



ICT and human safety: A street outreach perspective

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Abstract

Amid growing public scrutiny of policing and increasing advocacy for community-based violence prevention, street outreach programs, which employ local residents to mediate conflicts in their neighborhoods, are gaining traction. To explore how street outreach workers (SOWs) utilize information and communication technologies (ICTs) and their visions for future ICTs that could better support their efforts, we conducted interviews with 25 SOWs from three different organizations. Our findings reveal that SOWs use ICTs to: 1) identify and resolve conflicts, 2) foster collaboration and teamwork, and 3) strengthen community connections and trust. SOWs suggest that new ICTs could facilitate more seamless communication among themselves and community members, enhance training for conflict negotiation skills, and offer insights into effective mediation strategies.

Keywords: Community-led violence prevention; public safety; support tools; community justice initiatives; assets-based design

Introduction

As public awareness and scrutiny of the brutal, racist, and oppressive history of policing in the U.S. grows [71], community-based methods to keep the public safe and to reduce levels of violence are gaining traction. By violence, we refer

to any type of behavior that causes physical or bodily injury or harm, including gun violence that results from conflicts between individuals or groups (e.g., cliques or gangs). In the U.S., many Black and Latino/a/x communities that have been targeted by oppressive laws and policies that have led to health and income



disparities have also experienced high levels of violence, which can further impede communities' social and economic growth and development [14, 55]. There have been several state-led approaches to addressing violence, including increasing law enforcement, policy changes (e.g., tougher sentencing and stricter gun laws), and creating community-based programs that focus on youth job training and recidivism. The results of such approaches have been mixed, some even detrimental to certain communities. For example, over-policing can increase incidents of police harassment and Black and Latinx communities' distrust of police [46, 59, 92, 97, 100].

Conversely, residents have organized their own initiatives to address violence that involve building relationships, occupying public space, and advocating for more local resources [47, 60]. Similarly, organizations such as the Centers for Disease Control view violence as a public health crisis that requires healing and prevention rather than increased law enforcement and stricter policies and legislation that harm

historically oppressed communities [2, 21, 59, 91, 101].

This alternative perspective has led to the creation of *street outreach*, which refers to a neighborhood-level, assets-based [56, 102] model, where residents from the community are trained and paid to be street outreach workers (SOWs) who leverage their skills, relationships, and credibility to identify and disrupt potential violent conflict within their communities [15, 20, 67, 79]. Similar to social workers, some SOWs conduct long-term outreach in an attempt to address the underlying factors that led to the people being involved in violence by connecting them to resources (e.g., trauma-informed mental health services, housing, educational support, work training). Numerous evaluations suggest that this model for violence prevention is highly successful [44, 76, 88, 98, 99].

Recent studies exploring street outreach suggest that information and communication technologies (ICTs) can catalyze violent events [31, 72, 73]. ICTs refer to any digital tools used to support social interactions that are relatively easy to access and join (e.g., social media, web



forums, email lists) and/or provide personal one-on-one communication (e.g., mobile messaging services, phone calls). While there is growing evidence that ICTs play a role in instigating violence [31, 73], less research has investigated the potential to design ICTs to reduce violence, especially in communities where historic oppression drives higher rates of crime, over-policing, and police brutality [11, 53, 59, 61, 80]. As such, we turn our attention to how ICTs can be used to support community-led efforts to reduce violence. We pose the following research questions: *(RQ1) What is the role of information and communication technologies in street outreach work?* *(RQ2) How do street outreach workers envision new ICTs supporting their work?* Within the context of this research, we focus intentionally on community-based violence prevention work rather than punitive and reactionary methods (e.g., harsh sentencing, incarceration) or ad-hoc community policing strategies (e.g., police-led initiatives that engage residents in activities such as in neighborhood clean-ups or to report crimes), both of which have been extensively studied in HCI [33, 37, 58, 89, 96]. Street outreach work, which includes

conflict mediation and long-term outreach, not only engages local residents in violence prevention but also offers a more structured, assets-based approach as compared to traditional community-policing. Street outreach takes a non-punitive approach to violence prevention by engaging local residents as agents of care in building safe communities [25].

Situated in seven majority Black communities in Chicago, IL USA, results to our first research question (RQ1) suggest that street outreach workers use technologies to (1) identify and mediate violent conflicts; (2) facilitate collaboration and teamwork amongst SOWs; and (3) build community connections and trust that is essential to community-led violence prevention work. Results to our second research question (RQ2) illustrate that when SOWs imagine technologies that support their work, they prioritize communication, training, and mediation strategy selection while maintaining the privacy and safety of their outreach participants. We cautiously suggest that there is an opportunity for partnerships between designers and those leading community-based initiatives that



aim to address issues rooted in structural oppression to collaboratively build tools that support networks of workers aligned with community justice. However, such partnerships need to be carefully developed and the collaborators with lived expertise must drive the design process to mitigate the risk of developing technologies that could inadvertently cause harm.

This paper makes two main contributions to HCI. First, our findings provide insight into the role of technology in community-based violence prevention—providing direct accounts from SOWs about how they use ICTs to mediate conflicts and engage residents in outreach as well as the ways they keep their communication safe, extending prior research that does not include the technological perspective [3, 33, 58, 62, 92, 99, 101]. Furthermore, we situate this paper in prior literature that focuses on collaboratively designing technologies with communities that have faced structural oppression [25, 34, 50, 68]. By focusing on community-based violence prevention approaches, this paper builds on work that takes a social justice approach to design [4, 19, 28]. Second, we seek to grow the body of

work in HCI that specifically explores community-led alternatives to policing [25, 37, 58, 70, 82, 104, 105]. Implications from this paper provide insight into how ICTs can be collaboratively designed to support community-led violence prevention efforts, building on prior work about the design of violence prevention support tools [58, 75] and approaches to effective community-research partnerships [35, 50, 77].

Related work

Examining the Historical Factors that Impact Violence

Recent literature urges HCI scholars to attend to the historical context and structural harms that exist when working with communities that have experienced a history of injustice and oppression [4, 50, 68, 78]. Such studies impress upon the field the importance of not only acknowledging oppressive practices and policies as we conduct research but also charges us to discuss the historical context of these communities in our publications [50]. As designers and researchers, it is important to understand how the history of injustice and oppression in the United States have systemically created communities with



disparities—that is, disproportionate amounts of unemployment, criminalization, lack of educational opportunities, and negative health outcomes [59, 61]—prior to examining the impact and design of technology. It is one way to acknowledge and address institutional and societal harms [4]. In this section, we provide a historical lens into the context of violence and the factors that catalyze violence in order to better understand those who engage in violence prevention work.

Street outreach workers (SOWs) often work in our most disadvantaged communities and neighborhoods. Being from those areas, SOWs are prepared to work within the context given their deep understanding of the daily realities that residents in their communities face [59, 79, 99]. Policies that support segregation and discrimination have resulted in a lack of employment and lower paying jobs, thereby resulting in areas with concentrated poverty and high social vulnerability rates for communities that are majority Black and Latinx, as is the case for many communities on the south and west sides of Chicago, IL USA (where this study was conducted) [1, 84, 88]. Black and Latinx

communities, negatively impacted by such policies, still face concentrated poverty, inadequate health services, over-policing, underfunded public education, and lack of city services [1]. These factors catalyze cycles of violence and trauma. Furthermore, over policing, police brutality, and mass incarceration are conditions that have been normalized by the association of Blackness with violence and criminality [55]. Black criminality has been encoded in data as early as the 1890 census [65], which manifests today in the form of police gang databases [95]—such as those used in studies such as [6, 87]. As we bring attention to the historic association between Blackness and criminality, it is important to note that this paper intentionally focuses on street outreach work as an alternative to this narrative, where instead of being criminalized based on race, Black people (who have formerly been involved in gangs and groups as well as those who are many times described as being “at-risk” within such gang databases) share their experiences mediating violence in their communities, facts that are many times overlooked when discussing communities that experience high levels of violence.



It is in this context that community-based violence intervention work lies. Understanding the history and the factors that influence violence helps situate violence prevention work as a small, but important, factor in the complexity of solutions to completely eliminate violence, which would require policies that aim to reverse decades of oppression (e.g., reparations, increased business investments and employment opportunities, improved mental and physical health services, adequate educational opportunities). In this paper, we aim to bring attention to the factors that fuel violence and to the voices and experiences from the communities most impacted by violence into the discourse on violence prevention in HCI.

Street Outreach as an Approach to Reducing Violence

As violence across the United States reached its height in the early 1990s [45], scholars began considering how public health theories and approaches can inform violence interventions beyond more traditional solutions, such as harsher sentencing [79] and over policing. Despite various perspectives, the growing consensus

became that certain conditions (e.g., economic opportunities, resident mobility, local social structures) negatively impact behavior [51, 84] and that to be successful, interventions should address at least one of three variables—attitudes, norms, and self-efficacy [39]. Early public health approaches to violence prevention were based on the notion that violence is contagious, like other communicable diseases; thus, individuals who are traumatized by witnessing violence regularly are more likely to resort to violent behavior to resolve conflict. Some early public health approaches to reducing violence were “preventing injuries from firearms, interrupting the ‘cycle of violence,’ developing and evaluating community approaches to violence prevention, and changing public attitudes and beliefs toward violence. It is believed that attention to these areas offers the greatest chance of saving lives, preventing injuries, and reducing the overall impact of violence on our society” [63]. Early success of such approaches were foundational to current strategies for violence prevention, such as community-driven street outreach programs.



Street outreach programs stop the spread of violence by first identifying and working with high risk individuals to change their behaviors and attitudes (many times interrupting violent behavior in real-time) and secondly, by working with the individual and others in the community to identify resolutions to conflicts that do not involve violence, thereby changing the norms [15]. Another critical component of street outreach is to address underlying factors that can contribute to a person engaging in violence by connecting them to resources (e.g., trauma-informed mental healthcare, education, employment, housing) on an individual level and at a societal level by transforming social policy [9]. Given the public health perspective, such approaches are typically independent of law enforcement and other efforts to reduce violence [15]. Given that the street outreach approach prevents violence by targeting root causes rather than simply reacting to violence with punitive measures, it requires a long term and consistent engagement with individuals while also building relationships and trust within the community. Funding for these programs has historically been inconsistent, which has

caused sites to open and close, resulting in high worker turnover and disrupting their progress [15]. Even with these challenges, evaluations have shown that the street outreach model is effective at lowering rates of violence [44, 76, 88, 98, 99]. Street outreach programs have been implemented across a range of settings—in communities, hospitals, schools, prisons, and local governments across the U.S. as well as globally [12, 15, 20, 42, 67]. Given that SOWs engage in front line violence prevention work, it is important to understand their experiences when designing to support community-based violence prevention methods like street outreach.

Use of Technology Towards Violence Prevention in HCI

There is much HCI research that explores the role of technology in violence and public safety [3, 33, 37, 58, 83]; however, the two main foci have been examining how law enforcement use technology to improve safety [16, 96] and how residents use technology in community policing, a partnership model where residents work with law enforcement to improve public



safety [37, 58, 70, 82, 104, 105]. To understand how police use technology, researchers designed COPLINK to improve internal information sharing [16], while other areas of research seek to understand how surveillance tools are used in policing [96]. Related work has focused on how residents engage in local violence prevention efforts in Bangalore, India [83], Manchester, UK [24], Mexico City, Mexico [3], and Chicago, USA

[37, 58] while some have focused specifically on intimate partner violence [29, 41], violence in developing countries [5, 64], violence among homeless populations [57], or do not take a community-based approach [87]. Two studies in HCI have addressed street outreach; one explores the potential for public art and storytelling to garner support for street outreach [85], and another investigates how a mobile app for SOWs impacted their transformative practices [25]. By focusing on ICTs employed by community-based SOWs in a developed urban environment, this paper contributes to the growing body of literature that suggests technologies adopted in violence prevention techniques will vary

depending on the type of violence and the setting in which the violence occurs [94].

Prior literature has also focused on understanding the benefits of using social media in public safety, including increased partnership between citizens and law enforcement, awareness of local crime and violence, and citizen engagement in decision-making that impacts public safety [3, 24, 33, 52, 58, 83]. Social media has the ability to support stronger relationships between residents and police, enabling two-way discussions around addressing community concerns [52, 83]. Social media also increases community engagement in offline violence prevention activities and helps strengthen the community's voice by establishing more community-led discussions with the police [37]. However, despite how residents use technologies, political power impacts local city response to addressing citizens' concerns around public safety and policing [33]. In a three-year ethnography, Erete and Burrell [33] found that despite using ICTs in similar ways, lower income communities receive less response to address community concerns from local government officials and



law enforcement as compared to more affluent neighborhoods. Because prior HCI literature has predominantly focused on technology use from the perspectives of law enforcement and residents, we focus on understanding a rare but important hybrid—SOWs who are community residents that are paid to mediate violent situations and engage in outreach, but in different ways than law enforcement. Understanding SOWs can further improve our understanding of how to design support tools for community-led safety initiatives.

Data Collection

We interviewed 25 SOWs across seven SP sites using semi-structured interviews, which lasted, on average, 35 minutes in length. The sites were selected by SP administrators, and SOWs at each site gave permission prior to us visiting their sites to conduct interviews.

Sites refer to the physical offices that a team of SOWs work out of located in a specific neighborhood. Each of our sites were located in a different Chicago neighborhood (seven in total).

Because the structure of the organization requires full transparency, SP administrators felt it was important that our team introduce ourselves to all those in SP to create and maintain trust. We introduced ourselves at a collaborative, monthly meeting, where all SOWs across the city meet in an auditorium at a local university. Our team introductions lasted approximately 30 minutes. In addition, we introduced ourselves at each of the seven sites. One site asked us to have more formal introductions where we convened in a conference room, and SOWs asked our team questions about our collaboration with SP as well as provided insight into their thoughts about the role of technology in their work. We mention this particular site introduction as the 30 minute conversation was recorded with the permission of the 10 SOWs at that site. Five SOWs from that site agreed to participate in interviews and 3 SOWs from the other 6 sites (18 SOWs) agreed to participate (we had a minimum requirement of 3 per site). In addition, we interviewed two SP administrators who both had nearly a decade of experience working in the field as SOWs and continued to engage in mediations as necessary despite their current

role to support SOWs as administrators. We selected semi-structured interviews over other ethnographic methods (e.g., observations) due to participant preference. Interview participants stated reasons for this preference was due to the unpredictable nature of violence escalation (i.e., ensuring the physical well-being of the researchers) as well as the risk of losing legitimacy and trust if they are seen with us (researchers) by community residents who could identify us as outsiders that are potentially affiliated with law enforcement. Using interviews as our method of data collection also allowed SOWs to have testimonial authority—the ability for a person of color to speak and to be heard as in authority about their lived experiences [17].

Interviews with all 25 SOWs addressed their involvement with SP, their experience mediating violent conflicts, their methods for selecting mediation strategies, and the use of technology in their work. In addition to these topics, our interviews with administrative staff helped our team learn about the background and inner workings of the organization, including training techniques,

as well as feedback on our interview protocol.

At the end of each interview, interviewees completed a survey to collect demographic information and information about their personal and professional technology usage.

Analysis

To analyze the data, we first transcribed the interviews and the one site group discussion that was recorded. We then used Dedoose, an online collaborative coding tool, to iteratively, inductively code the data [93]. Both the first and second authors coded the dataset independently. Afterwards, the authors met several times to discuss the codes, checking for discrepancies between the two until there was 100% compliance. There was a total of 62 codes across the entire dataset using inductive grounded coding methods [93]. We used inductive coding to identify themes around technology use in street outreach work, conflict mediation strategies, and the future of ICTs in violence prevention work. After all transcriptions were coded, they were then grouped to reveal larger themes such as how ICTs are used to support conflict mediation, enable collaboration and teamwork, and

invoke connections and trust within the community while reimagining ways that ICTs can better support street outreach work. In this paper, we describe the themes that emerged from the most heavily reoccurring codes. Though the nuances of how violence prevention work is conducted may not seem directly relevant to technology design, we include it because understanding the context of this type of work and how ICTs are situated in that context is essential to design.

FINDINGS

Exploring the ways in which ICTs are used to support street outreach work (RQ1), we found that SOWs (1) use social media to identify and mediate conflicts; (2) leverage ICTs to support collaboration and teamwork; (3) engage in communication with the community using ICTs. Reimagining ICTs that support street outreach work (RQ2), SOWs expressed desire for technologies that inform mediation strategy selection, enhance training for SOWs, and improve communication between SOWs across sites and with community residents. In the following sections, we describe each of

these themes using quotes from participants that are edited only for clarity and/or to maintain anonymity. As a trigger warning to readers, some of these quotes describe instances of violence.

RQ1: What is the role of information and communication technologies in street outreach work?

Leveraging Social Media to Identify and Mediate Conflict. Aligned with [73], participants indicated that ICTs, particularly social media, can catalyze violent situations. In addition, participants in our study said ICTs can also help them mediate situations before they become violent. Keith gives an example of how social media can catalyze violence [72, 73]:

“Facebook can also, you know because these young guys, they put everything on social media, so you could actually see a lot of stuff that’s going on and you could probably stop it before it happens. You know, [...] but we [...] didn’t find out until afterwards, but it was this shooting that happened on [intersection] where [...] five

people got shot. The young lady got killed. This was about two, three weeks ago. And it was all over Facebook. They was arguing on Facebook and like, 'You know where I'm at. Come' [...] but all the time you're thinking they're not coming. And they just came over there shooting and like I say, five people got shot. The young lady died."

James describes a situation that escalated on social media that he was able to mediate:

"I just had a mediation yesterday. [...] So I'm looking on my Facebook page and I just see the girl, one of the girls, like she's my family, and the other girl is a girl I know from the neighborhood. They arguing back and forth all on Facebook. [...] I'm just seeing a lot of people from my neighborhood come and they're getting down on her. So I'm like, "Man, y'all stop. This is my cousin, it's over with." They're like, "It's your cousin?"

"Yeah, it's my cousin." [...] My main thing I wanted to do was buy time and focus on consequences. [...] So I used different strategies for different people. She immediately took [...] that picture down. But the [other] girl screenshot it and posted it back up. But I got her to take it down. I'm talking to her [throughout]. I'm just basically buying time. [...] I resolved the conflict like peacefully. [...] It took me four hours [but] it was sporadic. It was fast. A lot of people, if you don't have a relationship with nobody, you can't do that."

Both quotes illustrate how quickly conflicts can escalate through social media. Though Keith is unable to intervene, James's quote provides insight into how their work is connected to social media since he was able to quickly begin to implement conflict mediation strategies that align with his training (as highlighted in Table 1).

Chris explains that youth who engage in these conflicts often do not actually want to

engage in physical violence, but feel they have to if their reputation is on the line:

"A lot of these guys, they'll kill you but a lot of them really don't be wanting to do that. A lot of people really wanna talk, they want somebody to mediate it without them physically having to be there because they don't wanna look as if they weak. [...] It's like [my colleague] was saying exposed, being exposed, people don't like that shit. Anything that can keep them behind closed doors or help them. That's why a lot of them do this Facebook stuff because really they behind this computer."

This example demonstrates how ICTs can serve as a buffer, creating an opportunity for SOWs to intervene and provide a way for participants to *save face* before physical retaliation occurs, especially for those who do not necessarily wish to engage in physical violence but feel a need to express themselves via social media in the safety of their homes. While this type of social media exchange may escalate into physical

violence [11, 31, 72], it also suggests that ICTs such as social media can be used to deescalate heated exchanges.

Although social media can be a way to learn about and intercept conflicts, several SOWs were not on Facebook or other social media sites, which some attributed to a generational divide among SOWs. The digital divide may be especially visible when examining which social media tools are used as new tools become more prominent (e.g., Instagram, TikTok). Will shares a typical conversation with a younger colleague:

"We'll be talking about something, and he'll say, 'Oh, you didn't hear about what took place over there?' And he'll say, 'That's why you need Facebook.' I say, 'Man, I watch the news.' He say, 'News, for it'll be over. Everything's gon' be on Facebook."

Some older SOWs chose more traditional options (e.g., local news channel) for keeping abreast about happenings within their neighborhoods. However, some felt that using more traditional methods for sourcing information on current events

could result in having outdated information and missed opportunities to intervene and mediate a conflict in a timely manner. Familiarity and proficiency in using social media for getting information about what is happening within their local communities not only revealed the age differences between some of the younger and older SOWs and their usage of

ICTs, but also highlighted the significance of having *just-in-time information*, which enabled some SOWs to mediate or deescalate immediate conflicts accordingly. Future work should explore the various social media platforms that are used in community-led violence prevention work and the factors that may influence the use of those tools (e.g., age, comfort with technology, education, time). Outside of traditional news sources and social media, only one SOW explicitly stated that they used another app to find local information about current events. Russell says:

“What I got is the app that you go to that tells you when shootings occur in the city but it don’t pick up all of them [...] [It’ll show] a shooting occurred fifteen

minutes ago on such and such street”

In addition to being a source of information, social media were also a way to connect with other residents and SOWs who could provide help with mediations. Todd shares how his communication with someone over social media opened his access to a group involved in conflicts that he did not previously have inroads with:

“You know what I’ve learned is? The world’s so big but yet so small. [...] One time it did come about to where I was talking to a person on the social [media] site and find out they helped me get in, like into a crew or clique that nobody really rocked with, people like us [SOWs].”

Todd’s experience signifies the multiple, conflicting roles that social media plays in violence and street outreach work. While it can be a source of violence, social media can also serve as a bridge for SOWs to access crucial information and manage relationships necessary to mediate conflicts.

Supporting Collaboration and Teamwork through ICT Usage. SOWs emphasized the

importance of collaboration and teamwork in order to successfully engage in street outreach work. As evidence of its importance, opportunities to communicate are built into the practices and procedures of violence prevention work. Specifically, SOWs have short daily team meetings, where they touch base with their supervisor about things happening in the neighborhood, and longer weekly meetings, where they discuss potential strategies to overcome current conflicts. During the focus group, one SOW states:

“Every Thursday, we have strategy meetings for things that are brewing, that don’t get solved the first time or the initial time. What that would do? That would give us an opportunity to survey everything as a team and look at different strategies. ‘Okay, what if we do try this?’ Get input from everybody. I believe it can be very helpful.”

These strategy meetings are particularly vital to resolving ongoing conflicts and rapidly changing situations (e.g., feuds

between gangs). In addition to the scheduled meetings, SOWs send text messages and calls to team members as emergency situations unfold and to coordinate their response. Curtis explains how his team communicates in the field during an emergency:

“[My supervisor] would text everybody Yeah. Or say if I’m in the field, I heard, you just had a shooting over at such and such [...] she might call. I might text her and say [supervisor] we had a shooter on and she’d get the team, or she’d tell me, the team, and she’d tell me to get over there [...] meanwhile we keeping on texting.”

Based on the interviews, these texts would not contain confidential information about the situation but rather requests for others to meet them at a certain location.

In addition, all participants mentioned their reliance on their team members for support, reiterated that teamwork was vital to successfully address conflict, and acknowledged that ICTs played a role in supporting their collaborations. Additionally, SOWs gave advice to other

SOWs about how to handle high-stakes situations through conversations about similar experiences using multiple channels of communication. The ability to verbally communicate and talk through ideas and conflicts, especially in real-time dangerous situations, was a key collaboration strategy repeatedly employed by SOWs. Chris, for example, feels that the team dynamic is essential to the success of violence prevention work, stating: “I

think what works best is the teamwork that we got. I think it’s a team effort.” A major component of their teamwork was collaboratively basing conflict mediation strategies on who has relationships with the people involved, often in real-time, which is illustrated in the story that Kevin shares about a recent mediation:

“the [people involved in the conflict] I didn’t know, the [SOWs] that I was with, they knew them. So, that’s how we kinda do it. Like okay, you know them, you do the talking then since you know the person. They’ll listen to you. So, that’s basically how it will go, but I

think it was only one where it was a bunch of kids comin from school and this some young teenagers and I only knew one, but one of our co-workers he kinda knew all of them, and I let him do most of the talking so the young guy that I just kinda knew, I knew him through his Uncle or whatever and he kinda remembered me, but like I said, I didn’t know him personally but we knew of each other. So, he kinda got the other guys, I kinda calmed him down like, ‘Man, be cool, it’s alright. It ain’t that serious. Y’all gonna be cool again tomorrow and just let it go,’ and stuf like that, so..”

ICTs also enabled teamwork in tense situations where a fast response was crucial for the SOWs’ safety, as when Isaac explains how he handled a conflict in another part of the city, outside of his team’s range: “It was going on so fast, and mind racing ‘cause I’m like, ‘Man, I’m gonna call over here.’ I knew a few guys from the [other site’s] number.” It was also important that SOWs

be present as soon as possible after a shooting to quell potential retaliation, when the victim's family and friends are experiencing various emotions (e.g., anger, desperation, sadness) that may cause them to feel the need to reciprocate violence. Robert gave an example of the effectiveness of SOWs' teamwork when their team talked a group out of retaliating after an accidental shooting, saying:

"[The victim's] brother, who's actually out there, he was for peace because he knew it was a mistake. But his friends around him didn't wanna hear that. So they was trying to go bang on the [shooter] dude's door and drag him out the house, but we was all out there canvassing the neighborhood, and we talked the guys down."

These cases demonstrate how SOWs use mobile phones as well as in-person interaction to mediate complex conflicts as a team. Although SOWs use phone calls and texting for communication in the field, they are highly conscious of the sensitivity of the information they share through ICTs for

their own safety and the safety of their participants.

Invoking Community Connections and Trust Using ICTs. SOWs were transparent about the necessity of in-person and online communication to the kind of work that they do. When asked how he shares and receives information, Daniel replies, *"We got phone com-*

munication, text communication. We got social media communication and in person communication." Daniel's response illustrates how SOWs used a variety of ICTs to communicate and share information across multiple channels.

Our participants also described using ICTs to interact and communicate with community members about potentially violent conflicts. When asked about how he finds out about conflicts, Daniel

says, *"Sometimes it's from one of our high risk participants [..], sometimes it can be from a parent, or somebody from the block, a community member."*

Daniel's statement reveals that SOWs receive information from those directly or indirectly engaged in conflict. Robert testifies

to receiving information from a family member of someone directly involved in a conflict:

“These guys’ mothers will call us to come and calm their child down or their son down, like ‘He got a gun on me. Can you come and get the gun?’ Or, ‘Can you talk him down, ’cause he few out of the house with a gun.’ They’ll call us frst before they call the cops, because our outcome is [discussing] consequences, ‘This what’s gonna happen if you do this, this what’s gonna happen if you do this.’ The cops, they’re not giving you consequences, you are gonna be the consequence, you’re going to jail.”

SOWs describe the importance of their personal networks, particularly when they do not know some or all of the people involved, and social media can sometimes help make visible social connections that can support their work. For example, Anthony shares his approach, *“If I don’t know these people, don’t have no personal relationship with ’em, I fnd somebody to get*

me in. And I use family and friends. That’s just family or friend as a middleman.” In this way, he leverages the trust and credibility of others in his network to support mediation work, using ICTs and social media to help make those connections easier to see.

ICTs also play a large role in making sure SOWs are available at all times. When asked if he uses any technologies to share information, Will responds:

“Somebody from the streets, they might contact me on my phone, they might contact me in person, or they might contact me on Facebook, like, ‘Call me. Like, I need you, bro.’ Like, or something. But there’s gonna be some way that they could get in contact. [...] There will never be a way they can’t get in contact with me.”

ICTs support street outreach workers’ requirement to be available at any time. Their constant availability may also contribute to why community members trust them to difuse difcult situations.

Establishing trust is not a trivial matter as it is essential to how SOWs' effectively work within the communities where they live. Being careful about how they use ICTs to communicate about sensitive topics enables SOWs to continuously build trust while leveraging their social networks as a crucial mechanism for street outreach work. For example, though SOWs use text messaging and social media, they are careful not to document anything that could incriminate the people involved in the conflicts. Daniel says:

"Every communication that we do, it has to be nonincriminate. Even if somebody put some incriminat[ing] communication on social media, if we see it, it may not be the best thing for us to respond [online] and we got to make a judgment call. We make [phone] calls, but there's no substitution for in-person communication, because a lot of this stuff is sensitive and its got to be inperson. Even the way that we document our mediations, we got certain words and

terminologies that it is part of the training that speaks for certain things. We assign each [person] on a caseload a number. All our [participants] have a number, because it's sensitive. Certain lines can't get cross. [We] still live in the community."

From an ethical perspective, SOWs do not want to incriminate any of their outreach participants. In addition to protecting participants from the judicial system, Daniel's statement reveals their vulnerability since they are residents in the neighborhoods that they work and any form of informing is a betrayal that could result in dire consequences. Chris agrees, saying, "We don't ever say names, we say group A, group B." Similarly, Shana says,

"We pretend like every phone is bugged. The whole world is listening in that sense. I would never call, if you were my fellow worker and I needed your help, [...] I'm not going to say, 'Pookey Slim just shot whomever.' We're not going to talk about it. We don't do a lot of talking on the



phone. We do it in-person. [...] And then I go there, then, I can talk to him in person, alone, 'Look, this is what I heard, what the hell are you doing? What the hell? What happened? Tell me what happened.' Now we can get to the meat and potatoes of everything. We're able to mediate it peacefully."

From Shana's point of view, phone communication is best used to set up in-person meetings. Shana continues,

"We are a confidential organization and that gives us our credibility, the opportunity, and the privilege to be able to go into these communities with guys who are loading guns, because they trust us. We're trying to make them make a better choice before they cross the line. That way, nobody gets shot and nobody goes to jail. We can work with them and get them to change their behaviors and then they change their life."

Communication is essential to understanding how ICTs are used in street

outreach work, particularly the nuances of how they are used to make SOWs easily accessible, to invoke community connections, and to establish trust with residents.

DISCUSSION

While prior HCI research has studied how technologies catalyze violence in communities [31, 72, 73], little work has examined ICT usage in the context of violence prevention work [32, 74]. Our focus for this study was to amplify existing community violence prevention practices by understanding how SOWs use technology in their work and how ICTs might be better designed to support their work. We found that SOWs view ICTs such as social media as responsible for catalyzing violence but they also leverage ICTs in their work to prevent violence. Our results suggest that SOWs use ICTs to 1) identify and mediate conflicts on social media that could otherwise become violent; 2) collaborate with other SOWs; and 3) leverage community connections and trust. SOWs described opportunities for technologies to further support their work, while stressing that any such technologies



would need to prioritize the safety of SOWs and their participants. In this section, we detail two primary takeaways from this work: 1) implications for co-designing tools that support community safety and justice work; and 2) new questions and considerations for conducting collaborative research in socially complex contexts that respond to issues of justice.

Our findings demonstrate that SOWs used technology to support their non-punitive violence reduction practices as a community of care [9] to support (primarily) young people who could become targets and/or perpetrators of violence. The SOWs drew on their deep relationships, credibility, and trust in the community to *prevent* violence and incarceration, rather than responding to actual or suspected violence with violence and punishment, as is the case with law enforcement. SOWs demonstrated care to their participants and community by: 1) being accessible at all times to respond to conflicts and participants' needs; 2) building relationships with participants to understand what types of support they need; 3) personally extending themselves to try to address those needs; and 4) risking their own

safety to intervene in dangerous situations. SOWs collaborated with one another to develop communities of care [9] within their sites, using ICTs to collaborate and share information to help one another mediate conflicts.

However, SOWs shared that they did not have an infrastructure through which to connect with SOWs at other sites across the city, which limits their ability to share their mediation resources (e.g., their relationships, credibility, and care) with one another. Designing support tools that allow SOWs to more easily communicate across sites and organizations distributed around the city creates more opportunities for training, peer learning, and relationshipbuilding amongst SOWs, especially those who are novice and/or do not use social media. Given SOWs' current ICT practices, our findings suggest that there is an opportunity to co-design technologies with SOWs to connect their disparate communities of care. Such technologies would integrate SOWs' expertise through a collaborative design process that is attuned to considerations of safety and privacy so that the technologies do not inadvertently



expose SOWs or their outreach participants to risks such as retaliation from residents or investigations by law enforcement. SOWs made it clear that any design must preserve the trust and confidentiality that they depend upon to do their work. Furthermore, any co-design collaborations between researchers and street outreach organizations should be driven by SOWs and grounded in long-term relationships and commitments.

Street outreach is not the only context in which communities of care work to address community issues and disparities that result from historic and present structural racism. For instance, other community interventions that eschew the outsider provider model of addressing local disparities (e.g., large nonprofits or government agencies "serving" communities) in favor of a communitydriven model include examples in health and education. Local birth workers (e.g., doulas, midwives) are attempting to curb the disproportionate maternal mortality and morbidity in childbirth rates of women of color by providing care in their communities [30]. Restorative justice workers are attempting to curb the disproportionate amount of Black and

Brown youth that are incarcerated and serving longer sentences as compared to their white counterparts [22, 86]. Transformative justice groups build mechanisms for care, healing, and accountability for victims of sexual abuse and other violence or harm independent of the criminal legal system [27, 43, 54]. Community-based education partners create a landscape of out-of-school learning opportunities to enrich formal education, perceived as subpar, in their local neighborhoods [7, 36, 38]. All of this work, including street violence prevention, is local, community-powered, and counters injustice.

As calls grow to develop healing alternatives to policing, we must seek ways to support and connect a multitude of communitydriven, assets-based justice practices [9, 26, 27, 54, 102]. Community members develop such practices to address the intersectional harms that are inflicted on them by systems of domination (e.g., white supremacy, capitalism, cis-heteropatriarchy, nation) [17] using their lived expertise and local resources (e.g., relationships, credibility, trust). If we expand our findings



from street outreach workers to the broader ecosystem of community-driven justice initiatives, we can see potential for co-designing systems that enable cross-collaboration, communication, and resource sharing. Such an ecosystem would not only respond to many of the issues that are currently delegated to traditional policing, but would also serve to repair community infrastructures so that communities can work together to root out systemic issues and build local power.

REFERENCES

- [1] Daniel Aaronson, Daniel Hartley, and Bhashkar Mazumder. 2021. The Effects of the 1930s HOLC "Redlining" Maps. *American Economic Journal: Economic Policy* 13, 4 (November 2021), 355–92. <https://doi.org/10.1257/pol.20190414>
- [2] Michelle Alexander. 2012. *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. The New Press, USA.
- [3] Adriana Alvarado Garcia and Christopher A. Le Dantec. 2018. Quotidian Report: Grassroots Data Practices to Address Public Safety. *Proc. ACM Hum.-Comput. Interact.* 2, CSCW, Article 17 (Nov. 2018), 18 pages. <https://doi.org/10.1145/3274286>
- [4] Mariam Asad. 2019. Prefigurative Design as a Method for Research Justice. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW, Article 200 (Nov. 2019), 18 pages. <https://doi.org/10.1145/3359302>
- [5] A. Bailey and O. Ngwenyama. 2010. Community Mediation and Violence Prevention through Telecentre Usage: ICTs mediating the 'Border Line'. In *Proceedings of SIG GlobDev Third Annual Workshop*. GlobDev AIS eLibrary, Saint Louis, MO USA, 22 pages.
- [6] Lakshika Balasuriya, Sanjaya Wijeratne, Derek Doran, and Amit Sheth. 2016. Finding street gang members on Twitter. In *2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. IEEE, USA, 685–692. <https://doi.org/10.1109/ASONAM.2016.7752311>



- [7] Bianca J. Baldrige, Marc Lamont Hill, and James Earl Davis. 2011. New possibilities: (Re)engaging Black Male Youth Within Community-Based Educational Spaces. *Race Ethnicity and Education* 14, 1 (2011), 121–136. <https://doi.org/10.1080/13613324.2011.531984>
arXiv:<https://doi.org/10.1080/13613324.2011.531984>
- [8] Ruha Benjamin. 2019. Race After Technology: Abolitionist Tools for the New Jim Code. *Social Forces* 98, 4 (2019), 1–3. <https://doi.org/10.1093/sf/soz162>
arXiv:<https://academic.oup.com/sf/article-pdf/98/4/1/33382045/soz162.pdf>
- [9] April Bernard. 2015. *Transforming Justice, Transforming Lives: Women's Pathways to Desistance from Crime*. Lexington Books, USA.
- [10] Angalia Bianca and Linda Beckstrom. 2019. *In Deep: How I survived gangs, heroin, and prison to become a chicago violence interrupter*. Chicago Review Press Incorporated, USA.
- [11] Paul Boxer, Rod K. Brunson, Noni Gaylord-Harden, Kimberly Kahn, Desmond U. Patton, Joseph Richardson, Luis M. Rivera, Jocelyn R. Smith Lee, Mario S. Staller, Barbara Krahe, Eric F. Dubow, Dominic Parrott, and Kaylise Algrim. 2021. Addressing the inappropriate use of force by police in the United States and beyond: A behavioral and social science perspective. *Aggressive Behavior* 47, 5 (2021), 502–512. <https://doi.org/10.1002/ab.21970>
arXiv:<https://onlinelibrary.wiley.com/doi/pdf/10.1002/ab.21970>
- [12] Jeffrey Brantingham, Nick Sundback, Baichuan Yan, and Kristine Chan. 2017. *GRYD Intervention Incident Response & Gang Crime 2017 Evaluation Report*. Technical Report. City of Los Angeles Mayor's Ofce of Gang Reduction and Youth Development (GRYD). https://www.lagryd.org/sites/default/files/reports/GRYDIRandGangCrimeReport_2017_FINALv2_0.pdf Accessed: 2020-03-02.
- [13] Kirsten Bray and Christina Harrington. 2021. Speculative Blackness: Considering Afrofuturism in the

- Creation of Inclusive Speculative Design Probes.
In *Designing Interactive Systems Conference 2021 (Virtual Event, USA) (DIS '21)*. Association for Computing Machinery, New York, NY, USA, 1793–1806.
<https://doi.org/10.1145/3461778.3462002>
- [14] Marcus Burrell, Ann Marie White, Leah Frerichs, Melanie Funchess, Catherine Cerulli, Lauren DiGiovanni, and Kristen Hassmiller Lich. 2021. Depicting “the system”: How structural racism and disenfranchisement in the United States can cause dynamics in community violence among males in urban black communities. *Social Science & Medicine* 272 (2021), 113469. <https://doi.org/10.1016/j.socscimed.2020.113469>
- [15] Jeffrey A Butts, Caterina Gouvis Roman, Lindsay Bostwick, and Jeremy R Porter. 2015. Cure violence: a public health model to reduce gun violence. *Annu. Rev. Public Health* 36 (18 March 2015), 39–53.
- [16] Hsinchun Chen, Daniel Zeng, Homa Atabakhsh, Wojciech Wyzga, and Jenny Schroeder. 2003. COPLINK: Managing Law Enforcement Data and Knowledge. *Commun. ACM* 46 (2003), 28–34. Issue 1.
- [17] Patricia Hill Collins. 2019. *Intersectionality as Critical Social Theory*. Duke University Press, USA. <https://doi.org/10.1515/9781478007098>
- [18] Patricia Hill Collins and Sirma Bilge. 2016. *Intersectionality*. Polity Press, Medford, MA, USA.
- [19] Sasha Costanza-Chock. 2020. *Design justice: Community-led practices to build the worlds we need*. MIT Press, USA.
- [20] Chicago CRED. 2020. Chicago CRED. <https://chicagocred.org/> Accessed: March 2, 2020.
- [21] Linda L Dahlberg and Etienne G Krug. 2006. Violence: a global public health problem. *Ciênc. saúde coletiva* 11 (2006), 1163–1178.
- [22] Fania E Davis. 2019. *The Little Book of Race and Restorative Justice: Black lives, Healing, and US Social*



- Transformation*. Simon and Schuster, USA.
- [23] Michele R Decker, Holly C Wilcox, Charvonne N Holliday, and Daniel W Webster. 2018. An integrated public health approach to interpersonal violence and suicide prevention and response. *Public Health Reports* 133, 1_suppl (2018), 65S–79S.
- [24] Sebastian Deneff, Petra S. Bayerl, and Nico A. Kaptein. 2013. Social Media and the Police: Tweeting Practices of British Police Forces During the August 2011 Riots. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (Paris, France) (CHI '13)*. ACM, New York, NY, USA, 3471–3480. <https://doi.org/10.1145/2470654.2466477>
- [25] Jessa Dickinson, Jalon Arthur, Maddie Shiparski, Angalia Bianca, Alejandra Gonzalez, and Sheena Erete. 2021. Amplifying Community-led Violence Prevention as a Counter to Structural Oppression. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW1 (2021), 1–28.
- [26] Jessa Dickinson, Mark Díaz, Christopher A Le Dantec, and Sheena Erete. 2019. "The cavalry ain't coming in to save us": Supporting Capacities and Relationships through Civic Tech. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW (2019), 1–21.
- [27] Ejeris Dixon and Leah Lakshmi Piepezn-Samarasinha. 2020. *Beyond Survival: Strategies and Stories from the Transformative Justice Movement*. Chico, CA: AK Press, USA.
- [28] Lynn Dombrowski, Ellie Harmon, and Sarah Fox. 2016. Social Justice-Oriented Interaction Design: Outlining Key Design Strategies and Commitments. In *Proceedings of the 2016 ACM Conference on Designing Interactive Systems (Brisbane, QLD, Australia) (DIS '16)*. Association for Computing Machinery, New York, NY, USA, 656–671. <https://doi.org/10.1145/2901790.2901861>
- [29] Christo El Morr and Manpreet Layal. 2020. Effectiveness of ICT-based intimate partner violence interventions: a systematic review. *BMC public health* 20, 1 (2020), 1–25.



- [30] Nora Ellmann. 2020. Community-Based Doulas and Midwives Key to Addressing the U.S. Maternal Health Crisis. <https://www.americanprogress.org/issues/women/reports/2020/04/14/483114/community-based-doulas-midwives/>
- [31] Caitlin Elsaesser, Desmond Upton Patton, Emily Weinstein, Jacquelyn Santiago, Ayesha Clarke, and Rob Eschmann. 2021. Small becomes big, fast: Adolescent perceptions of how social media features escalate online conflict to ofine violence. *Children and youth services review* 122 (2021), 105898.
- [32] Caitlin M Elsaesser, Desmond U Patton, Allyson Kelley, Jacqueline Santiago, and Ayesha Clarke. 2021. Avoiding fights on social media: Strategies youth leverage to navigate conflict in a digital era. *Journal of community psychology* 49, 3 (2021), 806–821.
- [33] Sheena Erete and Jennifer O. Burrell. 2017. Empowered Participation: How Citizens Use Technology in Local Governance. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (Denver, Colorado, USA) (*CHI '17*). ACM, New York, NY, USA, 2307–2319. <https://doi.org/10.1145/3025453.3025996>
- [34] Sheena Erete, Yolanda A. Rankin, and Jakita O. Thomas. 2021. I Can’t Breathe: Reflections from Black Women in CSCW and HCI. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW3, Article 234 (jan 2021), 23 pages. <https://doi.org/10.1145/3432933>
- [35] Sheena Erete, Yolanda A. Rankin, and Jakita O. Thomas. 2022, in press. A Method to the Madness: Applying an Intersectional Analysis of Structural Oppression and Power in HCI and Design. *ACM Transactions on ComputerHuman Interaction (TOCHI)* -, - (2022, in press).
- [36] Sheena Erete, Karla Thomas, Denise Nacu, Jessa Dickinson, Naomi Thompson, and Nichole Pinkard. 2021. Applying a transformative justice approach to encourage the participation of Black and Latina Girls in computing. *ACM*



Transactions on Computing Education
(TOCE) 21, 4 (2021), 1–24.

- [37] Sheena L. Erete. 2015. Engaging Around Neighborhood Issues: How Online Communication Affects Offline Behavior. In *CSCW 2015* (Vancouver, BC, Canada) (CSCW '15). Association for Computing Machinery, New York, NY, USA, 1590–1601. <https://doi.org/10.1145/2675133.2675182>

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