Porous by Design: How Childcare Platforms Impact Worker Personhood, Safety, and Connection

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ABSTRACT

Care work is always already unequal. It involves looking after others' physical, psychological, emotional, and developmental needs. Paid care work tends to be conducted in private spaces, lack regulation, and reproduce unequal dynamics between clients and workers. These conditions lead to porous boundaries, a permeability experienced by workers between care and work, professional and personal, and private and public (sectors and spheres). Drawing on interviews with 16 workers who find work using Care.com, we argue that the porous boundaries of care work are reified in new ways through the design and use of emerging digitally mediated matching platforms. This has particular impacts for ranking personhood, reducing worker safety, and increasing atomization. In contrast, we find benefits in the forum-like structure and visible, interactive conversations of other platforms used to access childcare work. We end with a discussion of porousness by design and the trouble of locating design within worker platforms.

CCS CONCEPTS

• **Human-centered computing → Interaction design**; **Empirical studies in HCI**.

KEYWORDS

childcare, platform labor, gig work, worker-centered design

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1 INTRODUCTION

Childcare is—and has always been—unequal. This extends to paid childcare work, which is both gendered [61] and racialized [9, 53, 104] as well as devalued through low pay due to its invisibility within the private home [38]. The work involves being hired by parents and guardians to look after their children, for example when parents are working. It also involves caring for children's physical, psychological, emotional and/or developmental needs. Childcare workers face "porous boundaries" [38] between care and work that forge unequal relationships between themselves and their clients. Porousness, as an organizing principle of care work, signifies the permeability experienced by and expected of workers as they move between the blurry boundaries of care and work, formal and informal, private and public (sector and sphere) and professional and personal [38]. Prior work has engaged this concept in the commodification of care, where low pay can be justified through positioning it as a "labor of love", paid in "virtue" and "psychic income" [39, 45, 46]. This porous psychic boundary emerges alongside a spatial invisibility as the work itself takes place in the private home which destabilizes boundaries of "'work'-production-public from care-reproduction-private" [38]. Gender, race, ethnicity, and class also circumscribe paid childcare, leading to acute power imbalances between clients and workers [36, 53, 61].

Recent work on digitally mediated care work, often referred to as a form of gig work, has pointed to an amplification of these existing power asymmetries. As documented by worker-centered design scholars [47], the "gig economy" and "platform economy" have emerged as terms to signify the role of digital platforms in connecting workers with work opportunities, typified most often in ride hailing and goods delivery sectors. And while there has been a wealth of design scholarship on these sectors, mapping out the ways in which platform design affects childcare workers in particular has only just begun [79, 103]. Part of what makes platform care work unique in the gig economy, is the feminized nature of the work. As Ticona and Mateescu [101] have emphasized, a majority of work on the shifting labor relations resulting from the design and implementation of new digital labor platforms over the last decade has focused on sectors of the economy where formal and regulated employment is often the norm, or where new kinds of work are created by platforms. There is relatively little known about the platformization of care work, where work has historically been organized through informal arrangements [53]. We seek to overcome

the gendered bias in scholarship and in broader understandings about what constitutes digital labor in the gig economy, unsettling the ways in which Uber and Uberization, and their associated work practices, have come to encompass the whole gig economy [29].

In this paper, we partially respond to this challenge to better understand and support childcare workers and provide recommendations for childcare-focused design research. We draw on interviews with 16 U.S.-based childcare workers. While workers used many strategies to access clients, all of the workers we interviewed used the platform Care.com. This provided us with detailed insights on the structure and design of the platform, and how it is experienced by workers. In this article we focus on Care.com because of its universal use among interview participants, and its prominence in the platform care work sector as the world's largest care work platform. We argue that the porous boundaries of the organization of care work identified in previous care literatures are reified in new ways through Care.com, leading to harmful gendered and racialized outcomes for workers.

We show this through three interconnected arguments. First, we argue that the design of the platform encourages childcare workers to engage in particular behaviors in order to achieve a higher ranking through Care.com's algorithm that determines which profiles are most visible to clients. We show how workers seek to make sense of the algorithm as their personhood, or capacity for love and care, is ranked by the platform. This is also amplified by Care.com's own language and norms of what constitutes a good care worker. Second, we argue that Care.com prioritizes clients' safety over workers' safety. Asymmetries in platform design including background checks only for workers, mean that workers are put at risk. Additionally, safety is leveraged by platforms and clients to justify worker surveillance which leads to a double burden of unsafety for workers. Third, the atomised nature of the work means that workers have individual relationships with the platform and client, with the work taking place individually within a private household. This leaves workers without a clear benchmark or reference point for fair standards of work including what they are asked to do and how they are treated, as there is a lack of opportunity to meet other workers. This creates a more acute power imbalance between clients and childcare workers. Many workers detailed the benefits of other online platforms where communities of workers and clients seek childcare arrangements through a forum-like structure with visible and interactive conversations. On Facebook groups, for example, workers could learn more about other workers' work arrangements and could share tips with one another on improving working conditions. These groups created alternative infrastructures of collective care.

In what follows, we make two central contributions to design research. First, we bring concepts of "porousness" to design scholarship on care work to underscore the way systems can cultivate hazy and leaky permissions (also see [57]) — what we call "porous by design." This observation broadens definitions of "porousness" (a concept suggested as an analytic by geographer Kim England [38]) beyond the two-part labor relationship (home-work, employer-employee) to identify the carework platform as a vital but under-examined third relationship, one where key aspects of worker identity, expectation and accountability begin to blur.

Second, we extend conversations on worker-centered technology by revealing how forum-like platforms such as Facebook facilitate connections between childcare workers and clients in ways that amplify feelings of self-determined personhood, increased safety, and decreased isolation. We show that in contrast to dedicated platforms such as Care.com, forums make room for support, transparency, and trusted moderation.

2 RELATED WORKS

For decades, scholars have discussed the unequal relations of power involved in paid care work in the United States [26, 36, 37, 39, 40, 61]. Paid care work can involve numerous kinds of work with "varied activities of providing for the needs or well-being of another person" [53]. Childcare work in particular has historically been constructed as an extension of women's unpaid work in the home, leading to an erasure of queer parenting [90], as well as a lack of economic and social recognition [46]. This devaluation is further justified through its entanglements with "virtue" and "love" [39, 45, 46], with heightened effects for childcare workers marked by race, class, sexuality, disability, and other axes of difference. Hochschild [61] characterizes "the global care chain" as a pattern of women from the global South traveling to richer countries to fill a "care deficit" by caring for the children of middle-class families. Glenn [54] points to the role of immigrants and women of color conducting a disproportionate amount of U.S. care labor, including childcare.

Much of this work detailing imbalances of power between clients and care workers speak to what England [38] describes as the "porous boundaries" of the public and private (sphere/sector) in the organization of care work. The boundaries signify the ways in which paid care work occupies a space of continuity between the public and private. For example, the conditions of care work are such that a client's home becomes a workplace for care workers, workers' emotional work or capacity for care is quantified and monetized as waged work and workers are required to maintain professionality whilst working in clients' personal and informal spaces. The porous boundaries at the public-private continuity of gendered care work provides grounds for imbalanced and exploitative conditions of work [36–40].

The majority of scholarship discussed here has been conducted in the early- and mid-2000s. A significant change since then has been the advent of digital platform-mediated work. Below we review works that engage this digital development across three salient themes within design research: moderation of gig work, design for/with labor, and childcare design.

2.1 Moderation of Gig Work

As a first line of related work, we build on examinations of platform moderation with a particular attention to "gig work," a labor market characterized by short-term contracts or freelance and contract work as opposed to permanent jobs. Within this important body of work, scholars have investigated the labor implications of online platforms' digital architectures and particularly how they might amplify worker exploitation through information asymmetries [88, 94]. Information asymmetries refer to one-way lines of communication between the companies and workers such as withheld or thwarted access to information about worker benefits [94].

While companies can extract data on all aspects of work, those asymmetries ensure that workers are limited in negotiating contracts and work practices [19, 82, 88]. Many ride hail and app based delivery companies also use dynamic pricing models which algorithmically calculate workers' remuneration differently per job [88]. The opacity of these systems leads to worker frustration and lack of ability to plan earnings [17, 95]. Dubal [35] has called this practice "algorithmic wage discrimination". Others have discussed the ways in which workers can lose access to work through arbitrary deactivations resulting from, for example, customer complaints or low ratings [8, 30]. Fairwork has charted harmful payment structures that encourage workers to take excessive levels of risk [42] while other work outlines opportunities for workers to meet other workers at customer pick up points, delivery waiting points, or "zone centres" where they can share experiences and also movements for collective action [56, 63, 83, 100].

Unlike ride hailing and delivery, care work typically unfolds within clients' private homes, a relationship that significantly shifts the power balance between worker and client on gig work platforms, often toward the client [42]. A significant but limited body of work has detailed the ways in which workers communicate trustworthiness on online profiles of care work platforms, the marginalized racial-ethnic positions of care workers seeking digitally-mediated care work, and the ways in which care work platforms attempt to self-beneficially formalize employment relationships but fail to benefit workers [5, 43, 44, 102]. This work points out how care work platforms enable the mirroring of inequalities in previous offline-mediated forms of care work. Studying contractual terms and conditions for Australian disabled and aged care gig work platforms, McDonald and colleagues outline several shifting dynamics of control, including an imposition of risks and responsibilities onto individual users, dictation of contract conditions, and the monitoring of what counts as service quality standards [79, 101].

In their analysis of reviews on Care.com, one of the largest sites for hiring domestic labor, Ticona and Tsapatsarus [103] documented complaints that childcare workers were not allowed to review employers even after the CEO promised to provide client reviews the year prior. Such areas of childcare work, which are often gendered [62], involve closely surveilled emotional labor including heightened scrutinization of trust, safety, and accountability by clients [79]. Childcare workers' movements throughout the home may also be surveilled through smart home cameras, a practice encouraged by Care.com [2, 4]. While these studies have begun to expose the labor implications of the care work gig economy, we have yet to see much research conducted on prominent care platforms that mediate connections between clients and care workers. This is surprising given the number of media articles pointing to a post-pandemic "child care crisis" in the US [27]. Cohen [27] points to a lack of clarity on this crisis, calling for more research on private care arrangements arranged through platforms such as Care.com, where the conditions of care work mediated through digital platforms are somewhat distinct (workers and clients seek longer term arrangements and work takes place in clients' private households where mutual trust is of importance). It is this unique facet of childcare work that we seek to examine for design research through the concept of porousness.

2.2 Design for/with Labor

In a second strand of related scholarship, we turn to a growing body of literature that has focused on the design of platforms and services that prioritize workers—supporting their labor practices, relationships, values, and concerns. While work platforms tend to give precedence to the clients who pay for services [55, 67, 77], this line of work seeks to elevate under-supported worker perspectives and sometimes align technology development goals with those of worker organizations and unions. Some have labeled this process "worker-centered design" [47] with an attention to settings that exceed the typical spatial and temporal boundaries of established workplace activities. Scholars have considered how algorithmic management can be reimagined 'for workers, by workers' [108].

One focus of this scholarship has been on platform design to support emerging gig work relationships. Scholz and Schneider [93] have charted the development of worker-organized gig work cooperatives with a focus on democratic governance and ownership. Termed "design for sharing," Ann Light and Clodagh Miskelly have considered the economic dimensions of socially and ecologically sustainable work management [76], complicating a pervasive and longstanding property-ownership discourse [24], with implications for emerging forms of radical care [59, 105].

A connected conversation on worker-centered design emphasizes the communitarian possibilities of online social platforms [47]. To date, design scholars have outlined specific mechanisms for scaffolding worker-organized campaigns [66], supporting negotiations between workers and employers [91], and decentralizing platform power through multi-level governance [33, 69].

Within these studies of platform design, a crucial debate involves the differential attention given to historically under-examined, racialized, and otherwise devalued sites of low-wage labor, from contract workers annotating LLM datasets, to utility and maintenance workers navigating increased surveillance infrastructure [48, 75, 97]. Content moderation and annotation plays a particularly potent role in this unevenly seen and valued landscape given the invisibilized heightened emotional labor required [52, 86].

2.3 Childcare Design

A third and final stream of related work concerns design scholarship on childcare. In this work, relationships with parents and other caregivers have become a significant site of design creativity and intervention. Much of this scholarship focuses on the devices supporting or mediating parental care, from the management of children's health [68] to support for eating, math, and reading [25, 84]. Chen et al. [25], for example, designed a "kicking chair" that encourages children to sit in place by allowing them to create music through fidgeting and a "stamp plate" that encourages children to eat and learn basic counting skills by moving digital "shadows" (silhouettes) left behind by the food on their dishes. Connected work has examined digital-support for growth milestones such as toilet training and habits of healthy eating [58, 78]. This range of work tends to augment the human caregiver's role (whether the parent, nanny, daycare provider, or other caregiver) and de-emphasize the role of the technology, bolstering rather than replacing existing childcare activity, enjoyment, and expertise.

At the other end of this parent-oriented design spectrum are devices that extend or serve in the role of caregivers. Consider smart cameras and cribs that automatically console or keep track of children when parents and guardians are unavailable [99]. This work extends to what might be called "nanny branding" for parental controls such as internet filtering controls of Net Nanny [11] where a service automatically selects child-appropriate content; these services are marketed as filling the role of a "nanny." Within this collection of products, designers sometimes even explicitly displace the childcare worker with robotic mimicry (see experiments like the "robotic nanny" [96]).

An attention to safety continues this emphasis on children and parents, with work examining surveillance of children [50, 80], parent-teen mobile security [28], parental control interactions [6], parental background checks [1], and even parenting advice and support apps that sometimes backfire [71]. When these studies engage questions of equity or social difference, they tend to reveal the differentiation of specific parent/adult-focused devices such as the breast pump [32] which highlights the extreme lack of attention, care, and innovation within spaces of feminized parenting and childcare, particularly for minoritized groups—a sensibility underlined by the designers' call to action: "make it not suck" [31].

Here "user-driven" often implies consumer-driven (aimed at parents and guardians), as with Abujarad and colleagues' recent redesign of the background check [1]. When this scholarship does consider childcare workers, it tends to frame their needs as tied up in shared developmental objectives such as supporting children's sketching [107] or learning [14]. In a rare study of nanny perspectives, Julia Bernd and colleagues [13] describe the discomfort, feelings of powerlessness, and lack of control brought on by always-on smart home cameras, which often record worker activity without full caregiver consent (a concern echoed in [99]). Our work builds on this worker-centered perspective in the area of matching design, focusing on perceptions, expectations, fears, and hopes.

3 METHODS

In this study, we conducted 16 semi-structured interviews with U.S.-based childcare workers. Our goal was to better understand the context of their work and the tools and strategies they use to find and manage work. We used thematic analysis to identify and reflect on themes; we also have a complementary publication with a visual analysis of Care.com [72].

3.1 Recruitment

We recruited via Reddit and Facebook. We reached out to moderators of multiple subreddits for childcare workers and asked permission to post a screening survey, and we received permission to post it to the largest of these subreddits. We also asked moderators of private Facebook groups for nannies in our local area (Seattle) if they would post it for us, since we were unable to post it ourselves without joining the groups. We had one participant offer to share it in a Facebook nanny group that she was a part of that was local to a major city in the Mountain West area of the U.S. We recruited multiple participants through that posting. The first author also posted a link to their personal Facebook account and recruited a participant from their personal network.

Our screening survey asked about what labels the prospective participants used to describe their work, how long they had been doing this work, and what platforms they used. Given the large number of spam responses that we received, we later added questions to ask how they found the survey.

We selected participants that had given an answer for a question about why they were interested in participating, whose IP address roughly matched their stated location, and who had used online matching platforms. We prioritized reaching out to participants who had experience in professional organizations for childcare work. We stopped interviewing when we reached saturation (i.e., we no longer felt surprised by what we learned in our interviews).

3.2 Participants

We interviewed 12 women, two nonbinary people, and two men. 13 were white, two were Black, and one identified as mixed Black and white. Although we did not limit recruitment to people from the U.S., all participants were primarily located in the U.S. (one participant worked as a traveling nanny) and none mentioned being non-U.S. citizens, although we did not ask about it explicitly. About half lived in our local area. 14 of the participants were nannies, one worked primarily as an early childhood educator, and one described her childcare role as a postpartum doula. Some of the participants also did babysitting or backup care on the side. We have used pseudonyms to refer to our participants.

3.3 Interviews

Our interviews each lasted approximately 1 hour over Zoom. The first author conducted or was the notetaker at all of the interviews and one of the second authors conducted or was the notetaker for most of the interviews. Participants were given a consent form in advance of the interviews, and the interviewer went over it again at the beginning of the call and made time for participants' questions, after which we asked if they consented. Our interview questions asked about how participants started childcare work, how they learned to do their jobs, what sorts of support they sought out or provided other childcare workers, how they found work, what they thought was an ideal working environment and what they looked for in an employer, their experiences with online matching platforms, and what experiences, if any, they had with discrimination in the matching process or after they were hired. Discussions with a community partner about discrimination faced by childcare workers in the employment matching process informed our interview guide. Participants were compensated with a $50 gift card.

3.4 Analysis

We conducted a collaborative reflexive thematic analysis [15, 85]. Three of the authors took roughly a third of the interviews each and performed open coding. Given that we were using an interpretivist method [98], we did not perform intercoder reliability but instead we sought shared understanding through extensive discussion. The three authors met regularly and with the larger group to discuss our codes. The first author then grouped all of the codes into higher level categories which we then discussed further and developed themes from. Throughout the process, we memoed extensively about emerging themes and our emotional reactions.

3.5 Focus on Care.com

Much of our analysis was focused on Care.com, as a result of all of our interviewees accessing childcare work through this platform, which provided us with detailed insights. On Care.com as well as other dedicated childcare matching platforms, both childcare workers and clients can specify their preferred working hours and hourly rates, include a short biography, search listings, and message one another. Typically, childcare workers and clients then schedule a face-to-face or phone interview, and then negotiate contractual terms. Importantly, this is different to job boards or classified ads. Care.com hosts features that are pervasive to gig economy platforms, including rating systems, metrics and marketing rhetorics that frame workers as entrepreneurial agents [101]. Some workers additionally used general purpose social media, and messaging platforms, such as dedicated Facebook groups to access clients.

3.6 Ethics Statement

This research was approved by our institutional review board. It is part of a larger study on technology and childcare workers. We sought to approach our interviews with care for both our participants, who sometimes discussed emotionally difficult topics (e.g., racism, gender discrimination, and sexual harassment) and ourselves as researchers. We had distress protocols [34, 73] but did not need to act on them during any of the interviews. We limited the number of interviews that we conducted each day to give ourselves time to decompress and took time to discuss the interviews with members of the team if we were impacted emotionally.

4 FINDINGS

All of our interviewees accessed child care work using Care.com. Some also used other specialised matching platforms, general purpose social media, and messaging platforms, such as Facebook groups for matching nannies and parents. We learned that many of our participants felt that Care.com was not designed to meet their needs after they began a job. In response, they used discussion forums on multi-purpose online platforms such as Facebook groups and subreddits to learn more (or teach others) skills for working with children and for self-advocacy when engaging with parents, as well as provide each other with emotional support.

In the sections that follow, we examine these practices through the lens of three themes: ranking personhood, surveillance as "safety", and atomized and isolated work. We examine how questions of safety and the isolated nature of the work are further amplified by the idea of ranking personhood as a basis for how these platforms work. We end with a discussion of how our participants were developing communitarian alternatives to address the gaps in the design of matching platforms.

4.1 Ranking Personhood

While childcare workers have long experienced unfair working conditions, our interviewees illustrate how the introduction of the platform Care.com works as a mediator between clients and care workers, and leads to new inequalities in the process of accessing work, a system that we call *ranking personhood*. By ranking personhood we refer to how the hierarchical design of the platform encourages workers to represent their capacity for care and love by navigating an opaque system that requires workers to compete with one another for visibility and work.

When clients seek childcare workers on Care.com, they are presented with a list of potential care workers. Where workers feature on the list is determined by an algorithm. Participants indicated that being further up on the list was crucial for accessing work, as it would mean more visibility to and engagement from clients. However, it was not always clear why a profile might be placed earlier or later on the list. Different from other forms of child care mediation (agencies, informal searches, online groups), the presence of an algorithm built into the platform here means that workers are ranked through this ever-changing list.

Some participants came up with theories for how rankings get established. For example, Kathryn suspected that paying for a higher tier of membership, getting good reviews, and frequently signing in (including on multiple profiles) brought a childcare worker to the top of the ranking. She added, "*I mean, if I was doing an algorithm; that's what I would do.*" Other workers implemented similar strategies in seeking a higher ranking.

Iris had access to a family's Care.com account which meant she was able to view where she ranked for that family by logging into the account:

> "I just wish there was more ease with connecting with families, and more transparency about how the process works, or how you're ranked. One thing that I discovered with Care, that was very frustrating, and I don't understand why this is the case... So, I also have a family account with Care because of a family I used to work with. So I can log in and kind of see what it looks like from the parent side. And I used to be ranked really high. And now I'm not even on the first or second page. And I just can't make sense of that. I'm very active. I log in a lot. I have great reviews. I pay for premium [membership]. I'm doing all the things that Care wants you to do. So I'm like, why am I not ranked higher? And I just wish that there was transparency around that."

Like Iris, other participants also suspected that ratings (which were displayed as out of 5 stars) and reviews played a role in determining who ranked where on lists presented to clients. Participants were conscious that high ratings would indicate trustworthiness to potential clients and sought to keep these ratings high. However, multiple participants noted that if a childcare worker responded to a family even once on Care.com, regardless of whether they eventually hired them, the parents could leave a rating for the childcare worker. The unequal design of the platform, which allows potential clients to rate childcare workers in this way means that workers who want to maintain visibility on the platform must maintain consistent and polite communication with potential clients. This included maintaining a high response rate. Cora explained:

> "If you message back and forth with a family [on Care]—like someone, say, reaches out to me, and they're like, "This is the job listing. It's full time." And then [...] if I don't respond, I get penalized for my response rate. So if I do respond to make sure my response rate stays at an acceptable level, and I say, "Oh, thank you

> so much for reaching out. Unfortunately, I'm not available for this position, but I appreciate your time." And sometimes they'll just answer and say, "You're welcome." And then I'm just like, looking at that message. And I'm like if I don't respond to this, my response rate is going to go down. And I'm going to be lower in the ratings."

In addition, as Iris mentioned in a previous quote, having a premium membership was also reasoned to be important for ranking higher, and consequently being featured earlier on clients' lists. While for Iris it did not seem to result in a higher ranking, other participants also asserted that a premium membership was important for ranking placement. And while the platform states that a premium membership will enable workers to "[r]ank higher and be featured in search results with a premium badge" [23], workers pay up front with no guarantees that they will be able to access work. Additionally, the lack of transparency on how premium memberships enable a higher ranking, means that the platform is designed to create a competition among workers who are encouraged to invest in premium memberships to hedge their bets to increase their chances of accessing work.

In addition to their ranking and visibility, participants anticipated that potential clients would hire based on the extent to which workers "loved" the job. As with offline-mediated paid care work, the emotional labour of "feel[ing] the right feeling for the job" [60] is a crucial part of the work, which intersects the porous boundaries of the personal and professional. Different here are the ways in which workers are tasked with conveying this love through their profiles—a tip that Care.com suggests in their articles and guides, which conflate skill, personality, and character [18]. In their tips for a "must-read" profile, Care.com states that a care worker's profile is a "representation of your job qualities and also you as a person. Are you bubbly and cheerful? Are you organized and disciplined? Allow your profile to be an introduction to your character." [70] Childcare workers reported curating their online personas carefully through bios and photos to illustrate both a love of the job and a capacity for love. Cora compared it to creating a profile for a dating application, another context in which platforms are designed for facilitating intimacy:

> "They don't don't really know you, but they're making an impression based on just a short look at you. It's a lot like online dating because it's just you have one shot to get their attention. And you can't really show who you are, what you're about, but you have to try. [...] I'll kind of get into the more personal [topics in my profile]: I'm very attentive and warm. I really, genuinely love being around kids."

And similar to user concerns about dating applications, which are known to perpetuate biases against minoritized users through platform design [64], some care workers also experience a fear of discrimination in the hiring process. Care.com has community guidelines where they state "[c]ommunication or conduct that expresses hate, bullying, harassment, or discrimination is not allowed" [22]. However, participants reported their own strategies of keeping themselves safe from potentially discriminatory clients in lieu of more robust platform support. Queer participants—and participants who described themselves as being perceived as queer—noted discrimination and fear of discrimination that they faced. Some of these participants chose to not come out because they were "straight-passing", which may have had its own, more invisible costs to them; while others had strategies for trying to avoid being hired by families that might discriminate against them, as explained by Bea:

> "I always made sure that the first time I talked to a family before I ever met with them in person, before I ever really got into anything, I would find some way to just casually mention my wife or like, my girlfriend or whatever, at the time. Even if I was single, I would just pretend I had a girlfriend and just mention my girlfriend; I just wanted them to know that I was queer. And then there were a few times where at the very beginning families would drop me because of that."

While most queer participants tried to head off any potential discrimination during the interview process, participants that were worried about racist discrimination wanted to filter out anyone who might discriminate against them before they got to the interview stage. For example, Alex did not necessarily want a platform to try to obscure their race because they were worried that employers would discriminate against them after matching.

> "I feel like the only way to address [discrimination on a platform] is kind of a blind matching almost where it's like more based on the criteria that [the parents provide] as opposed to every platform [that] requires pictures of yourself. And it's almost undoable to take it out of that because people want to see who's going to be caring for their child. And when matching, the concern I would have would be that a family who might reject me for being Black, would not know that I'm Black. And then I ended up in a situation that I don't want to be in. So, I think it's really tough. I think it's not anything that has a perfect solution."

Racist discrimination regularly impacted another Black participant, John, who described how people would ask him about his race on the phone after he matched with them. As a result, he said that he ultimately felt safest working with other Black Americans. As platforms have incidental ways of displaying workers' identities through pictures and text, potential discrimination is consequently anticipated and navigated by workers' self-protection strategies discussed here.

These strategies revealed the porousness of the design system which leads to workers trying to i) make sense of the system, ii) adjust and readjust to its perceived requirements in order to access work, and iii) keep themselves protected in the process. The harms experienced by childcare workers are well-known in many senses; however, the introduction of matching platforms into the employment process has encoded ways of comparing and ranking childcare workers. As childcare workers seek to access work, the opacity of the ranking algorithm encourages them to make sense of the system. This conjuncture reveals the ranking of care not just to be a quantitative process but one of personhood, responding to a new kind of digitally mediated emotional labor as workers seek to convey their capacity for love. Workers do this by staying

consistently engaged with clients, paying for premium memberships, maintaining high ratings, curating their bios and pictures, and anticipating discrimination. Importantly, the design of the platform then, by default, penalizes childcare workers who have fewer resources—who are less "tech-savvy", cannot afford premium memberships, have less time to interact with potential employers via direct messages, or do not implement self-protection strategies that avoid discrimination. This signifies a layer of platform-mediated control of workers in the process of seeking work.

Many participants simultaneously used Facebook groups to find clients. While Facebook's algorithm has been highly criticized for its opaque nature (e.g., [41]), participants did not express the same concerns about whether their posts showed up on people's Facebook News Feeds. Using Facebook groups may introduce a different set of challenges, such as monitoring of personal Facebook profiles by clients (if not using a professional Facebook account) who may infer "values" based on workers' online activity. However, the design of the platform offers mutual access to profiles such that workers have the same rights and claims to see profiles of clients, acting as a more symmetrical model. One participant reported that search results led to them declining working with a parent who had a known history of making racist statements. This capacity to decline work based on reciprocal access to information stood in contrast to the platform asymmetries we consider next.

4.2 Surveillance as "Safety"

We found that platforms such as Care.com provide few tools for addressing power imbalances due to their asymmetrical interfaces and features, a condition heightened in relation to safety and care. For example, platforms use particular language and visuals (e.g. referring to workers as "background checked caregivers") to promote normative (and individuated) notions of "safety" for employers and justify the surveillance of workers without attending to childcare workers' safety.

4.2.1 Troubling asymmetrical ways of designing for "safety". Our findings revealed that the information asymmetries on specialized care platforms are deeply intertwined with the notions of safety and care offered through these platforms' features. A major asymmetry came from the amount of data the platform collects about childcare workers versus employers. For example, multiple participants expressed their resentment towards the power differentials exhibited by the platforms' reviewing mechanisms. Particularly, on Care.com, while parents could review childcare workers despite not having employed them, workers found no way to review employers despite having worked for them. For example, Judith shared:

> "[I hate Care.com because] you cannot negatively review a family [...] I worked for a dad that got handsy, that said some inappropriate things; there was nothing I could do other than just not work with him again. I reported him and I got [the response] back, essentially, "I'm so sorry, you felt unsafe in the situation." And then, but as [the parents] report you, your account goes on review. And then you're just not able to get jobs or you have to pay to get it back or you have to appeal to it. And it has a little red mark. I think that there should be system accountability. [...] I don't think it should be necessarily so one-sided. And I think you should be able to leave reviews for families I've left. I've worked for wonderful families. And I would want to shout it from the rooftops."

Here, we see how reporting an employer in response to compromised safety not only results in no action, but could also threaten the childcare worker's visibility on this platform. Lynette argued that "*Care.com always takes the side of the family [...] even if the family is in the wrong [...] I've heard of several nannies just getting kicked off the platform altogether because they said "no" to a family.*" These observations reflect the platforms' lack of care and consideration towards childcare workers and limits placed on their safety. Recalling the above mechanisms for ranking personhood, these measures coerce workers into conforming to predefined archetypes to stay visible. For example, Care.com's blog suggests that an ideal careworker such be confident and patient [18] (also see [72]).

Several participants also voiced concerns around the limited advocacy and support infrastructures on these platforms. Resonating with Judith's experience of receiving unhelpful response on reporting, Diana shared

> "[...] also just having more advocacy, or more customer service for the nannies, because what I've heard is that when you do reach out to Care, they're super unhelpful. They can't really do anything. They'll not really back you up on anything. And maybe having people who have worked in childcare [should] have more of a voice."

Diana highlights the limited voice and advocacy infrastructures afforded to the childcare workers on the platforms. Participants like Diana aspired for more support and backing through better and more prompt customer service on these platforms.

Beyond the initial matching phase, our participants described specialized platforms as lacking safety infrastructures. In the absence of platform support, childcare workers frequently rely on informal "off-platform" mechanisms to safeguard themselves. For instance, Kathryn would share her location with someone before attending interviews with families she had found on the platform:

> "I always make sure to [meet on] Zoom and everything before I go to their house or meet them in person. I always tell my friend "I'm at this address at this time; I'll call you in one hour", just in case. I mean, you never know [what will happen] when you're going to some random house."

Childcare workers also take proactive measures to assess the safety of a workplace beforehand. This motivation is driven not only by a desire to avoid quitting, but also due to the shortcomings of the reporting mechanisms offered by platforms. More specifically, in case of harassment incidents at the workplace, childcare workers find themselves with no alternative but to quit, a decision they often cannot afford. Diana shared:

> "[When they face harassment,] a lot of people aren't in a position where they can just quit and stop going to work and not have a backup plan [...] But I mean, like I said earlier, we don't have HR [(Human Resources)], we don't have anyone to advocate for us.

So you kind of have to figure out on your own, like, is this worth bringing up? And if it goes poorly, you could absolutely get let go. And a lot of nannies are in a tricky spot where they are so attached to the kids that they take care of, and they love the kids so much that they'll stay in a bad spot for longer. Because they don't want to leave those kiddos."

Diana's quote illustrates how the porous boundaries of personal and professional feelings of love toward the children they work with makes it difficult for childcare workers to leave an unsafe work environment. This sentiment was echoed by many of our participants who shared either experiencing or hearing stories about harassment on the job. The difficulty in being able to leave a job is in part due to the design of the platform which lacks safety infrastructures for workers, whilst the nature of the work, located at the porous boundary of personal and professional, coerces workers to continue working in unsafe working conditions.

4.2.2 Blurring notions of "safety" and surveillance. Our participants revealed additional inconsistencies around safety, stemming from how these specialized care platforms approached surveillance. As indicative of a power imbalance designed into a system, surveillance mechanisms included background checks for childcare workers such as Care.com's description of its background checks [22]: "Our membership screening is a good start. But caregiving is personal—circumstances and comfort levels differ. That's why we empower you with Supplemental Background Checks and important tips on what you should do for added peace of mind." The membership screening refers to a "CareCheck", a background check in a sex offender database and some criminal history databases; supplemental background checks include motor vehicle records checks and additional criminal record checks [20]. Although employers could arrange background checks for childcare workers, there were no corresponding background checks for the employers. Bea shared, "*If this family had been background checked, I would have known that the dad had a history of domestic violence. And he had a history of drug related violence, and I would have never worked for them.*" When trying to learn more about the safety features that Care.com offers, we found a page on Care.com that mentioned that parents go through a screening process [22], but we were unable to easily find out more information about this process. Similarly, participants perceived that Care.com (and similar platforms) only provided safety measures to protect parents and not childcare workers.

Several participants expressed concerns about the exorbitant costs associated with background checks on these platforms, a cost that workers had to bear. For instance, Alex shared:

> "They charged me, I think $25 to get a background check done, which I mean, that's the cost of a background check. But it's expensive. And also, it was a big deal for me, because when I was looking for jobs on Care, I was making $11 an hour, I mean, in total, I was making less than one paycheck I make now for a month. And so it was a big deal to spend $25—actually, I think it's $35 on a background check—and not even know if I was gonna get a job out of it."

On the contrary, utilizing platforms like Facebook for finding childcare jobs proved to be particularly beneficial due to its distinctive ability to accommodate both professional and personal facets of one's identity. Childcare workers appropriated this flexible feature of the platform—another type of porous boundary—to provide a degree of safety in a way that was more symmetrical for parents and childcare workers. As illustrated with the informed capacity to decline work described above, this symmetry enabled our participants to perform a kind of sousveillance: conducting personal "background checks" by glancing over the employers' Facebook profile or Googling them, enabling workers to quickly vet and assess employers' values, commitments, and beliefs.

Another form of asymmetry in Care.com's design was the different amounts of information that workers were required to provide to the platform, when compared with clients. This design decision not only meant that more worker data could be collected by the platform but also that clients could learn much more about workers than vice versa, resulting in a skewed information structure which favors clients. Diana explains:

> "I think that having it be more equitable in the things that the nannies have to share also get shared by the household, like being more specific about hours and expectations and pay would be helpful. I think a really, really great platform would do more to try to match families and caregivers based on philosophy [...] So on Care.com you know if your hours and your location are a good enough match that's enough where maybe someone will work together. But there's so much more to it, like your lifestyle and your ethics and your morals and what you believe in. And I think that there's just space there where families and providers could probably get matched up in a more meaningful way than just geographically."

Where clients get to know workers' beliefs and ethics, childcare workers have little to go on when making decisions on whether to take up work with a particular client. A more equitable structure where workers and clients are required to share the same information with one another would not only mitigate power imbalance in terms of expectations, but might also facilitate more meaningful matching between childcare workers and employers.

4.3 Atomized and Isolated Work

The atomized and isolated nature of child care work mediated through specialized matching platforms like Care.com mean that workers lack spaces of community which are important for setting and comparing norms and standards. This isolation can compound inequalities between workers and employers. In contrast, we found the design features of Facebook groups for nannies and clients can be conducive to better working conditions in relation to safety and transparency of standards.

4.3.1 Isolation and atomized experiences of care work. Childcare workers are spatially isolated on the job, primarily working in the private space of their employer's home. In our interviews, we heard time and time again that nannies have no human resources (HR) or coworkers. As Alex summed up: "*Nannying's kind of a lonely career.*" To grapple with this loneliness, workers described learning

how to advocate for themselves through trial and error or from talking with other nannies online (or, in some cases, in-person) and engaging with online resources. Harriet shared:

> "What I hear about the most [from other nannies], and what I have experienced is just [the need for] creating an industry standard. We are the sole people of our business. And we don't have an HR, we don't have somebody to create guidelines for us as a whole. And I don't know that we need it. But just kind of through chat with other nannies doing the same work, you are able to kind of figure out what is the bare minimum to request or accept. But yeah, the industry standards, there's a very wide range. And I don't think that is helpful for the work of nannies. There's no website to research what the salary should be. [...] I mean, the hardest thing, not having somebody to be an ear for you that knows your position [...] I've had to get more comfortable with confrontation in these positions. Because I've spent too many years being walked on, just to keep things comfortable and for fear of losing my employment and what could happen if I speak up. Not having somebody to be the buffer for you? That is hard."

Because of the lack of coworkers and HR, participants noted that nannies early on in their careers were often unaware of norms around having a contract, their legal rights, standard pay rates, and what kinds of behaviors were unacceptable (e.g., inappropriate behavior or expectations from parents). Furthermore, when employers are new to employing childcare workers and platforms do not provide guidelines on labor norms, workers are left to advocate for themselves. Furthermore, Christine explained that norms around informal interactions with employers could be unclear or complex:

> "They just wanted somebody to come take care of the kids and leave. And that was really hard for me, because I'm here in your home, like all day, I need you to see my humanity and see who I am. Because we don't get very many breaks. We don't get to talk with coworkers very often unless, you know, we're chatting with friends that are online. And so our interactions, even if they're minimal, I need them to be almost like a friendship—not quite, because you're still my employers and I'm still your employee. But you know, we have to have that bond a little bit. And if it doesn't work, then it just doesn't work for me."

Participants like Christine speak to the power imbalance between workers and employers leading to challenges navigating employment and friendship. In addition to the physical isolation of working in someone's home, workers find it lonely to have an employer as the primary relationship that they have with another adult at work. However, maintaining some distance was not always seen as undesirable; participants emphasized that while their job was unique from many other forms of labor because they created such close bonds with their employers, it was important that there not be excessive porousness between their professional and personal relationships. For example, it was important to some that the professional aspect of their labor was recognized and that there were professional boundaries and distance between themselves and their "nanny families", with Judith noting that: "*So, "we want our nanny to be part of the family" is unfortunately often a red flag.*"

In addition, we saw ways that platforms isolate nannies through their design. Care.com does not provide nannies with a way to review employers, which limits the amount of information that workers can share (both positive and negative). And our participants generally perceived Care.com as having little to no moderation because they had reported employers to the platform and received responses that participants felt were inadequate. Participants felt that they had to learn self-advocacy skills when dealing with difficult interactions with prospective employers, such as the ability to spot scam job listings. When we asked participants what matching platforms could do to address discrimination, our participants were uncertain how to answer because many of their negative experiences happened off the platform. In other words, they believed that the platform was not accountable for what takes place after matching. But as we will discuss in the next section, workers pointed to alternative governance models used by some Facebook groups that more successfully addressed these issues.

4.3.2 Designing for communitarian care and safety. Our participants discussed Facebook groups as alternatives to matching platforms (e.g., Care.com) that enabled safety, community, and accountability differently. Not all Facebook groups for nannies are run in communitarian ways, but our participants had found Facebook groups that were worker-centered. We learned that expectations for safety were set by community norms and enforced by moderators and nanny users, and accountability was seen as a collective task.

Participants described childcare workers, as well as employers, resisting isolated work and individuated notions of care and safety by creating alternate infrastructures via local Facebook groups for matching, maintaining communities of practice, and developing community safety. These groups typically enabled childcare workers and parents to post job listings and/or gave childcare workers a space to provide one another with advocacy and support in the absence of coworkers or HR. As Lynette summed up: "*In our line of work, we don't really have coworkers. So [my local Facebook nanny group] is kind of like our break room chat.*"

The groups that our participants were in typically provided more transparent (and proactive) moderation. While nannies typically expected little to no response to their requests for moderation on specialized matching platforms, there were community rules and norms that were actively enforced in many of the online (e.g., Facebook) groups that they participated in (e.g., if there were multiple complaints about a parent, they would be kicked out of the group). In a followup email after our interview, Cherish explained the moderation styles of the different groups that she was in:

> "[...] in the "nanny only" FB groups people reach out for support on many non-nanny related subjects as well, so it is definitely very community minded and supportive of the "whole person" and they are also very liberal and have extensive rules about engaging on the site. People who are not on board with using people's preferred pronouns or who espouse any type of "ism" are quickly banned from the groups as discrimination, body shaming, and phobic behaviours

> are not allowed. In the "nanny and parent" groups there are less rules so sometimes there are dust ups and arguments from parents who think nannies are charging too much or what have you, but the community always comes together to support the caregivers and advocate for them. Sometimes the admins have to turn off commenting, but for the most part the groups are well supervised and organized if a little 'too public' within the private group for my taste."

These groups also provided some degree of vetting (such as checking whether someone lived in the area and requiring that workers already have some childcare experience), without the surveillance seen in childcare matching platforms. As noted earlier, the effects of vetting for safety were more symmetrical in these groups due to a lack of one-sided background checks that we saw on specialized matching platforms. Participants described using the discussion forums to enact community safety by warning each other about which employers to avoid (e.g., using vague details like the initials of the family or children's ages and asking people to message them if they have questions) as well as helping each other set boundaries with employers. For example, when asked about how nannies share information with one another, Diana provided an example from a post that she had seen recently on Facebook:

> "I definitely have seen people working for parents who make inappropriate comments; I just saw [a post] the other day where a nanny was asking what she would do because the dad that she works for said something about like, "let's be friends on Facebook, and then I can like look at all your pictures and "like" all your pictures and so, if your mom asks, you can tell her that I'm the creepy old guy who's liking all of your old pictures" and like, super weird, super inappropriate, and she didn't know what to do. She didn't know what to say; it was a new job. She wasn't sure if it was a big enough red flag to bail."

Participants like Diana share how they rely on other childcare workers for help with identifying "red flags" (also noted by Judith earlier) or for help with navigating difficult situations. These forums provided the means for workers to create their own norms that are worker-centered and collaborative (between childcare workers and parents). Some of the groups instituted a minimum wage as well as pay ranges; as Diana notes: "*I think it's very normal that you have to have a pay range of no more than $5. So like, $25-$30 [...] just on behalf of the nannies.*" Other groups provide explanations for why they set the wage that they did, with participants sharing that that groups could be useful for educating parents about norms around acceptable wages, even if the parents were not in the group themselves. Susan explained:

> "I think going to that kind of a social media platform can be helpful, just in confidence boosting, just to be able to go to these families. And I know these girls do; sometimes they'll go to these families with the [social media] thread and be like, "Look, this is the standard", and so if nothing else, that's kind of nice. We're loud in numbers, I guess. [...] how are parents supposed to get educated if they don't really know, you know?"

Multiple participants, such as Kathryn, learned about their rights as workers through these groups, which changed the participants' practices during the hiring process and afterward:

> "A lot of people make contracts. I didn't know about that until a few years ago, when I joined that Facebook group, and people were talking about "in my contract...", and I was like, "What? Like, you guys make a physical contract that you sign?" I didn't know that. I didn't know other nannies before joining that [Facebook] group. So I was kind of out of the loop of, I guess, on things like that."

Kathryn later went on to say that the Facebook group made her realize that: "*I do deserve [a contract]. Like, wow. And I think you know, [realizations like] that can help slowly change people. But I wish it could be more promoted to parents as well.*" She felt platforms like Care.com could do a better job of providing parents with information about contracts and benefits (e.g., paid time off). While Care.com does provide information about contracts (which are framed in their documentation as protecting the employers [21, 49]), it offers no guarantee that parents will familiarize themselves with this information. By contrast, participants identified online social media forums like Facebook groups that offered spaces for them to connect and negotiate with employers, providing more symmetrical access to information.

5 DISCUSSION

We have so far learned how childcare workers experience algorithmic ranking systems on dedicated childcare matching platforms such as Care.com as connected with their sense of personhood. With particular concern for worker wellbeing and protection, we further saw how childcare workers experienced the platforms valuing the safety of employers over that of childcare workers' safety, how safety the platforms equate safety with surveillance, and how the platforms contribute to childcare workers' feeling of further isolation in their work. In response, participants described relying on online communities to create safer working conditions and reassert their personhood and rights. The groups that our participants were a part of enforced their own norms and standards around wages, worker rights, and safety—and we saw how those norms and standards benefited nannies and helped parents be better employers. Their governance structure shows the potential for a model for care and safety that contrasts with the individuated care and safety currently promoted on matching platforms: one in which care and safety are relational and grounded in solidarity and community. While we cannot generalize our findings to all forums or nanny Facebook groups—as many do not operate with such strict standards as the ones we described here—the online forums that our participants used serve as powerful alternatives for emerging sites of design research focused on communitarian care.

Below we expand on this opportunity along two open questions for childcare-focused design research: (1) how can design researchers address the conditions of porousness? And (2) what might childcare design look like from a worker perspective?

5.1 How Can Design Researchers Address the Conditions of Porousness?

Throughout our analysis we saw how a concern for porousness shaped worker experiences during and beyond the initial employment matching phase. By "porous" we refer to the permeable boundaries between work and home that structure the emotional labour of childcare work. Recall for example how participants shared their difficulties navigating friendship and professional employment with their employers. Participants noted how childcare work becomes deeply personal and a core part of their sense of identity. At the same time, they observed how the algorithmic component of matching algorithms specifies who comes to matter or is already seen as mattering in the system. This valuation works through asymmetrical design such as when childcare workers are concerned about metrics and rankings in a way that parents do not need to be. These algorithmic ranking and metric asymmetries reflect back and amplify power asymmetries as well as create a sense of blurred boundaries around not just care, but of the care workers themselves.

This insight builds on Ticona and Mateescu's [101] discussion of how platforms draw boundaries around formal and informal work as well as "symbolic boundaries between trustworthy and untrustworthy populations of workers." Ticona and Mateescu [101] describe how boundaries between technologies become porous through forms of individualized visibility. The childcare workers we spoke with described a porous boundary between their work and their perceived capacity for care and love when their personhood is ranked. Based on their understanding of what it takes to be ranked higher by an algorithm, they sought to adhere to an idealized archetype of a childcare worker that is co-created by clients (based on client requests) and the platform (based on the platform's language). When creating job ads on Care.com, for example, parents choose from a list of personality traits that they want in a childcare worker [72]. In this way, childcare work is idealized and seen as deeply personal and a core part of one's identity.

This ambiguity around ranking algorithms seems to prompt childcare workers to react to what Bucher [16] refers to as the "threat of invisibility", conforming their behavior to their understandings of what will result in higher rankings by the algorithmic system. Childcare workers had different theories about what would get them ranked higher but there was a significant amount of uncertainty throughout. In this sense, we saw porousness work in multiple ways: porous boundaries between perceptions of a childcare worker's inner self and professional life; and between perceived capacity for love and labor. We follow Fairwork [43] in suggesting that such platforms responsible for mediating home-based work should ensure symmetrical features such as double-sided identity verification checks, which are often only single sided, leaving workers at risk [79, 101]. It might also entail asking parents to provide more information about themselves and their child rearing philosophies. This reciprocal support would create a condition for more equitable childcare arrangements and matching programs in the face of porousness.

5.2 What Might Childcare Design Look Like from a Worker Perspective?

From our interviewees we learned that dedicated childcare worker forums on platforms such as Facebook groups provide a relative sanctuary for workers who are looking to share resources in a safe environment. Even though Facebook groups are not specifically designed for childcare workers to use, childcare workers perceive them to provide at least two advantages. First, they offer particular features that bolster a sense of transparency and control and enable workers to see everything happening with the forum at once. These features include: the development of rules for conduct that establish accountability norms across multiple stakeholders; questionnaires that users are required to fill out before entering the groups; and ways to sort posts based on relevance, posting time and date, and other criteria. Second, the forums allow workers to engage in conversations in which they do not feel the need to constantly self-regulate. Workers are operating in more or less separate physical spaces from one another, and are therefore able to comment on each other's arrangements, offering distanced perspectives on the work they are arranging. All these ostensibly accidental features tell us, as design scholars, that supporting transparency and collaborative accountability may be important for worker-centered platform development.

What remains less clear from our interviews are the trade-offs that Facebook groups present as they stand in for platforms dedicated to worker organizing, resource sharing, or employee-employer matching. While participants arguably saw ranking as more symmetrical on Facebook groups because posts from employers and workers are subject to the same algorithms, our participants did not discuss how Facebook ranks and orders group posts. This ranking system is notable given that it applied to people's posts to groups, and not people's profiles as on Care.com. From prior work, we know that Facebook groups and the like are not a panacea for solving childcare worker challenges [101]. For one, we know that transparency works better for some workers more than for others, often systematically excluding and disadvantaging workers along race, disability, and gender lines [12, 65, 89]. Consider Modragon, the Spanish network of worker-owned coöperatives that successfully shared profits among workers and staved off corporate ownership since 2020 [87], but also differentially benefits people across axes of geography, race, citizenship, and more by supporting workers based on whose labor counts within their system of value [10, 74]. We also know that when a cooperative platform or community-moderated forum poses benefits [7], those benefits might not affect everybody in the same way—often exacerbating harms for people already negatively impacted by platforms due to race, disability, gender and other aspects of social difference [92]. Forum moderation can become a significant burden and one that often falls on gendered and racialized groups that are already overburdened with care-taking tasks [51].

These reflections suggest the need for further analysis of emerging sites of worker-led and cooperative platform design. Such analysis might include an additional, wider set of worker perspectives that could confirm and/or expand our understanding of how the groups operate and are operated. This wider perspective might

also shed light on the trade-offs and tensions around worker transparency and advice sharing, including how those tensions differ across work contexts or platforms such as childcare (e.g., Care.com) as compared with grocery delivery (e.g., Instacart.com). It may also inform platform development that supports self-determination and belonging, revealing the conditions under which workers feel a sense of mutual cooperation and responsibility. In our memos about this project, we thought about ways of building solidarity between childcare workers and employers in spite of, and maybe directed explicitly against, existing power imbalances between them. For example, Carina launched in 2020 as a text-messaging based matching service for childcare workers in the states of California, Connecticut, Illinois, and Washington [3, 81]. Rather than present distinct views to workers and employers, the platform offers a single service in partnership with childcare labor unions, community organizations, and government agencies. By providing a space for nannies and parents to communicate with one another, cooperative platforms like Carina may help educate employers about not just workers' rights but also the concerns and difficulties that they face on the job.

6 CONCLUSION

This study has examined the perceptions of childcare workers who access work using Care.com. We learned that Care.com reanimates porous boundaries around care work along three emerging axes. First, childcare workers find the platform devalues their personhood using uneven metrics and algorithmic ranking. Second, the platform's safety measures provide safety for clients more than workers, producing asymmetrical feelings of trust and connection between clients and employers. Third, worker isolation grows from forming individual relationships with the platform and client, a feeling further exacerbated when the work takes place at a private household. Notably, our interviewees found forums such as Facebook groups served as alternative platforms for addressing concerns about rankings, safety, and isolation by sharing tips and resources. In future work, we call on researchers to take detailed and nuanced worker-centered approaches. This research will need to go beyond establishing checklists for ethical design principles [106]; we urge design scholars to trace social dynamics on childcare worker groups and forums to further outline the trade-offs around platforms' support for collaborative accountability and resource sharing. It is our hope that this work will support organizers and the communities that are created across and between platforms.

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