- In-depth analysis of the challenges caseworkers encounter in managing their legal responsibilities while protecting foster youth from online risks.
- A novel comparison between the social ecological support systems (caseworkers and foster parents) of foster youth in relation to their online safety.
- A social ecological research approach that triangulates and connects issues from different stakeholders' perspectives regarding the care and safety of foster youth.
- Recommend areas within the social ecological model of adolescent resilience where programs, practices, and policies can be enhanced.
- Implications for designing technological systems of support that can encourage communication and collaboration between caseworkers, foster parents, and youth with the goal of protecting youth from severe online risk experiences.

Next, we provide an overview of our theoretical framing followed by a synthesis of prior HCI work on the topic of child welfare.

1.1 A Social Ecological Approach to Foster Youth Online Safety

To effectively understand the interplay between caseworkers and foster parents in how they address and impact foster youth online safety, we implement the social ecological perspective of adolescent resilience [72] as the theoretical lens to understand the multifaceted nature of adolescent online safety for teens in foster care. Adolescent resilience theory is a strength-based approach developed to explain divergent outcomes related to various teen risk behaviors, including substance abuse, violent behavior, and sexual promiscuity [23, 78]. Resilience is an individuals' ability to thrive in spite of significant adversity [78]. A key component of resilience theory is that resilience cannot occur in the absence of risk [23]. Instead, it is in the interaction between the individual and the environment where teens can acquire the necessary resources to overcome adversity to achieve successful outcomes.

These interactions are modeled in Bronfenbrenner's 1970s conceptual model [15], The Social Ecological Framework, which has been widely used within several contexts, such as child abuse [29], youth violence [68], and resiliency [72]. This theory postulates that our behaviors and experiences are affected and shaped by a multifaceted of factors. These factors are embedded within an individual's environment, which consists of several interconnected systems at varying dimensions (see Fig. 1): intrapersonal (individual), interpersonal (micro- and meso- systems), community (exosystem), societal (macrosystems), and time (chronosystem). The first level of the model is the intrapersonal or individual level which includes factors directly related to the teen's biology or characteristics. The next level is the interpersonal level or microsystem level which are considered the close social relationships (e.g., foster family or friends). Then there is the mesosystem level, which is the interactions that happen among the microsystems (e.g., communication between

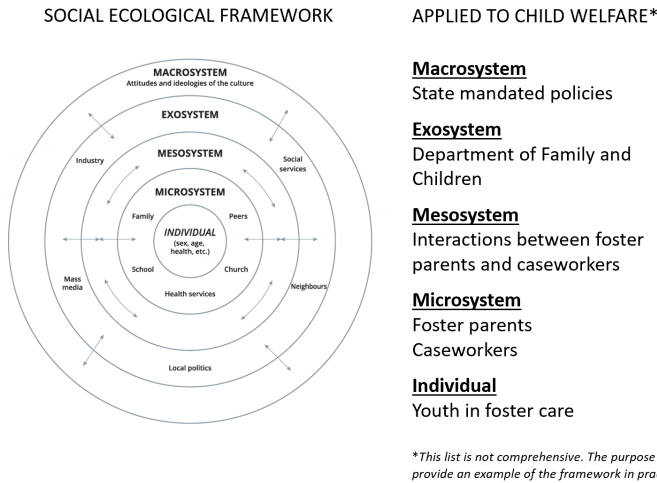


Fig. 1. Bronfenbrenner's Social Ecological Framework by Hchokr licensed under CC- BY-SA 3.0. via [Wikipedia](#).

caseworkers and foster parents). The community level or exosystem which typically are the more distal social interactions (e.g., neighbors, library). Finally, there is the macrosystem or societal level which encompasses cultural or social norms as well as societal policies. In this work, we largely focus on the mesosystem, that is the relationships between influential actors in a child's life. In our work, this would be the caseworkers and foster parents, as they both play the most important roles in developing and influencing foster youths lives. Comparing the roles of caseworkers and foster parents, our work contributes recommendations for addressing tensions within the mesosystem, that can help better support online safety for foster youth. We use the social ecological framework to guide our interview questions as well as develop recommendations and design implications that can address online safety at the intrapersonal, microsystem, and mesosystem levels.

2 BACKGROUND

To situate our study, we first provide a synthesis of HCI research focused on the topic of child welfare. We then focus on research conducted at the intersections of child welfare and adolescent online safety. Finally, we describe how our research takes a social ecological resilience approach to adolescent online safety by investigating the supportive role case managers provide foster families and foster youth.

2.1 Human-Computer Interaction Research in Child Welfare

Much of the recent research on child welfare within the SIGCHI and related communities has focused on investigating the challenges and implications of predictive technology, which uses government data to help caseworkers through algorithmic decision-making. Some of the earlier works closely related to HCI on this topic focused on understanding the use of Internet and Communication Technology (ICT) within the child welfare system [35, 65]. For example, Surowiec and Bansal [65] studied the acceptance of electronic systems within the child welfare system (CWS) and found that the technology's importance in performing their task impacted their perceived ease of use as well as the adoption of technology. This was followed by a call for more child-centric ICT approaches that prioritize foster youth needs in organizational and administrative processes in England [35].

Lecluijze et al. [44] investigated the effects of an early warning electronic information system for foster children at risk in the Dutch child welfare system and found that the new technology comes with new risks by introducing complicated collaboration between different organizations.

More recently, Saxena et al. [62] synthesized 50 peer-reviewed publications on computational systems used in the U.S. child welfare system and found that a majority of the focus has been on risk assessment, but does not consider the perspectives of caseworkers or theoretical approaches (e.g., child-foster parent matching). Saxena et al. [63] followed this by a qualitative analysis of ethnographic data from a child-welfare agency through a framework of algorithmic decision-making, which revealed the need for more strength-based algorithms that are balanced by human discretion, without over-relying on the algorithm. Additionally, there has been some research from the perspective of caseworkers which highlights the importance of caseworker-centered algorithmic design which moves beyond existing Artificial Intelligence (AI) models through case notes [64], contextual information [42], and human-AI partnerships for decision-making [41]. In this regard, Cheng et al. [18] found that caseworkers play an important role in reducing racial disparities by adjusting for the algorithm's limitations. Relatedly, Flügge et al. also investigated various aspects of algorithmic decision-making within the child welfare system, such as the perspectives of caseworkers on the use of AI [6] and building trust and transparency [27] with algorithms. They found that collaborative aspects around documentation and management are key to improving the value of algorithmic decision-making for caseworkers. While the critical role of caseworkers in relation to algorithmic decision-making is well-studied in the HCI community, less is known about their role in regards to other HCI relevant topics, such as their role in ensuring the online safety of foster youth. We overcome this gap by understanding the perspectives of caseworkers as key stakeholders in ensuring foster youth online safety. In the next section, we synthesize the literature on foster youth online safety.

2.2 Online Safety of Youth in Foster Care

While risks and safety for foster youth has largely been studied in offline settings, such as their vulnerabilities to substance use [55], health problems [22], and early pregnancy [56], research efforts focusing on the well-being of foster youth in the context of technology use and social media are fairly nascent. In a recent review of literature on foster youth and online safety, Badillo-Urquiola et al. [9] found that only 5 articles focused on the intersection of online safety, technology use, and foster youth, demonstrating the lack of research on this topic. Most of these articles focused on the advantages and disadvantages of technology access and use by older foster youth [19, 20, 34]. For instance, Gustavsson and MacEachron [34] found that technology can benefit foster youth by providing useful information and opportunities, social connections, and support. Yet, it can expose them to harmful information, threats, or unsafe experiences online. More recently, Kachingwe et al. [40] further added to these findings by conducting a focus group with older foster youth (16-20 years old) in which they learned that foster youth are often susceptible to risks such as sexual predation, catfishing, privacy risks, and often struggled with boundary setting online. To mitigate such risks, Fitch [25] conceptualized a framework for developing privacy guidelines that would help with safer social media disclosures for foster youth and help include them in the regulation of their technology use. These studies, which engage directly with foster youth, highlight the importance and critical need to study their online risk experiences and the develop intervention-based programs to keep them safe online.

Acknowledging that parents play a large role in the online safety of youth [5, 47, 73], Badillo-Urquiola et al.'s research was the first to provide empirical evidence on foster youth's increased vulnerability to online risks (e.g., sexual predation, sexting, sex trafficking) compared to other youth [10] from the perspective of foster parents. They found that foster parents struggle with mediating

their youth's online experiences due to a lack of trust and challenges with balancing authority with control, which often led to two extremes; no mediation at all, or complete technology restriction. However, the current literature has yet to explore the role of caseworkers in the online safety and risk mitigation of foster youth. Some work has explored technology-based interventions to improve communication between foster youth and their networks of support. Specifically, Denby et al.'s DREAMR project [19] engaged with current and former youth in the foster care system between the ages of 12 and 20 years old (average age of 17) and gave them smartphones with a mobile application to coordinate services with their social service providers and mentors. While the program served to empower youth and increase communications, design choices, such as contact list restrictions enforced on the phone, created tensions between youth and their providers, especially when they circumvented these controls. This work foreshadows how competing goals and tensions between foster youth and their care providers (e.g., parents, caseworkers) may complicate efforts to protect them from online risks that could impact their overall mental health and physical well-being. Therefore, we build upon these prior works to understand foster youth online risks and safety concerns from the perspective of caseworkers. We extend Badillo-Urquiola et al.'s [10] work with parents by providing the perspective of another key stakeholder – caseworkers, as they play a crucial role in foster youth development and safety. Additionally, we leverage prior findings from Badillo-Urquiola et al. [10] to draw comparisons and identify tensions between the perspectives of foster parents and caseworkers in ensuring online safety for foster youth. Our work will provide the CSCW community a more holistic view of how social workers and foster families work together to address adolescent online safety. By taking this holistic view, we can identify strategies for strengthening the microsystem and mesosystem levels of a foster youth's social ecological system.

2.3 Understanding U.S. Caseworkers' Role in the Protection of Foster Youth

Child welfare social workers in the United States are typically employed by state government agencies, such as the Department of Child Services, Department of Children and Families, Child Protective Services, etc. However, they can also work for nonprofits and community organizations. The day-to-day responsibilities of a caseworker can vary widely, including home visits, counseling, providing education and support to parents, helping families apply to social benefits, and more [28]. Yet, caseworkers are legally responsible for the physical and social-emotional well-being of foster youth [66]. Their primary job is to create a clear case plan (documentation that outlines the case objective, child/family strengths and needs, and the activities for meeting the needs and objectives of the case) for the child to be reunified with their biological family (or find a permanent placement under special circumstances). They are also responsible for maintaining a collaborative and supportive relationship with foster parents. Caseworkers often build their expertise through training, experience, and supervision [28]. They are typically required to have at least a bachelor's degree, however, the State and local child protection agency offer preservice and inservice training for caseworkers to orient them to the field of child protection [28].

Unfortunately, reports by the Casey Family Foundation show high turnover rates (20-40%) for case managers (optimal rates are below 10-12% because they are strongly associated with improved key outcomes in health care and public child welfare contexts) [4]. Previous research attributes this to caseworkers not being well supported and feeling undervalued [67]. In an attempt to understand and address these challenges, previous research explored the practices and needs of the child welfare system through the perspectives of current and former caseworkers [67]. Findings from Thompson et al. [67] assert that caseworkers have a multifaceted career in that they have high levels and a wide range of responsibility within the child welfare system. They also found that when caseworkers were not well-supported (e.g., resources, fair compensation, etc.), caseworkers

felt undervalued, which made them more likely to leave the profession. With high turnover of caseworkers in the child welfare system, the entire system is taxed, making it increasingly difficult to give foster parents and youth the support they need to thrive. Despite the challenges, caseworkers play a crucial role in maintaining foster youth well-being and relationships, as studies have shown that case managers with strong physical presence, good communication skills, and knowledge of resources and the child welfare system tend to have more effective relationships with foster parents [31, 49]. While prior research provides strong evidence of the important role case managers have within the system, it does not provide a strong understanding of the role case managers have in addressing online safety. Therefore, our study focuses on investigating how case managers work with foster families to manage foster youth's online safety along with providing comparisons with the perspectives of foster parents from Badillo-Urquiola's [10] prior work.

3 METHODS

In the following section, we provide an overview of our study design, data collection, and data analysis processes.

3.1 Interview Study Design

We recruited child welfare workers who were 18 years-old or older and had managed one or more cases with foster teens (between the ages of 13-17) within the past five years. We used a semi-structured interview method and aligned our questions with Badillo-Urquiola et al.'s [10] foster parent paper to be able to make direct comparisons. Our questions were categorized as follows:

- **Background:** Participants' motivations for becoming a child welfare worker, their personal experiences, and the types of case(s) they have managed.
- **Potential Challenges:** Whether participants felt like managing cases with teens presented any unique challenges compared to those with younger children, and if these challenges have changed over time. Whether case managers received training to meet these challenges.
- **Teen Technology Access:** What technologies teens use daily (e.g., social media apps). These questions were inspired by Livingstone et al.'s work on digital inclusion related to children and the digital divide [46].
- **Online Risks:** We asked participants if they were aware of any online risks (e.g., cyberbullying, sexual solicitations, exposure to explicit content [75, 76]) teens may have encountered online. We later used Livingstone's classification of online risks (the 4C's) [48] to help identify the types of risks caseworkers reported on.
- **Systems of Support:** These questions were formulated using Bronfenbrenner's Social Ecological Framework [15] to understand whether participants received any type of assistance or training related to technology or online safety. Whether there were any technical systems of support in place for managing cases (e.g., child's history or placement information). At what level of the framework is the training or assistance obtained (e.g., their supervising agency).
- **Blue Sky Visioning:** Blue Sky Visioning [71] is an activity in which participants are encouraged to be imaginative by thinking that anything is possible without judgement or consequences. Using this technique, we asked participants what type of support or new technologies could make their lives easier in terms of protecting foster teens from online risks.

As highlighted above, we incorporated a social ecological lens in our questions by asking participants about the different technologies, resources, and types of supports available to them or their cases. This allowed us to map different types of supports to each level of the social ecological model

(see Figure 1). Caseworkers were asked explicitly to answer these questions based on their own experiences with the cases they have managed. We also asked follow-up questions during the interview to clarify interesting discussion points that came up in the conversation. At the end of the interview, participants answered a few optional demographic questions that asked about their age, sex, highest education level, current employment status, household income, and ethnicity.

3.2 Data Collection and Participant Recruitment

We obtained IRB approval at our institution (anonymized for review) prior to data collection. We conducted interviews via phone or Zoom to accommodate the busy schedules of the caseworkers. Upon scheduling the interview, we emailed participants an IRB approved informed consent form to review. Prior to the interview, we asked participants whether they had any questions and obtained their verbal consent to participate in an audio-recorded interview. Recruitment efforts began February 2018, and the last interview was conducted April 2020. We contacted over 100 child welfare organizations within the foster care community by word-of-mouth, in-person, via social media, by phone, and through email. These agencies distributed our study information and flyer to potential participants. We incentivized participation with a \$20 Amazon.com gift card distributed to the participant via email upon completion of the interview. We conducted 32 interviews with the average interview length at 42 min. All interviews were transcribed for later analysis, resulting in a total of 21 hours and 59 minutes of recorded audio.

Most of the caseworkers we interviewed identified as female (N=26), while the rest identified as male (N=6). They all had higher education degrees; most with a bachelor's (N=21), followed by graduate (N=11), and associate (N=1). Only one did not work full-time, because they were a student. Yet, they also had a wide range of experience; most of the caseworkers had less than 5 years of experience (N=14), while 10 of them had over 10 years of experience and the remaining 8 of the caseworkers had between 5 to 10 years of experience. They also varied across based on roles, ranging from investigators to managers, supervisors, and independent living specialists. Caseworkers also discussed types of training they received beyond their education, such as, therapeutic crisis intervention, trauma informed trainings, pre-service and in-service training, etc. The caseworkers also described having different responsibilities within these roles; More than half said the youth's mental and physical well-being was their top priority, followed by educational and medical needs (e.g., transporting youth to school or medical appointments). Other job responsibilities caseworkers discussed included teaching youth life skills, conducting home visits, coordinating supports for the child, attending court hearings, taking the child shopping, reading bedtime stories, etc. Table 1 provides a summary of the caseworkers' characteristics including, their level of education, the state in which they were employed, gender identity, and years of experience in the child welfare system.

3.3 Qualitative Analysis Approach

To answer each of our research questions, we conducted three separate reflexive thematic analyses [14]. This allowed us to systemically explore, interpret, and report on patterns from our dataset [14]. The process was conducted by the first and third author, with input and guidance from the last two authors. We first familiarized ourselves with the data by reading thoroughly through the transcriptions multiple times, making notes of ideas and generating initial codes. We then refined our codes using axial coding and grouped them conceptually to develop initial themes. Finally, we refined and focused our themes to generate our final codebook (Table 2). Since we worked together closely during the analysis phase and followed a consensus-coding approach, calculating inter-rater reliability was not necessary [52].

To further understand the mesosystemic interactions between caseworkers and foster parents, two key stakeholders within a foster youth's microsystem, we conducted a retrospective analysis

Table 1. Participant Profiles

Caseworker	Education	State	Gender	Years of Experience
CW1	Associates	New York	M	5 years
CW2	Bachelors	Florida	F	4 years
CW3	Bachelors	Florida	F	4.5 years
CW4	Bachelors	Florida	F	1 year
CW5	Graduate	Florida	F	2.5 years
CW6	Bachelors	Florida	F	5 months
CW7	Bachelors	Florida	M	4 years
CW8	Graduate	Florida	F	5.5 years
CW9	Bachelors	Florida	F	5 years, 7 months
CW10	Bachelors	Florida	M	5 years
CW11	Graduate	Florida	F	15 years
CW12	Graduate	Kentucky	F	2 years
CW13	Bachelors	Florida	F	5 years
CW14	Graduate	Florida	F	12 years
CW15	Graduate	Florida	F	10+ years
CW16	Bachelors	Florida	F	2 years
CW17	Bachelors	Florida	M	4.5 years
CW18	Bachelors	Florida	M	16 years
CW19	Graduate	Florida	F	6 years
CW20	Bachelors	Florida	F	4 years
CW21	Bachelors	Massachusetts	F	2 years
CW22	Graduate	Florida	F	3 years
CW23	Bachelors	Florida	F	3 years
CW24	Bachelors	Florida	F	3 years
CW25	Bachelors	Florida	M	7 years
CW26	Bachelors	Florida	F	16.5 years
CW27	Bachelors	Colorado	F	18 years
CW28	Bachelors	Colorado	F	15 years
CW29	Graduate	Colorado	F	12 years
CW30	Graduate	Colorado	F	30.5 years
CW31	Bachelors	Colorado	F	21 years
CW32	Graduate	Colorado	F	5 years

between the findings from this study and those from the foster parent interview study conducted by Badillo-Urquiola et al. [10]. We first identified the major themes from the foster parent interviews. We then mapped our major findings to those of the foster parents, taking note of the underlying challenges and making recommendations on how to address them. We summarize this analysis in Fig. 2 and discuss the implications from this comparison in section 5.1. We present our findings in the next section.

4 FINDINGS

In this section we present the findings from our thematic analyses. First, we cover the types of online risks foster youth encountered that caseworkers found to be most concerning. Then, we

Table 2. Final Codebook (N = number of caseworkers out of 32)

Themes	Codes	Illustrative Quotes
RQ1: Online Risk Types		
Sexual Risks Were Most Concerning	Sexual Exploitation (75%, N=24): Teen victim of sex trafficking or engaging in sexual acts (with adults).	"In the last couple of years, human trafficking has gotten significantly worse." -CW32, Female from Colorado
	Sexting/Solicitations (25%, N=8): Sending or receiving sexually explicit photos or messages.	"Underaged teens that were using it for sexting" -CW1, Male from New York
	Pornography/Sexualized Content (25%, N=8): Viewing or posting sexually explicit material for the purpose of sexual arousal.	"...pornography have been an issue before" -CW17, Male from Florida
Technology Facilitated Physical Risks	Runaway (19%, N=6): Foster teens use the internet and/or mobile phones to run away from their home or residence.	"Unfortunately, they would use social media to meet older men and when they would run away, they would use social media to go to those men as well." -CW7, Female from Florida
	Illegal Drug Activity (19%, N=6): Foster teens use the internet to perform illegal drug activities (e.g., selling, buying).	"...underaged teens that were using it to try and buy narcotics and then underaged teens using trying to sell narcotics to underaged teens in the residence." -CW1, Female from New York
	Fights (3%, N=1): Teens faced aggression or conflict	"Cyberbullying, not that much, but... the fights, yes." -CW9, Female from Florida
Technology Facilitated Contact-Related Risks with Unsafe People	Strangers (25%, N=8): Unknown individuals that contact teens or are contacted by teens.	"Being able to communicate with strangers is a big challenge and is one of the most unsafe things for our teens." -CW23, Female from Florida
	Other Teens (9%, N=3): Teens within and outside of the foster care system.	"That is one of our biggest issues with our teens right now, you know, inappropriate talking to other teenagers." -CW21, Female from Massachusetts
	Family Members (6%, N=2): Family such as parents, cousins, and other relatives.	"One of the kids I have, his mother's not supposed to be contacting him... she does it anyways." -CW4, Female from Florida
Online Harassment Secondary Concern	Cyberbullying (22%, N=7): Teens faced online harassment.	"...she was getting some negative feedback and some cyber bullying." -CW26, Female from Florida

Themes	Codes	Illustrative Quotes
RQ2: Caseworker Training		
Training Primarily Focused on Sex Trafficking	Sex Trafficking Training (56%, N=18): Training on handling cases of teens with histories of sex trafficking.	<i>"I also was HT certified, and you had to be you had to have a lot of training in human-trafficking to be able to work with a child who has experienced that."</i> -CW3, Female from Florida
	Online Safety Training (38%, N=12): Training on maintaining the internet safety of foster youth.	<i>"I've definitely participated in at least several internet safety trainings."</i> -CW21, Female from Massachusetts
	Crisis Intervention Training (28%, N=9): Training on handling cases of foster teens with crisis or trauma histories.	<i>"In child and family services in two places I worked, they treat you to what they call therapeutic crisis intervention to help you prepare for resident going into crisis."</i> -CW1, Female from Florida
Caseworkers Depend on Experience	Overwhelmed with Training (59%, N=19): Caseworkers receive numerous intensive trainings.	<i>"the training is probably one of the most intensive I've had for any type of job"</i> -CW4, Female from Florida
	Training Does Not Prepare (28%, N=9): Caseworkers do not feel prepared to manage their everyday tasks.	<i>"We use what's available online to help bring up the talk and talk consistently about it, but it's not effective."</i> -CW31, Female from Colorado
	Practices Constantly Change (19%, N=6): Practices in social work are frequently updated, but training is not.	<i>"I've done training with them. I just tried to stay up to date on whatever I think that I can apply."</i> -CW27, Female from Colorado
RQ3: Managing Online Safety Among Stakeholders		
Responsibilities are Unbalanced Among Stakeholders	Caseworkers have Limited Availability (47%, N=15): Caseworkers have multiple responsibilities that limit their availability with foster parents.	<i>"A lot of [case managers] don't have the availability to do a lot for teens..."</i> -CW23, Female from Florida
	Limited Foster Care Placements (41%, N=13): Caseworkers overwhelmed because there are limited living placements	<i>"So, it's definitely a challenge because the setting of a group home compared to a foster home is really not the same."</i> -CW9, Female from Florida
Caseworkers Serve as Mediators	Foster Family Conflict (22%, N=7): When foster parents and youth encounter conflict, caseworkers are often the intermediaries.	<i>"Be the mediator. You want the kids to think that- to know that you support them and that you're trustworthy, so you're not just taking sides. I'd say the more difficult part is probably talking to the foster parent about it."</i> -CW10, Male from Florida

discuss the types of training caseworkers receive to help them navigate these online risks. Finally, we share the challenges caseworkers face in managing adolescent online safety among different stakeholders. We use illustrative quotes to describe our themes, each identified by the participant's ID, state, and years of experience.

4.1 Online Risks Youth in Foster Care Encountered (RQ1)

We identified four themes related to the online risks foster youth encountered reported by the caseworkers: 1) Caseworkers are most concerned about sexual risks, 2) Technology facilitates the physical risks of youth in foster care, 3) Technology facilitates contact-related risks of youth in

foster care with unsafe people, and 4) Online harassment is a secondary concern for caseworkers. We discuss each of these themes in the next subsections.

4.1.1 Caseworkers are most concerned about sexual risks. Overall, we found that the majority of the caseworkers were most concerned about sexual risks. Most of the caseworkers (75%, N=24) shared stories about foster youth being victims of sexual exploitation. Many caseworkers primarily focused on sex trafficking, mostly sharing stories involving teen girls as the main victims. They often talked about "*a lot of [the sex trafficking risk] starts online*" -(CW10, Male from Florida, 5 yrs) with the teen talking to strangers.

Most of the caseworkers generally mentioned discovering these risks after questioning teens' online activities and stated these are typically their most memorable cases. However, some of them also found it hard to keep track of these risks because the teens do not necessarily need to have a data plan or a phone to access their social media websites. Caseworkers were worried because teens could go to a library or even the local McDonald's with a borrowed phone to access the WIFI. They felt that this would lead teens into placing themselves in the danger of sex trafficking. According to some caseworkers, teens also had multiple devices, which made it hard to confiscate them. There was not much mention of how teens acquire their devices:

"We can't monitor who she's talking to. I mean, she can go to the public library and say, 'I'm going to do my homework,' but she can sign into Facebook and talk to her trafficker. And a lot of my kids—I have a kid right now that has a trafficking history, and she has 8 cellphones. I mean, I only know of 8, who knows how many she actually has." -CW5, Female from Florida, 2.5 years

There were a couple of caseworkers that made a distinction between sex trafficking and prostitution,¹ primarily classifying prostitution as "*willful actions*," versus sex trafficking as a "*forced interactions*." One caseworker explained that the teens engage in this behavior because they were "*looking for love in all of the wrong places*" -(CW26, Female from Florida, 16.5 yrs), and they developed different types of pressures that "*entice them into [prostitution] or feel like they have to*." -(CW15, Female from Florida, 10+yrs). Other caseworkers used different terms like "survival sex."² Yet, we caution the reader not to adopt such perspectives, which could potentially promote a victim blaming³ mindset. Regardless of foster youth's actions or motivations to engage in sexual acts with adults, they are minors, and all such activities are a form of sexual exploitation of minors. Indeed, many caseworkers acknowledged these to be exploitative situations. One caseworker shared that because of societal stigmas, it is difficult to make youth understand that they are victims and not at fault for such actions.

"They feel anytime they engage in survival sex it's their fault. And it's so hard to make them understand that you are a minor you absolutely never consented to this and then an adult in charge allowed this to happen and encouraged it in most cases. And so just really getting over that stigma." -CW27, Female from Colorado, 18 years

Several caseworkers (25%, N=8) were also concerned about other sexual risks like sexting/soliciting as well as pornography/sexualized content. Sexting/soliciting involved sending and/or receiving

¹Prostitution was a term used by some caseworkers interviewed. However, literature on this topic recommends the term prostitution be replaced with "sex work" because "prostitution" has connotations of criminality and immorality. Yet, since children are not fully consenting adults, both prostitution and sex work, as well as engaging in sexual acts with adults, should all be considered forms of sexual exploitation of a minor. The authors take a hard stance on this positionality.

²Survival sex: engaging in sexual acts to obtain money, food, shelter, clothing, or other items needed to survive. This is still a form of sexual exploitation of children.

³Victim blaming: someone saying or implying that a survivor of harm or abuse is fully or partially responsible for the assault, rather than placing the responsibility on the person who harmed them.

sexually explicit photos or messages to entice someone. Many of these stories involved both girls and boys. However, when describing these risks, some case managers shared that foster youth could have engaged as either a perpetrator or a victim. For example, one of the caseworkers shared a case where a foster parent's biological adult daughter was soliciting several of the foster teenage boys, but at the same time there were also some foster teenage boys soliciting her as well.

"I had a case where my teenage boys... were soliciting one of their old foster parents' daughter and that conversation was very like explicit between the daughter of the foster parents and them... text messages, pictures, videos that were exchanged by this daughter who was an adult and our teenage boys." -CW16, Female from Florida, 2 yrs.

When discussing pornography/sexualized content, several caseworkers (25%, N=8) recognized that older teens are in the age where they want to engage in sexual exploration and that doing so can positively help their mental health wellbeing. These caseworkers seemed to advocate for the idea of *"trying to normalize what is normal teenage curiosity male or female"* -(CW30, Female from Colorado, 30.5 yrs). According to a few caseworkers, these behaviors can become problematic and addictive in which case there are often technology restrictions implemented into the case plan, such as the case from CW30 in which the teen downloaded around 300 inappropriate images in just 6 hours. Since foster youth are bound by the legalities of their case plan, they're often restricted from activities that could potentially help them in this exploration. This often caused a tension for some caseworkers in that they wanted to provide teens developmentally appropriate opportunities as a way of normalcy but also keep the teen safe from these online sexual risks.

4.1.2 Technology Facilitates Physical Risks Offline. In many cases, caseworkers described how technology facilitated physical risks offline. Caseworkers explained that these were risks that happened offline but were facilitated through conversations or behaviors that happened online. Most of the risks mentioned related to foster youth running away from their foster care homes, participating in illegal drug activity, and engaging in physical fights. Some caseworkers (N=6) shared stories about teens, mostly females, contacting their friends or previous abusers to help them run away from their foster home. These caseworkers shared that, based on their understanding, running away was the teen's method for coping with their emotions and challenges. They also ran away in hopes to gain attention from strangers and *"hook up with somebody"*-(CW15, Female from Florida, 10+ yrs). Unfortunately, according to the caseworkers that we interviewed, these runaways often ended up in even more severe situations like sex trafficking or getting raped.

"A lot of our girls will run away they will go and they may not tell their primary worker... and, you know, not to say it wasn't more than one person that you hooked up with, did you get paid for it, you know, did you hook up with someone to stay somewhere?"-CW15, Female from Florida, 10+ yrs.

Some caseworkers (19%, N=6) also mentioned stories of teens engaging in illegal drug activities, including buying, selling, and using narcotics. Most of the time case managers discovered these risky situations because the teens post images of themselves using the drugs or they directly tell the caseworker. Although there was only one instance, a caseworker also shared instances of teens posting videos on social media about them engaging in physical fights with other teens. Other caseworkers emphasized that many foster youth, especially teens who had been victims of human trafficking, come into the foster care system already being exposed to these types of risks. For example, some teens use drugs as coping mechanisms, while others run away from home back to their previous abusers because of their attachment to them.

4.1.3 Technology Facilitates Risks of Contact with Unsafe People. Technology was also a facilitator for contact related risks with unsafe people (e.g., individuals that bring harm to the youth's wellbeing

or are not permitted to have contact with the youth). These are risks related to risky communication. According to some of the caseworkers (25%, N=8), contacting strangers was the biggest challenge because that often lead to other types of risks like sex trafficking or running away from their foster home. Much of these conversations were with adults on social media platforms. For example, *"15 or 16 year olds talking to a guy who is like 21 or 22."* -(CW2, Female from Florida, 4 yrs). In these cases, caseworkers stated they would revoke the teen's cell phone privileges.

A few caseworkers (9%, N=3) also shared that there were incidents of foster youth inappropriately talking online with other teens and that sometimes these interactions lead to teens exposing one another to risks like illegal drug usage or pornography. However, they noted that sometimes the teens have a hard time perceiving the situation as risky as *"kids expose one another and don't recognize what it [the risk] is until it's too late"* -(CW27, Female from Colorado, 18 yrs).

Another challenge among a couple of the caseworkers (6%, N=2) was teens contacting restricted family members. As part of their case plan many teens were prohibited to contact their previous abusers – these could be biological family members, previous foster homes, or strangers. Caseworkers *"struggle a lot with [teens] having inappropriate contact with their [biological] parents."* -(CW29, Female from Colorado, 12 yrs). Many times teens own their phones, so it is harder for the caseworker to regulate the technology. Much of these situations were described as results of teens exhibiting attention-seeking behaviors. Unfortunately, these interactions with unsafe people often lead to further traumas and mental health risks.

4.1.4 Online Harassment is a Secondary Concern for Caseworkers. There were several reports (22%, N=7) about cyberbullying, but most of the caseworkers treated these risks as a secondary concern. They mostly focused on the more severe sexual risks like sexual exploitation (i.e., sex trafficking). They did not really share much about more general online safety issues. When they did talk about more general online risks, they did not seem to be informed about them. For example, one of the caseworkers talked about a case in which a teen was on Backpage and because it felt like something inappropriate to her, she slightly addressed it, but she did not really know.

"One of my teens was getting on backpage, whatever that may be, and we had to explain to her that you know everything on the web is not meant for every child." -CW6, Female from Florida, 5 months

This was interesting, because Backpage was a classified advertising website (similar to Craigslist) that was taken down in 2018 because of profiting from prostitution ads and its involvement in illicit commercial sex [37].

4.2 Training Received by Caseworkers (RQ2)

For our second research question, we focused on identifying the types of trainings caseworkers received to manage online safety and address these risk situations. These trainings could have been given by the agency, received through practitioner conferences, or other means. Since we were generally interested in whether they had received any type of training, we did not require caseworkers to specify from where or when they received the training.

4.2.1 Caseworkers Training Primarily Focused on Sex Trafficking. We found the majority of the caseworkers 56%, (N=18) had very minimal training related to online safety. Most caseworkers described that their training primarily focuses on sex trafficking. These trainings often included aspects of both prevention and treatment. Prevention involved identifying the signs that indicate a teen is being groomed and understanding the types of online and offline behaviors to monitor. On the other hand, treatment was more about how to find a missing teen (which often involves social media, law enforcement, and GPS signaling) or how to better provide the resources and services to

teens with past histories of being trafficked. Several caseworkers mentioned online safety (38%, N=12), but it was mostly in the context of sex trafficking and does not really go into the more general types of online safety risks.

“With my agency we have to have 40 hours of continuing education, with the state we have to have 20 every year, and then we have human trafficking every quarter, and one of the human trafficking training did go over online safety” –CW8, Female from Florida, 5.5 yrs.

While some caseworkers also mentioned receiving crisis intervention training (28%, N=9), it mainly involved supporting youth with past histories of trauma (e.g., family separations, abuse). It was not about online safety and was mostly focused on the secondary effects of teens getting involved in sex trafficking, not really the less severe types of risks. Overall, most of the preparation caseworkers receive in relation to online safety focuses heavily on sex trafficking. Rarely are they trained to think about other types of online risks. This is probably why sex trafficking was such a prominent theme.

4.2.2 Caseworkers Depend on Experience Rather than Training. Most of the caseworkers (59%, N=19) said they receive a lot of intense training that it can sometimes feel overwhelming. They mentioned having access to the child protection training website that lists *“hundreds and thousands of training for every single category”* -(CW32, Female from Colorado, 5 yrs), covering numerous different types of topics (e.g., teenage substance abuse, juvenile delinquency, family courts). Even though they receive a lot training, more than a quarter of caseworkers 28%, (N=9) said the training they receive does not prepare them for the job they are required to do.

“Nothing trains you for this to be honest, nothing. It is just going through experiences, being willing to be open with these families, willing to be open with these children. It’s definitely a lot—it’s definitely a lot to work with teens like this.” -CW24, Female from Florida, 3 yrs.

One of the reasons several case managers said training does not prepare them is because social work practices change frequently, but training does not (19%, N=6). In terms of technology, the internet advances so rapidly that training becomes outdated and obsolete quickly. A few caseworkers said attending conferences were helpful for this reason. They could attend once a year *“to learn the most up to date training on child welfare.”* -(CW7, Male from Florida, 4 yrs). However, they also acknowledged that not all caseworkers had this opportunity, because it is expensive to attend.

4.3 Caseworkers Struggled with Managing Online Safety Among Stakeholders (RQ3)

We identified two themes related to the challenges case managers have in mediating adolescent online safety among other stakeholders within a foster youth’s microsystem: 1) Responsibilities are unbalanced among stakeholders, and 2) Caseworkers serve as mediators. We focused our analysis on understanding the interactions between different microsystem stakeholders, that is foster parents, group homes, and foster families more broadly, because according the Bronfenbrenner’s system model, microsystems cannot function independently. These systems are interconnected and assert influence upon one another [15]. Therefore, if we truly want to understand the role of caseworkers in the online safety of youth in foster care, it is important to understand the interrelations they have with other microsystems in the lives of youth in foster care. We discuss both themes in the next subsections.

4.3.1 Caseworkers Have Overwhelming Responsibilities with Limited Time for Online Safety. We found that almost half of the caseworkers (47%, N=15) had limited availability for foster families

because they were overwhelmed with their primary responsibilities. This challenge forced case managers to put online safety as a second priority.

“A lot of [foster parents] don’t have the availability to do a lot for teens as far as transporting and getting them to and from school or getting them to the necessary appointments that they have.” –CW23, Female from Florida, 3 yrs.

Many caseworkers shared that this is a result of foster parents not being able to fulfill a necessary activity like transporting or setting up a doctor’s appointment for the teen, so the responsibility ultimately falls on the caseworker. Some of these caseworkers explained that they are legally responsible for the children on their caseloads, that means every aspect of their life. Sometimes the caseworker even has custody of the child. They explained that while foster parents serve as overseers, and should be taking care of the child’s wellbeing, but because the caseworker is legally responsible, if a task does not get done, it ultimately gets pushed to them. This leaves caseworkers with very limited time to focus on online safety. It also limits the choices for foster care placement (41%, N=13). If a teen is not placed with a foster parent, they then move to a group home. Some caseworkers expressed the challenge that group homes are often understaffed and overcrowded, because foster families do not want to take care of teens. Additionally, they felt that teens in foster care are typically more challenging because they often struggle with attachment disorders and/or behavioral problems.

“Younger children are way easier to place in foster homes. Our teenagers often wind up in group homes. And the older they are, they generally get placed further away from the county that they like generate from because of lack of space...” –CW13, Female from Florida, 5 yrs.

Ultimately, these different challenges not only make it difficult for case managers to work with other foster care system stakeholders on online safety, but it also makes the reunification process harder.

4.3.2 Caseworkers Serve as Mediators. Finally, when foster families encounter conflict, some caseworkers (22%, N=7) felt that they are often the intermediaries between those conflicts. They expressed their struggle with resolving the situation as they feared overstepping on the parents’ responsibilities, while supporting the foster youth. CW10 explained,

“You want the kids to think that - to know that - you support them and that you’re trustworthy, so you’re not just taking sides. I’d say the more difficult part is probably talking to the foster parent about it, because... you don’t want to tell them what they—how they run their house, but you also have to kind of chime in and give advice and try to smooth things over when stuff like that happens.” –CW10, Male from Florida, 5 yrs.

Since it is their responsibility to support both the foster parents’ parenting and the teens sense of normalcy, they must be careful in making sure they are balancing these values as a neutral party. A few caseworkers revealed that this is often difficult because it requires each party to negotiate a compromise.

5 DISCUSSION

To align with our social ecological framing, we first discuss our findings and triangulate them with the findings from Badillo-Urquiola et al.’s [10] foster parent interview study. We then highlight some of the key implications from our findings specific to caseworkers and provide practical recommendations to support them as stakeholders in the online protection of foster youth. We conclude by providing recommendations towards socio-technical solutions for social ecological

support that focus on training, education, policies, and systems for supporting caseworkers, foster parents, and other stakeholders in their collaborative roles of protecting youth from online harm.

5.1 Foster Parents and Caseworkers as Social Ecological Support Networks for Foster Youth

At the *microsystem*-level of Bronfenbrenner’s Social Ecological Systems Framework (Figure 1), foster parents and caseworkers are key stakeholders in the online safety of foster youth because they are charged with the broader goal of protecting their physical safety and well-being. Meanwhile, the *mesosystem* encompasses the interactions between various microsystems. In the context of our research, this would include the interactions between caseworkers and foster parents. Therefore, we compared our caseworker findings to those from Badillo-Urquiola et al.’s [10] interview study with foster parents. By doing this, we uncovered interesting complexities related to how case managers and foster parents handle foster youth’s technology use and online interactions, as well as key differences and tensions between them. Figure 2 provides a summary of the challenges we uncovered between case managers and foster parents. In the first column (left) we present the overarching findings from Badillo-Urquiola et al.’s [10] foster parent interviews. The second column (middle) are the main themes from our caseworker interviews. The arrows in between these column represent connections between the themes from the two papers. Finally, the last column (right) is a summary of the recommendations we propose to address the challenges we identified through this triangulation process.

5.1.1 *Comparisons between Foster Parent and Caseworker Perspectives.* Overall, both foster parents and caseworkers were in agreement that sexual risks were the most salient and important to prioritize in regards to foster youth online safety. Yet, while parents had first-hand experience mediating these risks in their homes, caseworkers were mostly concerned about online sexual risks because their mandated training on sex trafficking sensitized them to these risks. Caseworkers uniformly explained that they do not receive much support or training on more general online

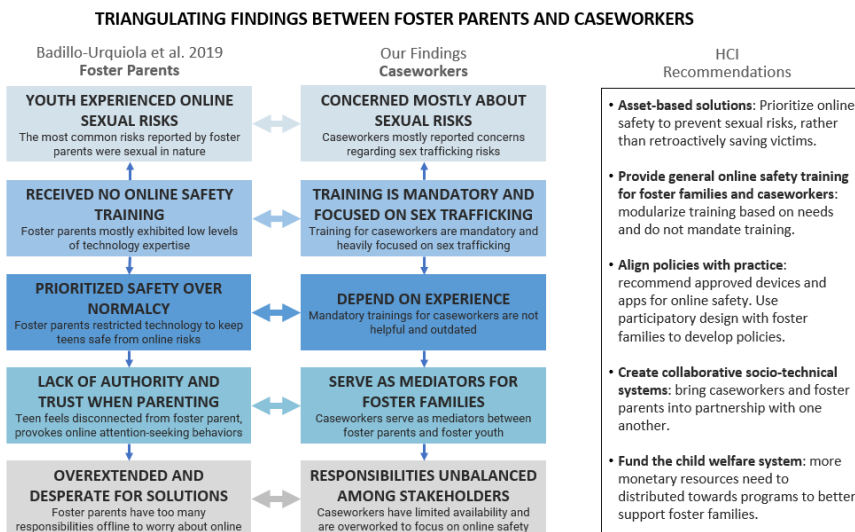


Fig. 2. Triangulating Badillo-Urquiola et al.’s [10] foster parent findings (left) with the caseworker findings (right). Recommendations for addressing these challenges are provided on the right.

safety situations. Even though they said their training was mandatory, caseworkers also explained that they relied more on their experience than their training, since much of their training was outdated and unhelpful. Similarly, foster parents were also not prepared to manage online risks situations. Foster parents had limited technology expertise to effectively mediate teen technology and felt that revoking technology access is the only way to keep their foster youth safe from online risks. Unfortunately, these restrictive practices resulted in foster parents breaking with child welfare policies regarding “normalcy” (defined as the ability of a child in foster care to live as normal a life as possible [30]). This often provoked a lack of distrust and disconnection between the teen and the foster parent. Often times when foster family conflicts arose, caseworkers served as the mediators. Caseworkers advocated for a youth’s normalcy, such as promoting regular technology use and ensuring that foster youth were engaging in developmentally appropriate online activities. Yet, the caseworkers also advocated for foster parents to parent aptly. Serving in the role of mediator prevented caseworkers to have deep knowledge of all the additional risks (beyond sexual risks) youth experienced and how addressing these could play a larger role in preventing more imminent and dangerous risks, like sex trafficking.

Further, when analyzing the insights using a social ecological lens, our results uncovered that while caseworkers had more authority and responsibility over the child’s case, they were more distant (i.e., less proximal) to the teens’ actual online experiences. In comparing our current work to Badillo-Urquiola et al.’s [10] prior work, caseworkers described youth experiences more generally than foster parents. A key take-away from this comparison, is that foster parents were closer to understanding the lived experience of the teens than caseworkers. The closer in relationship to the teen in the social ecological framework, the more detailed and personal the experiences became. This motivates the need to include foster youth as key stakeholders in future research to truly understand how to effectively mitigate their online risk experiences. Meanwhile, prior and current work surfaces a key tension, where foster parents were more aware of their youth’s interactions and experiences but felt that they did not have enough authority and preparation to manage these situations effectively. Having more awareness of the youth’s experiences created overwhelming feelings of desperation for foster parents, because they did not receive the appropriate guidance from caseworkers to address these online safety challenges [10]. Unfortunately, this lack of support was potentially a result of caseworkers being overworked and foster agencies not providing caseworkers with comprehensive online safety training. Indeed, case managers juggle large caseloads [21] that prevented them from providing more individualized support, while foster parents were dealing with intense psychological, behavioral, and emotional challenges faced by youth [10]. As a result, both caseworkers and foster parents felt overburdened with challenges that forced them to put online safety concerns as a low priority. These deficits may be exacerbated due to inefficient or non-existent sociotechnical systems for supporting case managers and foster parents in their daily tasks, which we address in Section 5.3. In the next section, we provide more detailed recommendations for addressing each of these mesosystemic challenges.

5.1.2 Recommendations towards Alleviating Case Managers’ and Foster Parents’ Challenges. As stated above, even though both caseworkers and foster parents recognized that technology was a mediator of many of the high risks foster youth encountered offline, online safety was still not a priority. Instead, they often relied on reactive approaches to manage online risks once they escalated into serious harm. Research shows that these reactive strategies are ineffective compared to more communicative, proactive, and resilience-based approaches to adolescent online safety [5, 61, 75, 76]. Therefore, we call for several paradigm and policy shifts within these microsystems and mesosystems:

First and foremost, up-to-date training modules should be provided free-of-charge and on-demand for foster parents and caseworkers to train them on the importance of online safety in the overall protection of foster youth. This training would be modularized based on needs and should not be mandated (to avoid being overloaded by training that is ineffective). However, to ensure both foster families and caseworkers are prepared to support youth in a myriad of online safety situations, general online safety training (not solely sex trafficking) training must be provided. Training in technology mediation strategies and/or topics related to how technologies used by teens (e.g., social media) work. Training could also include topics for creating open dialogue and online responsibility. Such training would emphasize that the goal should be to maximize benefits and mitigate risks sooner in the escalation process [38] by promoting positive behavioral choices online. By taking this more positive and empowering approach to online safety, caseworkers and foster parents would no longer feel burdened by fear-based messages promoting restrictive and abstinence-only based online safety practices. While abstinence-based training is a commonly adopted strategy for reducing risks, it has also been shown to be less effective than comprehensive education [43]. Such training programs should also encourage foster parents and caseworkers to use their own judgement (or human discretion [63]) when assessing and mitigating risks. Foster parents could also receive training on how to balance the foster youths' privacy with their safety and be given foundational technology knowledge that can help them mediate the teens' technology use effectively. Foster parents and caseworkers could also receive this training together in effort to cultivate communication among them.

Second, rather than relying on individualized case plans that could result in foster parents and case managers inconsistently managing adolescent technology use, policies should align with practice. More specifically, they should be made to normalize technology access for youth in foster care while balancing their online safety. For example, Florida already has state-level policies that promote community-based care lead agencies to provide foster care caregivers and contracted agencies training on encouraging normalcy among foster youth [2]. However, these types of "normalcy" policies should be modified to include guidance for effectively managing technology use. For example, there could be state or even nationally approved recommendations for using approved devices or mobile apps for online safety, such as the California Age-Appropriate Design Code Act [17] which was designed to consider best practices for technology implementation in relation to youth's mental health and wellbeing. However, these national or state-level policies and recommendations should be tailored to the needs of each foster youth with the input from their social ecological support network. Therefore, researchers should implement participatory approaches with foster families to develop these policies and practices [11] in collaboration with the communities they are intended to benefit. Finally, to successfully implement these recommendations, the child welfare system must be properly funded and more monetary resources need to be distributed towards programs to better support foster families [45]. Next, we discuss the implications of our findings as they apply specifically to caseworkers.

5.2 Caseworkers as a Key Stakeholder in the Online Safety of Foster Youth

In the sections below, we highlight how caseworkers often took a deficit-based perspective when discussing issues around online safety for foster youth. Then, we make recommendations for support caseworkers, so that they are able to take more strength-based approaches to protecting foster youth online moving forward.

5.2.1 Towards a Strength-based Approach to Online Safety. Overall, caseworkers in our study took a deficit-based approach to online safety—mainly focusing on addressing severe risks once they escalated to the level of physical harm or illegal activity, such as sex trafficking or sexual

exploitation. This deficit-based mentality is most likely a result of being trained specifically to identify and manage imminent risks, rather than proactively promoting online safety. Previous research investigating case managers' decision-making practices shows that much of the training and tasks of case managers are heavily influenced by bureaucratic processes and mandated systems [63], so caseworkers are trained to evaluate high risks for compliance purposes. Alternatively, a resilience-based or strength-based approach [74, 78], which strengthens youth to self-regulate their online behaviors would be more proactive in leveraging technology to empower foster youth, not only to promote their online safety, but to find ecological support against these offline risks. Additionally, caseworkers were often overworked and juggling so many other responsibilities, which left online safety as a secondary priority since it was not a mandatory part of their jobs. Ultimately, this perspective to online safety raises an important question: *If caseworkers are not concerned about online safety, does it really matter?* Prior work has consistently shown that foster youth face a variety of online risks (not just sexual exploitation risks) that facilitate offline risks [10, 40], which emphasizes the importance of prioritizing online safety. Caseworkers in our study often focused on severe risks that would cause physical harm (e.g., sex trafficking as shown in section 4.1.2), but could also result in overlooking less imminent online risks and mental health concerns leading to other problems. We argue that prioritization of physical safety over online and emotional wellbeing of foster youth is rooted in a lack of resources and support for caseworkers [21], where they only have the bandwidth to deal with the most pressing concerns. Being overburdened with work contributes to caseworkers taking a reactive approach towards foster youth risk exposure after risks have already occurred. Therefore, our work calls for a paradigm shift towards *preventive strategies* for foster youth online safety, that protect them *before* a risk happens. These preventative strategies would be ones where foster youth are given the training and skills needed to handle online risks so that these negative experiences are reduced. By empowering foster youth through strength-based approaches, we are lifting responsibility off of caseworkers so that these incidents are handled in the moment rather than downstream. For example, other areas of risk prevention for youth (e.g., sexual health) have long learned that taking proactive approaches such as teaching youth about safe sex (sex education) to prevent unwanted pregnancy is more effective than having to try to triage these issues once they become a problem [51]. We call for practitioners and policymakers to provide adequate support, training, and technologies to help foster youth effectively manage their online safety, to avoid compromising their caseworker.

5.2.2 Actionable Recommendations for Supporting Caseworkers. While it is unreasonable to expect caseworkers to do more in an already overstretched system, we do believe that there are ways to improve social ecological support for the online safety of foster youth. First, federal and state-level funding could be provided to create new caseworker roles that specialize in online risks, similar to how law enforcement agencies have developed special taskforces to triage internet-related crimes [53]. By creating this new role, child welfare organizations could have a centralized resource and technical expertise to develop new training modules (i.e., proactive prevention) and troubleshoot complex cases that involve incident reports that involve online safety concerns (i.e., reactive mitigation). If funding is unavailable, similar roles could be created within volunteer and advocacy organizations, similar to guardian ad litem (individuals appointed by the court to protect the interest of and advocate for the child). This would give professionals who have the necessary technical expertise the opportunity to give back to their communities. State agencies could also work with researchers to analyze historical case notes to identify common patterns of online risk behavior that lead to imminent risks, so that prevention and intervention programs can be developed. Prior work in the area of child welfare has also turned to studying algorithmic decision-making support

systems [62–64] to assess child placement decisions. This work can be expanded to study online factors in risk assessments.

5.3 Implications for Designing Socio-Technical Systems for Stronger Ecological Support of Foster Youth

Overall, we noticed tensions between caseworkers and foster parents, which we believe prevented them from effectively working together to manage online safety challenges of foster youth. Therefore, we recommend developing collaborative socio-technical systems that could bring caseworkers and foster parents into partnership with one another. In this sense, socio-technical systems can act as a meso-level system that connects different microsystems (e.g., case workers, foster parents, foster youth) with one another to increased support [50]. Promising research by Denby et al. [19, 20] focused on strengthening the bonds between caseworkers and foster youth through the use of technology in their DREAMR project [69]. While these researchers encountered several barriers to implementation, including issues around privacy, data sharing, and tensions related to restrictive practices designed to protect the youth, such barriers may not be present when promoting improved communication between caseworkers and foster parents. At the same time, both caseworkers and foster parents are overburdened with responsibilities; yet, they rely on each other to maintain the wellbeing of the youth in their care. On one hand, resources should be allocated to efforts focused on retaining social workers, on the other, efforts should focus on providing foster parents with more mentorship. Both solutions require the engagement of more individuals. Foster parents should not be required to solely rely on their caseworker for mentorship and guidance. Neither should a caseworker rely solely on a foster parent to take care of the youth.

We propose a sociotechnical solution, in which systems should be designed to encourage and propagate collaboration. Technology already plays a significant role in helping caseworkers and foster parents manage foster care. For example, information systems such as the Comprehensive Child Welfare Information Systems (CCWIS) [3] and CaseAim [59] help reduce case manager burden by providing convenient access to critical case information and administrative support. Other apps, such as MyJumpVault [1], have aimed towards supporting foster youth in their transition to adulthood by providing easy upload and access of documentation such as their education, health, employment information or personal memories. Yet, these technologies are mostly focused on administrative support by digitizing record keeping and documentation. There still remains a wide array of opportunities for supporting caseworkers, foster youth, and parents through technology by improving communication, providing technical assistance, and online safety education.

While efforts have been made to encourage positive trusting relationship building between foster care providers and foster youth [19, 20], these technologies and programs still implement a more top-down approach. They implement restrictions from the perspective of case managers and foster parents, overlooking the values of foster youth. We must take a more asset-based solutions approach, focusing on the strengths of foster care providers and foster youth rather than their perceived weaknesses [8, 77], to prioritize online safety to prevent sexual risks, rather than retroactively trying to save victims. As is, the foster care system works similar to a hierarchy in which the state agencies (exosystem) have the most power, and the foster parents and teens (microsystem) have the least. However, our findings show that this creates an imbalance of responsibilities for case managers (who are often working for state agencies) and foster parents. Therefore, we challenge technology researchers and designers to take a more social ecological approach by moving from this top-down focused systems approach to include more bottom-up opportunities by intentionally including the perspectives of foster youth and involving them in the research and design process of new online safety solutions. Potential solutions include:

- **Collaborative Technologies for Caseworkers and Foster Parents** that optimize the ability for caseworkers and parents to work together more effectively as a team for supporting foster youth. For example, a collaborative mobile app could potentially foster seamless communication between foster parents and caseworkers, features might include training modules, shared case notes, and incident reports. An existing example of this type of system is a web-based software called FosterCare.team [26] which allows the different stakeholders surrounding a child in foster care to communicate and collaborate on tasks effectively.
- **Centralized Incidents Database** that can be accessible for all U.S. caseworkers to consolidate and search for problem resolutions and best practices related to online safety challenges with youth in foster care. For example, caseworkers in Florida use the Florida Safe Families Network (FSFN) system, which is Florida's statewide automated child welfare information system. This system serves as the statewide electronic case record for all official case files. There can be a section in this system where caseworkers access historical challenges and best practices for addressing those challenges. Researchers and developers can work with caseworkers to understand how best to improve these systems to capture this important information without overburdening them from data entry.
- **New Family Online Safety Technologies** that move away from parental control towards a more social ecological approach; where the power is balanced between the stakeholders of foster youth's support system and foster youth are empowered to make their own decisions and learn from them. These technology solutions would reinforce safety training and promote self-regulation strategies, which prior research has found to be more effective than parental control [32, 33]. Yet, these systems will need to be developed for and with foster youth with input from foster parents and caseworkers as existing parental control software and systems are not tailored to meet the needs of foster youth [10].
- **On-Demand Online Safety Training Modules** for caseworkers, foster parents, and foster youth that go beyond imminent risks, like sex trafficking, providing a more comprehensive education on online safety and can help proactively get on-demand information as needed, which can provide contextualized information and informed decision-making [24]. Prior work has shown that technology-based education is effective for sensitive topics, like sexual health [39]. The online training modules should be supplemented with practical advice and local support through designated technology and online safety officer for each district. These training modules could teach youth about identifying sexual risks and safe practices which can help mitigate sexual risks before they escalate to more serious risks, including sex trafficking [54]. The safety trainings may be recommended based on tracking risk and protective factors for proactively intervening in times of risk. Researchers should co-design with caseworkers the training modules caseworkers feel would support them in their jobs.
- **Online Support Forums** for caseworkers and foster parents to connect with and learn from other experts and peers within the community. These platforms can provide spaces to discuss topics or challenges related to the training they received as well as help and advise on technology and social media use, which may better equip them for mediating foster youth's technology use. For example, awareness can be raised among foster parents to help recognize their own privacy invasive patterns, such as "sharenting" [12]. This can be accomplished through an online website that hosts facts and resource sheets for parents who are less tech savvy to teach them about privacy protective behaviors and available online safety technologies. This website could also have an on-demand chat bot or technical experts (as previously recommended in section 5.2.2) available that could provide advice on different challenging scenarios. These online platforms can also offer semi-private spaces for caseworkers to converse with one another (without foster parents) or foster parents to converse with one

another (without caseworkers). Support groups could also be developed for youth in foster care to allow them to connect with foster youth alumni who successfully transitioned into adulthood. To consider privacy implications, these forums could be developed to only include verified users, conversations and posts can be moderated, and/or have the anonymized to protect the privacy of foster youth.

Finally, we encourage future researchers to develop a better understanding of the different technology systems already implemented for supporting the foster care system, how they are being used, and how they may be evolved for more effective online and offline safety of foster youth.

5.4 Limitations and Future Work

The goals of this paper were two-fold: 1) to increase the understanding of the role caseworkers play in the online safety of teens in foster care, and 2) to triangulate the perspectives of foster parents from Badillo-Urquiola et al.'s [10] paper with those of caseworkers (our findings). Yet, we recognize that many questions derived from this study cannot be thoroughly answered without the first-hand perspective of teens in foster care. As such, our ultimate goal is to directly engage with teens (ages 13-17) within the child welfare system as primary stakeholders of their own online safety. However, given the sensitivity of our topic (i.e., online risk behavior), as well as the vulnerable position of our primary stakeholders (i.e., minors in the child welfare system), and the difficulty in getting access to this population (i.e., complexities around parental and informed consent given their status as wards of the state), it was prudent to first interview secondary stakeholders to better understand the nature of the research problem. As such, our research with foster youth will be informed based on our current findings. We also recognize there are many other stakeholders in a foster youth's social ecological system of support that may play a significant role in their online safety. Therefore, we will continue to expand on our work investigating other types of settings and relationships, including guardian ad litem, teachers, etc.

6 CONCLUSION

Our findings confirm that while online safety is a significant challenge in the lives of youth in foster care, the overloaded responsibilities of caseworkers cause them to put online safety on the back burner. Furthermore, caseworkers and foster parents struggle to support each other in the management of adolescent online safety. Prior work has called on scholars to consider critically how the attitudes and ideologies (e.g., colonialism) of the U.S. may be informing what different people expect the child welfare system to do [60]. As technology researchers we must ensure that our systems do not perpetuate a child welfare system that is doing more harm than good. This highlights the urgent need to deeply transform the child welfare system with innovative solutions that can adequately support caseworkers and foster parents in their responsibilities to protect the wellbeing of youth in foster care. To date, the SIGCHI community has largely focused on supporting the child welfare system through algorithmic decision-making support [18, 62, 63]. We call on the SIGCHI community to take action on building sociotechnical systems that support caseworkers, foster parents, and foster youth as well as strengthen the child welfare system as a whole.

ACKNOWLEDGMENTS

This research was funded by William T Grant (#187941, #190017). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of our sponsors. We would like to thank the case managers for their participation in this research.

REFERENCES

- [1] 2012. MyJumpVault - Secure Document storage for Foster Youth. <http://www.myjumpvault.org/>.
- [2] 2016. Rule Title: Normalcy. <https://www.flrules.org/gateway/ruleno.asp?id=65C-28.019>.
- [3] 2020. Child Welfare Information Systems. <https://www.ncsl.org/research/human-services/child-welfare-information-systems.aspx>.
- [4] 2022. How does turnover affect outcomes and what can be done to address retention? <https://www.casey.org/turnover-costs-and-retention-strategies/>
- [5] Zainab Agha, Reza Ghaiomy Anaraky, Karla Badillo-Urquiola, Bridget McHugh, and Pamela Wisniewski. 2021. 'Just-in-time' parenting: A two-month examination of the bi-directional influences between parental mediation and adolescent online risk exposure. In *HCI for Cybersecurity, Privacy and Trust: Third International Conference, HCI-CPT 2021, Held as Part of the 23rd HCI International Conference, HCII 2021, Virtual Event, July 24–29, 2021, Proceedings*. Springer, 261–280.
- [6] Asbjørn Ammitzbøll Flügge, Thomas Hildebrandt, and Naja Holten Møller. 2021. Street-level algorithms and AI in bureaucratic decision-making: A caseworker perspective. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW1 (2021), 1–23.
- [7] Monica Anderson, Jingjing Jiang, et al. 2018. Teens, social media & technology 2018. *Pew Research Center* 31, 2018 (2018), 1673–1689.
- [8] Karla Badillo-Urquiola, Zainab Agha, Mamtaj Akter, and Pamela Wisniewski. 2020. Towards Assets-based Approaches for Adolescent Online Safety.
- [9] Karla Badillo-Urquiola, Scott Harpin, and Pamela Wisniewski. 2017. Abandoned but not forgotten: Providing access while protecting foster youth from online risks. In *Proceedings of the 2017 Conference on Interaction Design and Children*. 17–26.
- [10] Karla Badillo-Urquiola, Xinru Page, and Pamela J Wisniewski. 2019. Risk vs. restriction: The tension between providing a sense of normalcy and keeping foster teens safe online. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. 1–14.
- [11] Karla Badillo-Urquiola, Zachary Shea, Zainab Agha, Irina Lediaeva, and Pamela Wisniewski. 2021. Conducting risky research with teens: co-designing for the ethical treatment and protection of adolescents. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW3 (2021), 1–46.
- [12] Renee Barnes and Anna Potter. 2021. Sharenting and parents' digital literacy: an agenda for future research. *Communication Research and Practice* 7, 1 (2021), 6–20.
- [13] Diana Baumrind. 1987. A developmental perspective on adolescent risk taking in contemporary America. *New directions for child and adolescent development* 1987, 37 (1987), 93–125.
- [14] Virginia Braun and Victoria Clarke. 2012. *Thematic analysis*. American Psychological Association.
- [15] Urie Bronfenbrenner. 1975. Reality and research in the ecology of human development. *Proceedings of the American Philosophical Society* 119, 6 (1975), 439–469.
- [16] Lily A Brown. 2020. Suicide in foster care: A high-priority safety concern. *Perspectives on psychological science* 15, 3 (2020), 665–668.
- [17] State of California. 2022. Governor Newsom signs first-in-nation bill protecting children's online data and Privacy. <https://www.gov.ca.gov/2022/09/15/governor-newsom-signs-first-in-nation-bill-protecting-childrens-online-data-and-privacy/>
- [18] Hao-Fei Cheng, Logan Stapleton, Anna Kawakami, Venkatesh Sivaraman, Yanghui Cheng, Diana Qing, Adam Perer, Kenneth Holstein, Zhiwei Steven Wu, and Haiyi Zhu. 2022. How Child Welfare Workers Reduce Racial Disparities in Algorithmic Decisions. In *CHI Conference on Human Factors in Computing Systems*. 1–22.
- [19] Ramona W Denby, Efen Gomez, and Keith A Alford. 2016. Promoting well-being through relationship building: The role of smartphone technology in foster care. *Journal of Technology in Human Services* 34, 2 (2016), 183–208.
- [20] Ramona Denby Brinson, Efen Gomez, and Keith A Alford. 2015. Becoming" Smart" about Relationship Building: Foster Care Youth and the Use of Technology. (2015).
- [21] Frank Edwards and Christopher Wildeman. 2018. Characteristics of the front-line child welfare workforce. *Children and Youth Services Review* 89 (2018), 13–26.
- [22] Susan P Farruggia and Dara H Sorkin. 2009. Health risks for older US adolescents in foster care: the significance of important others' health behaviours on youths' health and health behaviours. *Child: Care, Health and Development* 35, 3 (2009), 340–348.
- [23] Stevenson Fergus and Marc A Zimmerman. 2005. Adolescent resilience: A framework for. *Annu. Rev. Public Health* 26 (2005), 399–419.
- [24] Gerhard Fischer. 1991. Supporting learning on demand with design environments. In *Proceedings of the International Conference on the Learning Sciences*, Vol. 199. Association for the Advancement of Computing in Education, Charlottesville, VA, 165–172.

- [25] Dale Fitch. 2012. Youth in foster care and social media: A framework for developing privacy guidelines. *Journal of Technology in Human Services* 30, 2 (2012), 94–108.
- [26] Emily Shenk Flory. 2019. *Teamwork: FosterCare.team Software Uses a Tech Approach to Assist Foster Families*. <https://www.cwla.org/teamwork-fostercare-team-software-uses-a-tech-approach-to-assist-foster-families/>
- [27] Asbjørn William Ammitzbøll Flügge, Thomas Hildebrandt, and Naja Holten Møller. 2020. Algorithmic decision making in public services: A CSCW-perspective. In *Companion of the 2020 ACM International Conference on Supporting Group Work*. 111–114.
- [28] Capacity Building Center for States. 2018. *Child Protective Services: A Guide for Caseworkers*.
- [29] James Garbarino and Ann Crouter. 1978. Defining the community context for parent-child relations: The correlates of child maltreatment. *Child development* (1978), 604–616.
- [30] Child Welfare Information Gateway. n.d.. *Normalcy for Youth in Foster Care*. <https://www.childwelfare.gov/topics/outofhome/resources-foster-families/parenting/normalcy/>
- [31] Jennifer M Geiger, Megan Hayes Piel, and Francie J Julien-Chinn. 2017. Improving relationships in child welfare practice: Perspectives of foster care providers. *Child and Adolescent Social Work Journal* 34, 1 (2017), 23–33.
- [32] Arup Kumar Ghosh, Karla Badillo-Urquiola, Shion Guha, Joseph J LaViola Jr, and Pamela J Wisniewski. 2018. Safety vs. surveillance: what children have to say about mobile apps for parental control. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. 1–14.
- [33] Arup Kumar Ghosh, Karla Badillo-Urquiola, Mary Beth Rosson, Heng Xu, John M Carroll, and Pamela J Wisniewski. 2018. A matter of control or safety? Examining parental use of technical monitoring apps on teens’ mobile devices. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. 1–14.
- [34] Nora Gustavsson and Ann MacEachron. 2015. Positive Youth Development and foster care youth: A digital perspective. *Journal of Human Behavior in the Social Environment* 25, 5 (2015), 407–415.
- [35] Christopher Hall, Nigel Parton, Sue Peckover, and Sue White. 2010. Child-centric information and communication technology (ICT) and the fragmentation of child welfare practice in England. *Journal of Social Policy* 39, 3 (2010), 393–413.
- [36] Caroline Harmon-Darrow, Karen Burruss, and Nadine Finigan-Carr. 2020. “We are kind of their parents”: Child welfare workers’ perspective on sexuality education for foster youth. *Children and Youth Services Review* 108 (2020), 104565.
- [37] Derek Hawkins. 2017. Backpack. com shuts down adult services ads after relentless pressure from authorities. *Washington Post* (2017).
- [38] Haiyan Jia, Pamela J. Wisniewski, Heng Xu, Mary Beth Rosson, and John Millar Carroll. 2015. Risk-taking as a Learning Process for Shaping Teen’s Online Information Privacy Behaviors. *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing* (2015).
- [39] Carswell K, McCarthy O, Murray E, and Bailey J. 2012. Integrating Psychological Theory Into the Design of an Online Intervention for Sexual Health: The Sexunzipped Website. *JMIR Res Protoc* 1, 2 (2012). <https://doi.org/10.2196/resprot.2114>
- [40] Olivia N Kachingwe, John P Salerno, Bradley O Boekeloo, Jessica N Fish, Melanie Geddings-Hayes, Faduma Aden, and Elizabeth M Aparicio. 2020. “The internet is not private”: The role of social media in sexual health among youth in foster care. *Journal of adolescence* 82 (2020), 50.
- [41] Anna Kawakami, Venkatesh Sivaraman, Hao-Fei Cheng, Logan Stapleton, Yanghui Cheng, Diana Qing, Adam Perer, Zhiwei Steven Wu, Haiyi Zhu, and Kenneth Holstein. 2022. Improving Human-AI Partnerships in Child Welfare: Understanding Worker Practices, Challenges, and Desires for Algorithmic Decision Support. In *CHI Conference on Human Factors in Computing Systems*. 1–18.
- [42] Anna Kawakami, Venkatesh Sivaraman, Logan Stapleton, Hao-Fei Cheng, Adam Perer, Zhiwei Steven Wu, Haiyi Zhu, and Kenneth Holstein. 2022. “Why Do I Care What’s Similar?” Probing Challenges in AI-Assisted Child Welfare Decision-Making through Worker-AI Interface Design Concepts. In *Designing Interactive Systems Conference*. 454–470.
- [43] Pamela K Kohler, Lisa E Manhart, and William E Lafferty. 2008. Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy. *Journal of adolescent Health* 42, 4 (2008), 344–351.
- [44] Inge Lecluijze, Bart Penders, Frans JM Feron, and Klasien Horstman. 2015. Co-production of ICT and children at risk: The introduction of the Child Index in Dutch child welfare. *Children and Youth Services Review* 56 (2015), 161–168.
- [45] Jennifer Lehmann and David Vicary. 2015. Out-of-Home Care – Where to Next? *Children Australia* 40, 4 (2015), 290–297. <https://doi.org/10.1017/cha.2015.53>
- [46] Sonia Livingstone and Ellen Helsper. 2007. Gradations in digital inclusion: Children, young people and the digital divide. *New media & society* 9, 4 (2007), 671–696.
- [47] Sonia Livingstone, Kjartan Ólafsson, Ellen J Helsper, Francisco Lupiáñez-Villanueva, Giuseppe A Veltri, and Frans Folkvord. 2017. Maximizing opportunities and minimizing risks for children online: The role of digital skills in emerging strategies of parental mediation. *Journal of communication* 67, 1 (2017), 82–105.
- [48] Sonia Livingstone and Mariya Stoilova. 2021. The 4Cs: Classifying online risk to children. (2021).

- [49] Tracy E MacGregor, Susan Rodger, Anne L Cummings, and Alan W Leschied. 2006. The needs of foster parents: A qualitative study of motivation, support, and retention. *Qualitative social work* 5, 3 (2006), 351–368.
- [50] Rose Maghsoudi, Jennifer Shapka, and Pamela Wisniewski. 2020. Examining how online risk exposure and online social capital influence adolescent psychological stress. *Computers in Human Behavior* 113 (2020), 106488.
- [51] Nicholas DE Mark and Lawrence L Wu. 2022. More comprehensive sex education reduced teen births: Quasi-experimental evidence. *Proceedings of the National Academy of Sciences* 119, 8 (2022), e2113144119.
- [52] Nora McDonald, Sarita Schoenebeck, and Andrea Forte. 2019. Reliability and Inter-rater Reliability in Qualitative Research: Norms and Guidelines for CSCW and HCI Practice. *Proceedings of the ACM on Human-Computer Interaction* 3 (11 2019), 1–23. <https://doi.org/10.1145/3359174>
- [53] Michael Medaris and Cathy Girouard. 2002. *Protecting children in cyberspace: The ICAC task force program*. US Department of Justice, Office of Justice Programs, Office of Juvenile
- [54] Nathalie Meurens, Eva Notté, Agata Wanat, and Louise Mariano. 2022. Child safety by design that works against online sexual exploitation of children. *Down to Zero Alliance's Building Back Better programme* (2022). <https://www.datocms-assets.com/22233/1652864615-child-safety-by-design-report-final-1.pdf>
- [55] Sarah Carter Narendorf and J Curtis McMillen. 2010. Substance use and substance use disorders as foster youth transition to adulthood. *Children and youth services review* 32, 1 (2010), 113–119.
- [56] Karen M Matta Oshima, Sarah Carter Narendorf, and J Curtis McMillen. 2013. Pregnancy risk among older youth transitioning out of foster care. *Children and Youth Services Review* 35, 10 (2013), 1760–1765.
- [57] Antti Oulasvirta and Kasper Hornbæk. 2016. HCI Research as Problem-Solving. 4956–4967. <https://doi.org/10.1145/2858036.2858283>
- [58] Anthony T Pinter, Pamela J Wisniewski, Heng Xu, Mary Beth Rosson, and Jack M Carroll. 2017. Adolescent online safety: Moving beyond formative evaluations to designing solutions for the future. In *Proceedings of the 2017 Conference on Interaction Design and Children*. 352–357.
- [59] Jessica Pryce, Donna Brown, Makenna Woods, and Ying Zhang. 2018. Children's Home Society: CaseAIM Evaluation.
- [60] Dorothy Roberts. 2022. *Torn Apart: How the Child Welfare System Destroys Black Families—and How Abolition Can Build a Safer World*. Basic Books.
- [61] Tara L Rutkowski, Heidi Hartikainen, Kirsten E Richards, and Pamela J Wisniewski. 2021. Family Communication: Examining the Differing Perceptions of Parents and Teens Regarding Online Safety Communication. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (2021), 1–23.
- [62] Devansh Saxena, Karla Badillo-Urquiola, Pamela J Wisniewski, and Shion Guha. 2020. A human-centered review of algorithms used within the US child welfare system. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. 1–15.
- [63] Devansh Saxena, Karla Badillo-Urquiola, Pamela J Wisniewski, and Shion Guha. 2021. A framework of high-stakes algorithmic decision-making for the public sector developed through a case study of child-welfare. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (2021), 1–41.
- [64] Devansh Saxena, Seh Young Moon, Dahlia Shehata, and Shion Guha. 2022. Unpacking Invisible Work Practices, Constraints, and Latent Power Relationships in Child Welfare through Casenote Analysis. In *CHI Conference on Human Factors in Computing Systems*. 1–22.
- [65] Samantha Surowiec and Gaurav Bansal. 2016. Job Relevance and IT Usage by Child Welfare Professionals in Wisconsin Counties. *AIS Electronic Library (AISeL)* 5 (2016).
- [66] Jake Terpstra. 1987. The rich and exacting role of the social worker in family foster care. *Child and Adolescent Social Work Journal* 4, 3 (1987), 12–29.
- [67] Heather M Thompson, Armeda Stevenson Wojciak, and Morgan E Cooley. 2017. Through their lens: Case managers' experiences of the child welfare system. *Qualitative Social Work* 16, 3 (2017), 411–429.
- [68] Patrick Tolan and Nancy Guerra. 1994. What works in reducing adolescent violence. *Boulder, CO: The Center for the Study and Prevention of Violence* (1994).
- [69] Judy Tudor, Efren Gomez, and Ramona W Denby. 2017. Public Child Welfare and a Multi-Agency Collaborative: Lessons Learned From the DREAMR Project. (2017).
- [70] Kristin Turney and Christopher Wildeman. 2016. Mental and physical health of children in foster care. *Pediatrics* 138, 5 (2016).
- [71] Judith Uchidiuno, Tamara Clegg, June Ahn, Jason Yip, Elizabeth Bonsignore, Daniel Pauw, Austin Beck, and Kelly Mills. 2017. Learning about Learning through Participatory Design with Families. In *Participatory Design for Learning*. Routledge, 45–58.
- [72] Michael Ungar, Mehdi Ghazinour, and Jörg Richter. 2013. Annual research review: What is resilience within the social ecology of human development? *Journal of child psychology and psychiatry* 54, 4 (2013), 348–366.
- [73] Pamela Wisniewski, Arup Kumar Ghosh, Heng Xu, Mary Beth Rosson, and John M Carroll. 2017. Parental control vs. teen self-regulation: Is there a middle ground for mobile online safety?. In *Proceedings of the 2017 ACM Conference on*

Computer Supported Cooperative Work and Social Computing. 51–69.

- [74] Pamela Wisniewski, Haiyan Jia, Na Wang, Saijing Zheng, Heng Xu, Mary Beth Rosson, and John M Carroll. 2015. Resilience mitigates the negative effects of adolescent internet addiction and online risk exposure. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. 4029–4038.
- [75] Pamela Wisniewski, Heng Xu, Mary Beth Rosson, and John M Carroll. 2017. Parents just don't understand: Why teens don't talk to parents about their online risk experiences. In *Proceedings of the 2017 ACM conference on computer supported cooperative work and social computing*. 523–540.
- [76] Pamela Wisniewski, Heng Xu, Mary Beth Rosson, Daniel F Perkins, and John M Carroll. 2016. Dear diary: Teens reflect on their weekly online risk experiences. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*. 3919–3930.
- [77] Marisol Wong-Villacres, Aakash Gautam, Wendy Roldan, Lucy Pei, Jessa Dickinson, Azra Ismail, Betsy DiSalvo, Neha Kumar, Tammy Clegg, Sheena Erete, Emily Roden, Nithya Sambasivan, and Jason Yip. 2020. From Needs to Strengths: Operationalizing an Assets-Based Design of Technology (*CSCW '20 Companion*). Association for Computing Machinery, New York, NY, USA, 527–535. <https://doi.org/10.1145/3406865.3418594>
- [78] Marc A Zimmerman. 2013. Resiliency theory: A strengths-based approach to research and practice for adolescent health. , 381–383 pages.

A SEMI-STRUCTURED INTERVIEW QUESTIONS FOR CASE WORKERS

A.1 Background Questions

- (1) How long have you been a child welfare worker?
- (2) Why did you first decide to become a child welfare worker?
- (3) What is the age range of the children in the cases you've managed in the past?
- (4) How many cases with teens have you managed over the years? Please describe in more detail the cases you have managed over the past 5 years.
- (5) Do you currently have any cases of teens in foster care? If so, please describe your three most prominent cases.
- (6) How long are you typically responsible for are these types of cases?
- (7) Do you typically prefer to manage cases of younger or older foster care children? Why?
- (8) What are your responsibilities as a child welfare worker with regards to foster teens?

A.2 Challenges

- (9) Are there any unique challenges to managing cases of foster teens compared to younger children? If so, please describe the two most prominent challenges.
- (10) How, if at all, have these challenges changed or stayed the same since you first started working as a child welfare worker? If so, please explain.
- (11) Do you receive any kind of training in order to be prepared to meet these challenges? If so, please describe.

A.3 Technology Challenges

- (12) Thinking about what you know about your teen cases, can you please describe any technology devices the teens have access to on a daily basis? For example:
 - (a) Desktop computer or laptop?
 - (b) Cell phone or smart phone?
 - (c) Tablet or handheld device?
 - (d) Fast-speed Internet?
- (13) How, if at all, do you feel the introduction of Internet-based technologies, such as social media, have changed your responsibilities as a child welfare worker?
- (14) Again, thinking about the tech use of your teen cases, have any of them ever spoken to you about information they have found online, or people they have spoken with online about their situations or lives?

- (15) Do the foster teens come to you to discuss what they do online? If so, what kinds of things do they talk about?
- (16) Thinking about your foster teen cases, have any of them shared their experiences with any risky situations online while in the foster care system? For example, have they reported
 - (a) Experiencing online harassment or cyberbullying?
 - (b) Engaging in sexting or received sexual solicitations?
 - (c) Exposure to or intentionally seeking out inappropriate online content?
 - (d) Being a victim of some kind of information privacy breach? If so (for any of the above), please explain.
- (17) Does your supervising organization or any other foster agency employees provide any assistance in terms of suggesting parental monitoring technologies that can be used to monitor what the teens do online?
 - (a) If so, which ones?
 - (b) If not, why not?
- (18) Do you receive any training regarding online safety for foster teens?
- (19) Do you feel like it is your responsibility to make sure the teens in the cases you manage are safe from online risks? Why or Why not?
- (20) What are your perceptions of fostered teens' ability to manage their safety and risks of online use? How about their privacy?
- (21) Do you feel like teens in the foster system experience more or less online risks than typical teens? Why or why not?

A.4 Systems of Support

- (22) Are there any technical systems of support in place for managing your cases? If so, please describe them in detail.
- (23) Are there any systems of support that help manage the child's history and placement information? If so, please describe in detail. a. Who has access to this system?

A.5 Future

- (24) What would make your life easier in terms of being confident that teens in foster care are safe from online risks?
- (25) What kinds of features would you like to see in a new technology designed to protect teens in foster care from online risks?
- (26) If these features existed, do you think you would recommend the use of these technologies? Why or why not?

Received January 2023; revised July 2023; accepted November 2023