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In highly developed countries where smartphones are both accessible and expected, why are some individuals still choosing to use *dumbphones*[1]? Dumbphones, as an anachronistic (or, outdated) technology are an unusual choice when many government systems, business services, and interpersonal relationships make use of the diverse communication methods presented by smartphones. However, dumbphones are increasingly (re)adopted by individuals seeking, among other motivations, a low-distraction digital handset. We investigate the phenomenon of *designer dumbphones*, or newly developed dumbphones redesigned to meet the needs of dumbphone users, despite dumbphone-unfriendly current technical infrastructural. We report on the results of interviews with eight traditional dumbphone users, five designer dumbphone users, and two designer dumbphone developers. Our findings highlight both the impact of the digital disconnection movement and dumbphones as tools for mental and physical health, practicing religious devotion, and enacting political disaffiliation. Our analysis takes into account experiences of isolation during the COVID-19 pandemic, and the kinds of privilege needed to choose digital disconnection, along with the interpersonal complications that result from doing so. This work contributes to conversations around volitional technical (non)use and disputes the notion that increased communication leads to richer interpersonal interaction. As dumbphone (re)adoption begins to trend in popular media, our goal is to uncover potential sites of digital disconnection and understand how different groups of individuals might experience those sites.

CCS Concepts: • **Human-centered computing** → **Mobile phones**.

Additional Key Words and Phrases: dumbphones, smartphones, digital disconnection, non-use

## 1 INTRODUCTION

Smartphones originated as precious luxury goods. However, for residents of wealthy, industrialized nations[2], these high-tech devices are now assumed to be in the residents' pockets. Consider, for example, the United States, where residents are assumed to own smartphones. The FIDO (Fast IDentity Online) Alliance, a tech industry association advocating for "authentication standards to assist reducing the world's over-reliance on passwords," [12] argues that "a smartphone is something

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*This work was conducted while the first author was at Aalto University.

[1]See Appendix A for terminology details.

[2]We describe how this definition was arrived at in more detail later in this work, but a key delineating factor is environments in which smartphones are both widely available and accessible (in price) to most residents of that environment. This demarcation also corresponds approximately to countries where infrastructure for 5G has been deployed or is already launched.

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that end-users typically already have. Virtually all consumer-space two-factor authentication mechanisms today already make use of the user's smartphone." [76] The catch is that, in the US, residents are not actually universally smartphone owners; in 2021, of the 97% who owned a mobile phone, an estimated 15% had some form of a basic mobile phone, or *dumbphone* [50]. In the US, and similarly wealthy, industrialized countries, who makes up this non-insignificant portion of non-smartphone users and how do they experience a society that increasingly expects them to own a device they do not?

Within CSCW, we have some insight on why a given individual may not want to utilize a smartphone, including discordance with cultural or religious observance [11, 80], desire for digital disconnection or detox [33, 39], or to lessen concerns of surveillance [19]. Dumbphones comply with these concerns, as they are the generation of phones that preceded smartphones. Dumbphones are often characterized by a nine-button tactile (T9) keyboard and have little or no mobile data capacity[3]. Increasingly, dumbphones have been described in popular media as a way to lessen or limit engagement with potential digital distractions [8, 20, 24, 32]. Similarly, dumbphones have been proposed as a way of aiding youth in avoiding social media. The popular US-based *Wirecutter* product review site, affiliated with *The New York Times*, posits them on its suggestion page for 'The Best Smartphones For Kids', saying: *"Relying on a smartwatch or 'dumb' phone is one way to delay kids' exposure to social media"* [66].

For all of these reasons, dumbphones may be the right tool for a given individual, however, they will often also lead to experiences of *forced digital disconnection*. In these moments of disconnection, an individual will be unable to participate in activities that require the functionality of a smartphone. This divide demonstrates Lim's [44] argument that disconnection can be both empowering *and* oppressive depending on the setting. Unlike ICTD reports, in which researchers studied participants who were using dumbphones – as mobile phones – for the first time, our participants are rejecting the state-of-the-art (smartphones) they could have easily had access to.

This work is different from prior investigations because we are interested in both the motivations for contemporary dumbphone use (when individuals have ready access to smartphones), and the human and non-human networks that must emerge to support their use, given that the societies around them demand mobile device functionality that participants simply don't have. Our work interrogates the experiences of dumbphone users in spaces with avant-garde technical infrastructure – namely, in relatively high-income, highly-technically developed and infrastructured societies. Rather than an empirical report on implications of dumbphone use in smartphone-centric societies, we intend for this work to present some of the diversity in experience of voluntary modern dumbphone usage, as well as wide-ranging motivations for dumbphone adoption.

We spoke with fifteen participants. Thirteen of them were dumbphone users, who described their dumbphone use as unexpected within their wider social or cultural setting. Like their smartphone-wielding peers, these participants had the necessary resources to use a smartphone, but chose to use a dumbphone instead. Eight of these thirteen used *traditional* dumbphones (see Appendix A for further definition), or models that have been essentially untouched in both function and form since the advent of smartphones. The other five had experience with *designer* dumbphones (see Appendix A), or those developed for use in the contemporary era – e.g., designed to work on modern cell networks, with access to a limited suite of contemporary apps, such a modern messengers like Signal or WhatsApp. As opposed to traditional vendors of dumbphones, like Nokia, designer dumbphone brands cater to specific user groups and niches. They tend to cost far more than traditional dumbphones (e.g., 300 euros for the Light Phone II to 370 euros for the Mudita Pure), compared to their more traditional peers (an entry level Nokia 105, for example, sells for around nine

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[3]See Appendix A for a more detailed explanation.

euros in the same EU common market). The line between *designer* and *traditional* dumbphones can be blurry; for us, the key delineation was whether or not the device in its current form was analogous to the state-of-the-art shortly before smartphones became widely available. In contrast, designer dumbphones have been created since the advent of smartphones, as contemporary reactions to smartphones. The final two participants were the heads of two different designer dumbphone entities, and provided additional insight about the designer dumbphone movement.

Throughout this work, we refer to this group of first-generation mobile phones as *dumbphones*, in recognition of how that term was used by both our participants and their descriptions of their devices and of the larger *dumbphone* community, to which they felt allegiance. The negative connotations of *dumb* are very real, however, our participants embraced what they called the *dumbness* of their devices, as a way to actively signify rejection of their *smart* counterparts (smartphones). There is active debate on the appropriateness of this term within the wider first-generation mobile phone community beyond our participants; we choose to report in the language of our participants for whom *dumb* is a compliment, while recognizing that it is not a unanimously accepted term.

We chose to talk to these three groups of individuals to gain a variety of perspectives on the experiences of contemporary dumbphone use, as it may be mediated by device capabilities. We found distinctions between users of traditional and designer dumbphones in price, geography, and culturally-specific communication practices. Further, by interviewing creators of designer dumbphones, we are able to add an additional layer of perspective from individuals who saw enough of a need, desire, or provocation to launch a device of their own. In reporting on this third group, we are primarily concerned with their motivations for creating the devices and understanding how their designs contribute to the different experiences of traditional vs designer dumbphone users.

*Designer* dumbphones present the case for a clear and continued customer base for dumbphones. The particular combination of features, durability, and price suggest that their users have both the material funds and agency to acquire and use these devices and do so out of a clear desire to avoid smartphone usage. In other words, choosing to use one of these devices does not appear to be an act of need so much as desire for device owners. Our study of traditional dumbphone users and designer dumbphone users and creators suggests an important, but missing dimension of existing discussions of smartphone-centered digital detoxes or voluntarily disconnection. These conversations should be augmented by discussions of the materiality of (non)use of technical artifacts – beyond the (smart/dumb)phone axes – as proposed by Krischokowsky et al. [39].

Thus, our research questions can be divided into two parts:

- RQ1 – *what are the motivations for socially-incongruent dumbphone ownership?* Our participants are individuals who have ready access (financial and practical) to smartphones and live and work in societies where smartphone use is almost universal. However, these individuals choose to reject the forward flow of technology, in an act of what we understand as volitional technical (non)use. Specifically, we identify how to position smartphone "non-users" (rejectors) as simultaneously active consumers [17] of dumbphones. Finally, we investigate designer dumbphones as a demonstration of the value of this anachronistic technology to its users, given that they are willing to spend great deals of time and financial resources to obtain one compatible with contemporary cellular infrastructure.
- RQ2 – *what are the digital disconnection experiences of contemporary dumbphone users and what resources and privileges do they need to safely negotiate these experiences?* Previous work has shown that use of dumbphones – or lack of a mobile phone more generally – leads to experiences of disconnection in societies where use of mobile phones is standard [33, 46, 58]. We specifically study the use of dumbphones in smartphone-centric societies and the subsequent experiences of their users. Further, we examine the networks of interpersonal

and material resources needed to fill the voids of smartphone functionalities through Actor-Network Theory [40]. We analyze these observations from a standpoint of privilege, using ANT to help identify who may be able to engage in volitional disconnection and to whom it would be off limits. This includes examining the aspects of communication facilitated by smartphones that are difficult or impossible to perform on dumbphones, for example, group messaging and sharing images.

This work relays the results the experiences of thirteen interviewees and their motivations for using traditional and designer dumbphones, their experiences of use, and the implications of dumbphone use on their personal and professional lives. The further two interviewees, creators of designer dumbphones, give us a farther ranging perspective on the contemporary (designer) dumbphone movement. What we find is not a universal call for volitional technical (non-)use, but rather a desire for a gradient of digital access. Critically, our participants do not describe being anti-technology or dissidents from modern society. Instead, they describe a desire for access to the digital world but on their own selective terms. We chart the course of their journeys with dumbphones and the range of disconnection experiences they endure, both desired and not. We close with a call for the CSCW community, as one that studies communication technologies and computer-facilitated human interaction, to understand this study as one in which more robust communication systems (i.e., smartphones) are not only undesirable but, in some cases, actively detrimental to user health and happiness.

## 2 RELATED WORK

Our work builds upon research in CHI and CSCW communities, focusing on the concept of volitional technical (non)use. Through engagement with work that critically examines what it means to be a device (non)user, we are able to position our investigation of designer dumbphones. For this work, we define a dumbphone as one with only a subset of the features and capacities of a smartphone (see Appendix A for more technical delineations). Feature phones would be included in this category, assuming that their capabilities are generally congruent with those of dumbphones immediately prior to the advent of smartphones. Designer dumbphones may offer limited additional apps (e.g., non-SMS messengers, like Signal or WhatsApp) or aesthetic enhancements without reaching full smartphone capabilities.

Our work fits within a larger field of anachronistic technologies (or those that represent a technical step backwards or sideways, rather than forward) beyond mobile phones. Without contextualizing the anachronism presented by designer dumbphones, it is hard to make sense of the adoption of these devices that are behind the times while simultaneously carrying price tags similar to those of entry level smartphones and far greater than mass market dumbphones. Previous work [7] has shown that (non)use is impacted by socioeconomic inequalities, epitomizing this seeming contradiction, or, the desirability of anachronistic technology despite its price tag.

In examining what makes an anachronistic technology appealing to its users, we position our findings with respect to work on implementations of (smart/dumb)phones as sites of digital disconnection to understand the affordances presented by these devices, given their potential to facilitate these disconnection practices. Here, we refer to literature on the *dumb*-ing down of smartphones to make them potential sites for digital detoxing, with methods ranging from technical (content) to physical modifications.

Finally, we compare our work to existing work on mobile phones in the field of ICT4D. In this neighboring field, prevailing notions of the utility, affordability, and accessibility of mobile phones have been upended by studies that pull apart the differential experiences based on social axes. Here, too, the idea of "new is better" does not always hold up.

A goal of our work is to make sense of how dumbphone users conceptualize the disconnection affordances of their devices, and, more broadly, whether that is a motivating feature for device adoption in the first place. It is well accepted that use can be determined by potential applications of an artifact as opposed to purely what it was intended for – as Ahmed neatly summarizes it, "Use does not necessarily correspond to an intended function" [1]. Our investigation of designer dumbphones thus centers both their materiality and contents as a means of uncovering how their users are attempting to augment their communication environment. Understanding this perception can helps us see the desirability of dumbphones in light of the contradictions their materiality and contents present.

## 2.1 Volitional technical (non)use

Third-wave HCI has challenged the user vs non-user binary of the second wave; Bødker describes the user emphasis of second wave HCI as one in which the focus on "human actors have meant taking users seriously" [10, p. 5] and the technology in question was assumed to be useful. Davis' technology acceptance model (TAM) [16] laid the groundwork for investigations of technology uptake and adherence [35]. Building off Davis' model, Dourish & Satchell [59] identified a kind of taxonomy of non-use, ranging from lagging adoption to active resistance. Rosenberg & Vogelman-Natan [58] expand on the idea of second-hand use with their discussion of "surrogate users", while Wagenknecht [77] describes the "affected bystanders" of technology use. These alternative conceptions of users mesh with Comber et al.'s notion of "post-interaction computing" [14], in which the focus of HCI should not be limited to the individual device owner or primary operator as the singular research subject. Similarly, Levy [43] employs Actor-Network Theory to identify acts of (non)use as "constellations of power relations and institutional engagements mediated through technologies", demonstrating that such acts are not limited to the individual (non)user. This work complement's Portwood-Stacer's [54] more generalized idea of "media refusal" as a situated act [69] of non-consumption, in which the context a technology is inserted into holds a kind of primacy [10]. Lagging adoption, meanwhile, is extended by Kahma & Matschoss [37] who studied resistance to home smart energy services, identifying the diversity of factors that impact (non)adoption. Bardzell & Bardzell [5] similarly identify the role of subjectivity in acts of technical non-use, owing to both the artifact's positions and subjectivity. Non-use can be both collective [70] and an intentional design practice ("undesign") [52]. The richness of these non-use practices go ignored, Lin & Lindtner [45] argue, when there is a presumption of usefulness in the implementation of technology and technical interventions. For example, non-use has shown up in "right to disconnect", as described by Hesselbeth [33]. Krischkowsky [39] argues a manifestation of this right, as a "digital detox" in which non-users are actually "makers of un-use", as an active response to the suggested, or relevant, technical intervention. Our work makes use of these expansive definitions of (non)use – in particular, we theorize that designer dumbphones are an example of undesign targeted towards smartphone defectors.

## 2.2 Anachronistic technologies

Designer dumbphones upend the notion that technically progressive technology is always desirable [45] and that active users should be the focus of investigations of the impacts of those technologies [82]. If, as Baumer & Silberman argue [6], there is a viable "low or no-tech solution" that can be implemented, such as the *traditional* dumbphone that preceded the *designer* dumbphones, and thus an "implication to not design", what motivates the designers of these devices? Further, if use is tied to possession (or, being a consumer of a device [4]), what motivates designer dumbphone owners to adopt these devices? To position our investigation, we note that the anachronism presented by designer dumbphones is not an isolated case; previous work has uncovered, for example, the role of

racial authenticity in mediating use of digital turntables [23]. Other modernized instruments, like digital synthesizers, have been subject to similar, contextualized [61] investigations of (non)use, where the perceived politics [78, 81] of use are equally important as the material details [73]. We believe the desire to voluntarily disconnect (i.e., "unplug" [57]), or temporarily limit engagement [41], presents both the motivation for design and adoption of designer dumbphones. These devices do not appear to be designed for users who are uncomfortable or unfamiliar with smartphones as modern technical instruments (perhaps synonymous with "lagging adopters" in this context); given the relatively novel and expansive messaging features, for example, these users don't appear to be subjects of the "digital divide" that Knowles & Hanson [38] have observed with older adults and mobile phone use.

In making sense of the adoption of anachronistic technologies, the environment in which a person makes a choice shapes that choice. For example, the ethnic and cultural settings of turntable operators shapes their desire to present as racially authentic, which, in turn, is a driving force in their desire to avoid digital turntables in favor of their analog counterparts. In order to identify these factors in our study, we turn to Actor-Network Theory (ANT) to account for the variety of social and natural relationships that our participants are engaging with when they (re)consider their mobile phone habits and practices. We can employ ANT to understand the breadth of offloading that takes place for dumbphone users, when confronted with the need to engage in tasks or interactions designed for smartphones. As a theory, ANT posits that non-human actors (most pertinently, including technical devices) are co-producers of social processes and their presence or absence compromises the that process. Said differently, ANT allows for non-human actors to be responsible parties for the development and evolution of social processes [15]. As we know from other studies of mobile phone use (see below), there are a range of human actors (and subsequent social relationships) as well as natural factors that shape mobile phone adoption. Considering that mobile phones are ultimately communication devices premised on technical and natural infrastructure (e.g., network towers) makes this the kind of investigation site well suited to ANT.

## 2.3 Dumbphones and digital disconnection

Work in digital disconnection studies, or interrogations of the *digital detox* phenomenon [56, 71], frequently seek to repurpose smartphones as either traditional dumbphones or tools for reflection on a user's relationship with the device. In short, these interventions are attempts to resist the embeddedness of smartphones in daily life [31] with in-situ practices. For example, Lee et al. [42] describe smartphone users' efforts to disengage with the connectivity features of their devices, ranging from downgrading to a feature phone (as a traditional dumbphone with a few added features; see Appendix A) to systems to enforce self-regulation. Hiniker et al. [34] developed a system to support locking down specific smartphone features and share information about device-use habits with the smartphone's user. Krischkowsky et al. [39] more recently investigated informal material use practices, such as "the hairband technique", to enforce self-moderation of mobile phone use by making the device more difficult to operate. These "technologies of avoidance" [53] represent Dittmar & Bowen's [17] notion of "active non-use" in which non-use is "a continually negotiated practice" that can consist of alterations and variations. The practices uncovered by work in this space suggests that the learning sciences conception of "meta-cognition", or learning by engaging in self-reflection – e.g. [28, 63] – plays an important role in diminishing use practices.

There is a second set of work, however, that, as opposed to self-reflection and moderation techniques, centers on active reticence – and even outright refusal – to be a smartphone user. Work in this space presents two alternative courses of action: downgrading to a dumbphone (or, refusing to upgrade to a smartphone) or refusing a mobile phone entirely. Regarding the former, Ghita & Thoren employ auto-ethnographic methods to report on digital (dis)engagement [25] while

Ribak & Rosenthal's 2015 work [57] describes a "sense that resistance cannot last" regarding the onslaught of smartphones and imminent inability to avoid owning a mobile phone. Chib et al. describe sex workers engaging in concealment practices regarding their work by selectively using feature phones for certain types of interactions [13]; while these participants turn to feature phones in large part for reasons of privacy and security, Vermandere found that privacy concerns were not relevant for the Flemish dumbphone users they interviewed [75]. On non-use of any kind of mobile phone, Rosenberg & Vogelman-Natan's [58] respondents were both concerned more with the materiality (as opposed to content) of mobile phones and described the unique settings that allowed them to wholly abdicate ownership of a mobile phone, for example, having a spouse who owned one that could be borrowed when necessary.

To speculate on the impacts of disconnection on communication, we employ Granovetter's notion of *weak ties* [27]. The strength of a tie is determined by the time, emotional intensity, and intimacy (as "mutual confiding") in the relationship, however, a stronger tie does not indicate more overlap in their social circles. Highlighting the role that weak connections play, Granovetter suggests their utility for diffusion of information, as well as influence, while also providing mobility opportunities and changes for community organization. Granovetter argues that these kinds of weak ties provide critical *bridges* between social groups, while strong tied (e.g., those participants maintained with family and close friends) create only insular clusters of individuals. Therefore, the removal of the "average weak tie would do more 'damage' to transmission probabilities" than the removal of the "average strong tie". Thus, Granovetter concludes that weak ties are critical for maintaining information flow between groups, where the previously-held notion that strong ties played the same role is dismissed – Granovetter finds strong ties to be concentrated within groups.

## 2.4  Dumbphones in ICT4D

As an investigation of the true utility of mobile phones, our work builds off similar inquiries in the fields of information communication technology for development (ICT4D). In ICT4D, mobile phones – namely, dumbphones in most prior work – were initially touted as ways to enact global development. For example, Robert Jensen argued that the advent of mobile phones in the fishing markets of north Kerala not only streamlined the sales process, but provided important safety benefits [36]. This narrative of technodeterministic change has been challenged by other researchers, including Srinivasan & Burrell [65], Sreekumar [64], Steyn [67] who point to a larger host other social dynamics and sociotechnical developments in the Keralite region, including increased landline telephone access and economic phenomenons of migration and remittances. The complexity of the Keralite developments demonstrates the importance of a sociotechnical approach, demonstrating the need for what Wyche [83] argues in "provid[ing] necessary nuance to assumptions made about mobile phones' affordability, mobility, and ease of use." Wyche's own investigation [83] employs feminist theory to interrogate the daily experiences of mobile phone use for women in Nairobi, Kenya. For these participants, their devices provided them with a sense of control and they were primarily used for communication with pre-established, trusted contacts (as opposed to expert information delivery services, e.g., telemedicine services). On the experience of device use, Wyche also found that relatively out-of-date devices were appealing to the women she interviewed, as they avoided the usability challenges that came with new devices. Attempts to acclimate to newer phones and their features by attending IT classes were thwarted, for example, by time constraints imposed on them, as caretakers and homemakers. In contrast, it was easier for their husbands to attend these courses, as they did not shoulder equal child and home-based responsibilities. Following Wyche's model, we interrogate the differential, social-priviledge dependent experience of mobile phone use, based on sociocultural values and expectations.

There is one key difference between our work on mobile phones and that within the ICT4D field: For our participants, they choose a technical step-backward in adopting dumbphones, while the same devices are presented as a step forward for participants in the ICT4D field. Deeper investigation demonstrated in both ICT4D and our work challenges the true utility of the state-of-the-art. In particular, for our work, the notion of a *designer dumbphone* suggests a careful, comprehensive rejection of smartphones.

## 3 METHOD

For this work, we interviewed thirteen dumbphone users: eight traditional dumbphone users and five designer dumbphone users. Additionally, we interviewed two developers of contemporary designer dumbphones. The interview protocol was exempt from institutional ethics review by institutional regulation and our data management plan was approved by our responsible institutional entity. All participants were compensated; they received 20-euro gift cards for approximately hour-long interviews. The process was based in the grounded theory approach [48, 68] to qualitative research.

### 3.1 Researcher positionality

The first author is a previous dumbphone user and more recently has personally experimented with contemporary dumbphone usage in the USA and Northern Europe. The second author has also been a dumbphone user but since moved on to smartphones since they became prevalent.

### 3.2 Participant selection

The criteria for the first group of participants included individuals who have owned and operated a dumbphone, split into two groups: 1) those who were primarily users of traditional dumbphones, and 2) those using designer dumbphones (see Appendix B for example devices). For this study, a designer dumbphone is defined as a traditional dumbphone but with the addition of a small, curated set of additional features (see Appendix A). For example, a messaging service that is not exclusively SMS based or inclusion of a media player along with the default radio. For a device to be considered any kind of dumbphone, the hardware should significantly less advanced than an entry-level smartphone; for example, there may be no touch screen or camera.

We selected participants who self-described their adoption of a dumbphone as unusual within their community, social or professional setting; this is to target individuals who have gone out of their way to acquire these devices. These individuals were recruited through Reddit forums [47, 62] popular with those seeking experiences of digital minimalism or detoxing (r/digitalminimalism, r/dumbphones), with recruitment messages being posted from one of the author's accounts. We seek to follow the suggestions provided by Proferes et al. [55], with regards to pro-social engagement with a Reddit community, including by sharing our research back with the community, post-publication. Additional participants were recruited from those initial participants via snowball sampling [26, p. 815–816]. Interested potential participants were instructed to filled out a brief (eight question) pre-study screening form to ascertain the depth of their experience with dumbphones. We selected interviewees from the pool of eligible participants, prioritizing diversity in device models and geographical location to rank eligible interviewees (thirty in total). In seeking diversity, we wanted to obtain the most geographically representative sample possible, to speak to device behavior in different global regions. We enacted this priority in cases where we had two potential participants who had the same or very similar device usage profile (e.g., mostly overlapping phone models) but came from different global regions, and in these cases we selected for the potential participant who came from an underrepresented region in our recruitment pool. We sent twenty-two interview offers and received fifteen affirmative responses, leading to a corpus of thirteen interviews (one

participant's background did not end up fitting the study requirements and another participant cancelled their interview).

The second group of participants (the developers of designer dumbphones) were recruited directly. We selected devices from Jose Briones' dumbphone finder (https://josebriones.org/dumbphone-finder), which is popular with members of r/dumbphones. We filtered out for devices that were developed within the last decade and produced by either an individual or small organization, excluding those produced by a large corporation (e.g., Nokia). Using publicly available contact information for designers, we emailed them directly to set up interviews, should they be interested. We contacted four developers and conducted interviews with two of them.

### 3.3 Interview structure

Interviews were conducted over our institution-provided Zoom account. All interviews were led by the first author and participants were asked a series of questions in a semi-structured interview style setting [18, p. 2, 3, 29, 54]. After the interview, participants filled out a short demographic disclosure form to help us understand their background. We interviewed sixteen participants total, though we do not include one participant in the analysis as their experience did not fit our criteria (they primarily used a smartphone and carried a backup dumbphone). Interviews were recorded and transcribed. On average, the interviews lasted 55 minutes, ranging from 39 to 80 minutes. In total, there were 811 minutes of interview recordings analyzed.

### 3.4 Data analysis

We reached domain saturation – or, new themes stopped emerging – after around thirteen interviews with dumbphone users [2, 29, 60]. While we likely did not reach full saturation with the pool of designer dumbphone creators, we were unable to obtain more interviews, given both the small-shop style setting of these organizations and the relatively small number of such organizations. We include the insights of these designer dumbphone creators as extensions of the (designer) dumbphone user interviews. The research team used the open coding framework [21, 22] to analyze the interview transcripts. The first author reviewed all interview transcripts and came up with a preliminary list of codes. The authors then discussed these codes, resulting in the creation of a preliminary codebook, including participants' backgrounds, their motivation for using dumbphones, how they obtained their devices, their use practices (in what contexts they used the devices and how), their perspective on dumbphones and the potential longevity of the dumbphone movement, and the implications of their dumbphone usage. The first author then coded all interview transcripts with the preliminary codebook. The authors then discussed exemplary quotes for each of the codes in the preliminary codebook and came up with child codes based on prevalent themes within each larger grouping, as well as some potential modifications to the codebook based on ambiguity of some codes. Finally, the first author re-coded the entire interview corpus according to the final version of the code book. The research team then used thematic analysis [9] to identify themes within the set of excerpts of each code. In reporting on these themes, we avoid giving quantitative metrics so as not to obfuscate the complex, individualistic relationships between interviewees and their dumbphones and instead describe the themes themselves.

While we did not initially conduct our study with Actor-Network Theory (ANT) in mind, as we began the data analysis process, we quickly realized that participants' dumbphones were foundational members of information exchange loops consistent with those described by ANT. Namely, dumbphones (as non-human agents) were critical players in mediating information dissemination through that network. Therefore, our analysis of the interview data is both shaped by and understood in the context of ANT, as it allows us to assess the lived experience of using a dumbphone in the contemporary technical ecosystem. In particular, ANT allows us to consider the tools and
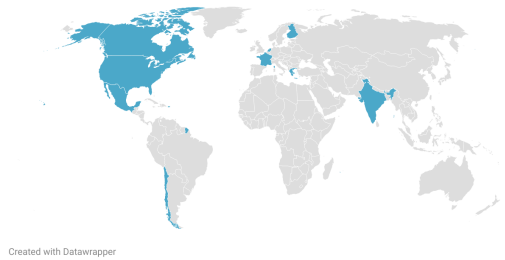
Created with Datawrapper

Fig. 1. Map with countries highlighted in which participants had experience using dumbphones.

relationships participants described arranging in order to make their dumbphone usage possible in societies and contexts designed primarily for smartphone users. When all actants work in unison, participants are able to engage with their larger social and natural worlds as desired, however, when these black boxes break down – as witnessed at the points of digital disconnection experienced by participants – we can see how negotiations between these actants take place. When these negotiations are successful, translation takes place between actants, and participants are able to successfully navigate their surroundings, which assumes denizens to be smartphone owners, with their own preferred alternative mobile phones (dumbphones).

With the review of the high-level findings, we can then see how each participant develops (and becomes an actant themselves) in their own network of – in the style of ANT – various actants and transformations to make their ultimate goal, essential communication and information transfer, possible with anachronistic technologies.

## 3.5 Participants

In effort to protect participant privacy, especially given that many participants are active members of the r/dumbphones Reddit forum and have described their experiences there as well, we report all demographic information in aggregate, including the list of devices used, which functions as personal information in this context. Further, we avoid identifying the devices of which the designer dumbphone creators work on. Additionally, we use the gender neutral *they* pronoun throughout the report.

We interviewed fifteen participants, thirteen of whom are either current or recent users of dumbphones (eight users of traditional dumbphones, five users of designer dumbphones). The other two participants are creators and users of designer dumbphones. The full list of devices used by participants is listed in the Appendix B. Participants came from eight countries (see Fig. 1) and the protocol is listed in Appendix C. Participants ranged in age from 19 to 51; for those who were teenagers in the 1990s or later, they tended to have have owned or regularly used mobile phones since adolescence, while for those who were adults in the 1990s, they tended to acquire their first mobile phones around that time. Most participants were male-identifying (13 men, 2 women, with no trans or non-binary participants). We did not collect participants' racial and ethnic backgrounds or household income because we sought a global audience and could not map equivalencies between different sociocultural contexts. In referring to participants, we use an ID number to protect their identity (U- for [designer] dumbphone users, D- for designer dumbphone creators), which is followed by their age (e.g., U0-*31*) as a way to provide a quick reference to experience with dumbphones (younger participants being more likely to have been exposed to smartphones from an early age, older participants having been exposed to smartphones after being longer time dumbphone users).

Participants were generally highly educated with six (40%) holding post-graduate degrees (e.g., Masters or Doctoral degrees), another six holding a university or college post-secondary degree (e.g., Bachelors or Associate), and the remaining three (20%) having some post-secondary education (e.g., partial completion of a university-based degree, practical or occupational training or other tertiary course). Participant employment varied, with three participants working in software, two in finance and insurance, two in education, and one each in computer and electronics manufacturing, retail, telecommunications, wholesale, media, and one student. The final two participants are designer dumbphone creators.

Aside from the designer dumbphone creators, participants had three major patterns of dumbphone usage. Most (8/13, or about 61%) have been fairly consistent users of dumbphones for much of their mobile-phone-owning years. For seven of those eight, they had cycled between dumbphones and some smartphones, but, at the time of their interviews, were using dumbphones and planned to continue doing so for the foreseeable future. For other participants, two had switched to dumbphones recently and had previously been using smartphones since they became widely available, with a further two participants exclusively using dumbphones on a regular basis. The final participant embarked on a dumbphone trial run after not using a dumbphone since smartphones became widely available, and the participant then returned to using smartphones after their experiment ended (before the interview took place). All participants used their dumbphones for personal communication with about half (8/13) additionally using them for professional communication. Most (9/13) participants considered themselves to be isolated as dumbphone users (i.e., did not have family, friends, or colleagues who also used dumbphones), while three had family members who also were dumbphone users, and one belongs to a cultural community that exclusively uses dumbphones or smartphones that have been re-rendered as dumbphones (e.g., browser functionality is removed).

Most (9 of 13, or roughly 70%) of regular participants (i.e., participants who were not designer dumbphone creators) described themselves as being generally technically savvy or having a professional background in tech. For example, U5-28 described themselves as a hobbyist app developer, stating "*I'm a weird person who's like, I'm gonna make apps for phones and not have a smartphone*". Similarly, U2-19 spoke of installing a different file explorer, gallery, and music player on their dumbphone, while U3-27 describes themselves as a "*bedroom coder.*"

## 4 FINDINGS

In this section we discuss the findings from the thirteen user interviews. We split these in to three portions: participant motivations for using a dumbphone, their lived experience of everyday life with a dumbphone, and finally the implications of participants' dumbphone use on their lives. These are then compared with the two interviewees of designer dumbphone creators, to give a broader sense of the contemporary dumbphone landscape.

### 4.1 Motivations for dumbphone use

We first describe the higher-level, ideological reasons why participants chose to use a dumbphone, to attend to the practical and theoretical nuance of participants' rationales. Second, we examine how participants selected their dumbphone models. Finally, we compare these self-described rationale with those shared by the creators of designer dumbphones in their interviews. These motivations can be understood, further, as the participants' stake in the *problematisation*, or the point at which the importance of the translation (information exchange) facilitated by an ANT network is defined.

*4.1.1 Adoption shaped by ideology.* There were three groupings of ideological rationale for participants adopting a dumbphone. In the first ideological grouping, participants tended to not be active

on social media excluding Reddit (only one participant identified as an enthusiastic active user of another platforms, Facebook). Several participants switched to – or returned to – dumbphones as part of a larger digital detox; they also usually either lessened their use of social media or gave it up completely during the same time frame. Ending their social media presence was, for these participants, mostly due to privacy and political concerns, centering around awareness of the role of technology on the contemporary human experience. For example, U13-34 sought privacy for their children and stepped away from social media as a result. Meanwhile, U8-51 was more concerned with the broader implications of smartphones and social media – in disavowing both, they enacted an *"individual protest"* to the *"destructive"* effects of these technologies.

Another group of participants (the second ideological grouping) saw dumbphones as a tool for defending their attention spans from smartphones. These participants described smartphones as *"a hungry monster"* for attention (U3-27) and an *"itch in your pocket"* (U5-28). Switching to a dumbphone was described by U6-41 as releasing an anchor that had been tightened around their waist. Reflecting on their time as smartphone users, these participants reported feeling that they had been missing out on meaningful activities – e.g., personal connections, shared moments with loved ones, and reading books. Instead, they engaged in activities like *doomscrolling* or, "the action of compulsively scrolling through social media or news feeds which relate to bad news." Experiencing distraction was annoying for many participants, but for others it took a physical and mental toll. Having two children diagnosed with Autism spectrum disorders, U6-41 empathizes with the endless capabilities, settings, and launchers of the smartphone as not only *"overwhelming"* but *"terrifying"*.

Unlike the two groups of participants, the third ideological group was motivated by ambivalence towards smartphones. This group simply didn't see a need to use smartphones or saw no reason why they couldn't give them up. Participants in this category were inclined towards technical simplicity and felt the constant connectedness of smartphones was unnecessary. Smartphones represented a trend and U3-27 was not interested in following the trend when they felt their dumbphone performed the same essential actions present in their friends' smartphones. Having obtained a dumbphone when it *was* the state of the art, U5-28 simply kept using dumbphones while the rest of their peers turned to smartphones, becoming an object of interest for *"still having one of those [dumbphones]."* Now, U5-28 reports the experience coming full circle, where their smartphone-laden peers remark on the experience of dumbphones upon seeing it and express a desire to return to one. Like those nostalgic peers, U10-40 saw dumbphones as a way to return to a state of blissful unawareness and inconvenience; they described missing their 2000s *"beater phone"* and its durable plastic body, which allowed for free movement. The phone's lack of mobile data meant no need to spiral into search engine *"rabbit holes"*. Further, unless the recipient of a direct call or SMS, U10-40 felt free in a state of general unawareness.

Overall: A large number of participants had strong ideological motivations for their dumbphone adoption. These corresponded to three groups of motivations: the first ideological group saw dumbphones as a way to enact ideological orientations, ranging from frustration with the current state of political and technical discourse, to religious adherence. The second ideological group was concerned with the behavioral implications of smartphone ownership, namely what they saw as the attention-grabbing, distracting nature of their smartphones. A third ideological group was more ambivalent towards dumbphones, but rejected smartphones as unnecessary additions to their lives. While motivations varied in format, they were all intentional (rather than passive) choices, which may explain some of the willingness to build out rich networks to support themselves as (designer) dumbphone users, as explored more in 5.2.1.

*4.1.2   Practical matters of adoption.* Once they decided to use a dumbphone, participants' focused on identifying a functional dumbphone model given their needs. Specific dumbphone model availability depends greatly on location, and participants were globally distributed and in positions to take advantage of globalized commerce, yielding a diverse history of devices. For example, some European-residing participants arranged to have devices imported that are only commercially available on the African continent. As a result of this vast array of devices used by participants, we describe general patterns of user interested, as opposed to the rationale users had for choosing a specific device model. Regarding traditional vs designer dumbphone models, as all designer dumbphone users had used traditional dumbphones prior to adopting their designer counterparts, so we highlight the deciding factors that made them choose to switch to designer models. Stepping back for a moment and recalling the ANT perspective, we can understand particpants' searches for the perfect device that fit their unique needs as an attempt to locate and lock-in a (designer) dumbphone. This represents the *interessement* stage of translation, as represents an attempt by the participants to solve their issues of smartphone replacement (or volitional non-use) by fixing their (designer) dumbphone into place, as an actant within the larger network. When devices failed to meet their proposed roles, participants often included more actants into their networks, suggesting a larger scale *enrollment* stage within the ANT tradition.

**Device materiality.** The physical components and their durability were central concerns for participants. For participants who carried dumbphones as their primary devices, but had backup smartphones or tablets in event of digital disconnection, ability to use their dumbphone as a hotspot was high on the list of necessary features (U11-41, U6-41). The T9 keyboard, or the nine-key tactile keyboard preserved from the earliest generation of cell phones, attracted users to the models on which it is present. While some dumbphone models have a full QWERTZ/QWERTY keyboard, the T9 attracted participants for its physical sensation of typing (U1-24), which also enabled sightless typing (U9-24). The low relative girth of the devices was another consideration for participants (U3-27), making it *"less of a bother to carry around"* (U1-24).

**Messaging.** As their primary mode of communication, participants were concerned with the ability of their devices to handle group messaging. Participants fell along two lines, based on whether localized practice for group communication was predominantly SMS (mostly US participants) or instant-messenger based (mostly non-US participants). For participants located outside the United States, instant messaging systems (or, *modern messengers*), such as WhatsApp, Facebook Messenger, Signal, and GroupMe were critical. Given that the rise of these messaging services coincided with the rise of smartphones, participants interested in using them turned to use the latest generation of dumbphones (U1-24, U3-27, U5-28, U6-41, U11-41). Some of these services, e.g., WhatsApp, are well-supported on KaiOS. A mobile Linux operating system forked from Firefox OS, KaiOS is the default system on many keypad feature phones, including those made by Nokia. For less popular services, such as Signal, participants had to look farther afield. Participants who used the "Punkt." brand devices were willing to pay the higher price for a designer dumbphone because it supported Signal natively (U11-41). Similarly, participants (U6-41, U12-40) who desired group SMS message threading – in which conversations between multiple participants appear chronologically in one chat view, rather than being dispersed to recipients as a one-on-one chat from the sender – were attracted to designer dumbphones which provided this feature. As designer dumbphones are a response to a contemporary need for dumbphones, they are more likely to, for example, assume that multi-person conversations are necessary, where for the original generation of dumbphones, multi-group conversations were not original features.

Overall: Participants made the choice to use a particular model of dumbphone – or sought out new ones – based on two main categories of concerns. First, the materiality of the device, or how durable and portable it was, along with how easy it was to type. Second, participants wanted

to be able to communicate with their social groups, many of whom rely on either group SMS conversations or modern messaging systems, such as WhatsApp and Signal.

*4.1.3   Perspective of designer dumbphone creators.* The creators we spoke with, D1 & D2, generally reaffirmed the patterns we observed in the self-professed sections above. D1 and D2 represent different kinds of designer dumbphones; the former's device is geared toward those looking to digitally detox and step away from the overwhelming nature of smartphones. D1's design does not closely resemble the traditional brick shaped, T9-sporting archetype of a dumbphone. From a physical distance, it could be mistaken for a small smartphone. In contrast, D2's device is designed in keeping with the style and format of the first generation of mobile phones.

As D1 and D2 described, their customers, while often overlapping, were concerned with the materiality and aesthetics of the devices, in keeping with findings from our interviews with dumbphone users. D2 reported that a number of their clients work in construction and saw the device as one of the few that was durable enough to last on a construction site. Another client group, for D2, were those looking to enact religious adherence through the device form factor. A merging of both ideological (as religious) and material concerns, the appeal of D2's device for Haredim (or, strictly observant Jewish communities) lay in its design. D2 described a conversation with a Haredi Rabbi, in which the Rabbi explained to D2 that the form factor of the device is important in determining whether or not the phone is Kosher. Phones complying with a strict interpretation of Jewish law are considered Kosher, as they have filters to disable certain kinds of content (e.g., of a sexual nature or gambling services) and may have default features that enable proper Sabbath observance (e.g., automatically disabling notifications). The form factor, too, plays a key role in making a phone Kosher – namely, as D2 repeated, the phone should not *"look cool"*. In other words, features like screen-swiping on many contemporary smartphones, would be seen as inappropriate on a Kosher phone, which is to be used only as a means of basic communication exchange. Similarly, D1's device does not display images natively, making it an option for former and recovering pornography addicts, who form one of their customer groups. Again, an ideological (as concern for health and recovery) goal resonates with the form factor of the device, here, as one that doesn't allow for images to be depicted on it.

Our (designer) dumbphone-using participants did not express a concern for surveillance by governmental or corporate entities. In part, this could be because our core recruiting platform was an online messaging board run by a tech company (Reddit). However, D2 noted that having a device with limited hardware capacity was appealing for some of their customers. Specifically, during the height of the COVID-19 pandemic, the State of California implemented COVID-19 tracking via smartphones, individuals interested in escaping what they saw as state surveillance reached out to D2. In becoming device users, these individuals were not sure what specific information California authorities could see on their device, but they wanted to reduce the information that might be made available (notably, D2's device does not have Bluetooth). Beyond those concerned about pandemic related surveillance, other customers expressed interest in the device as a way to limit their digital footprint and to avoid *"Big Data."*

Finally, congruent with the motivations of parents in the (designer) dumbphone user group we spoke with, D1 & D2 knew their devices were purchased by parents for their children, as D1's device has no camera or ability to display images, and D2's is available with or without a camera. D1 termed it less of a fear for parents about their children's devices getting *"hacked,"* but rather a concern about their children sending or receiving explicit imagery, in the form of sexting or pornography. Other parents were drawn to the devices, too, because the general lack of social media access on either device.

Overall: In contrast to interviewees who were only users of dumbphones, the designer dumbphone creators observed a wider span of rationale for use – logically consistent with their roles as product developers. Further, the rationales that they observed represented consistent merging of ideological and physical concerns, for example, in the motivations of customers seeking Kosher phones. The interviewees who spoke only as users of dumbphones were more likely to identify an ideological motivation, but then follow up with a specific material dimension of the device they chose. In sum, dumbphone users appear to be be secondarily concerned with the materiality of the devices, while dumbphone creators observed ideological and material concerns having equal weight.

## 4.2 Participant experiences with dumbphones

Participants' experiences with dumbphones fell on three axes of investigation. First, unlike smartphones which have highly modifiable contents, such as downloadable apps from marketplaces and operating system tweaks, dumbphones – especially designer ones – tend to have relatively locked-down contents. In particular, those dumbphones running KaiOS or other mobile operating systems that allow for the additional installation of some common mobile apps redesigned for the T9 keyboard. While the prior subsection explores rationale for choosing specific device models, this subsection instead explores the experiences of everyday life with those material configurations. Second, the physical form of the device and the materials of which it is composed mediated important parts of user experience. Unlike flagship smartphone models, which tend to have only a few hardware customizations available to customers (e.g., size of device memory), due to the breadth of the dumbphone market, there are more models with different hardware and form factor combinations. Finally, the shape and nature of the digital disconnection presented by being a dumbphone user in societies that expect smartphone usage differed between participants.

*4.2.1 Device features.* Many participants went through a series of dumbphones trying to find one that met their needs and remained as compatible as possible with the sociotechnical systems in which they exist. Thus, while in search of a specific combination of features, many participants felt they had to sacrifice some of their desired features in favor of what was available.

Many of the keypad feature phones participants used (e.g., several modern Nokia dumbphones) ran the KaiOS operating system. While earlier version of the operating system had been relatively more functional, participants described frustrations with the current version of the OS. Unlike dumbphone users who might be encountering a mobile phone for the first time, our participants were accustomed to the state of the art technology, and found KaiOS, compared to other OS experiences, highly frustrating. One participant envisioned the intended audience of KaiOS as someone who *"didn't have enough money to buy a smartphone, but still need everything a smartphone can offer"* (U12-40), which is of course a distinct group from the participants in this study; these are participants who intentionally sought to use dumbphones as a means of volitional rejection of the smartphone status quo. Given that participants saw use of KaiOS devices as a way to pare down their technical footprint (or reject a more robust one), they expected what they saw as basic services and applications as needing to be highly refined and effective. Thus, the relative bugginess of dumbphones proved a major hindrance, compared to the modern, highly-engineered experience of smartphones participants had used prior. The *"feature creep"* of modern dumbphones proved frustrating and participants dreamed of simple, functional devices (*"if you are going to focus on...one thing, and do it right...I'm going to use your phone till the end of days,"* U3-27 remarked).

Instead, participants shared stories of an operating system full of bugs, including a default contacts application that, upon malfunctioning, required a factory reset of the device (U8-51). The same participant also described being able to use a 10-year old dumbphone successfully until 2020, at which point the 2010 device's calendar encountered a 2020 version of the Y2K bug. The lack

of relative stability and consistent functionality also dissuaded participants from suggesting use of the devices to family and friends. U6-41 considered purchasing the same model of designer dumbphone for their father, a disabled war veteran, but ultimately decided against it. Citing their father's frustrations when technology does not work *"perfectly,"* U6-41 worried about creating more disturbance to their father than the device would be worth. U10-40 eventually gave up on using a dumbphone in part due to the removal of voice-to-text support on KaiOS, which helped to compensate for the small screen size. Further, as they were beginning to learn another language at the time of the interview, U10-40 also hypothesized that, had they not already given up the dumbphone, they would now have to give up the dumbphone as multilingual voice-to-text was never an option on their device model and they used their phone to converse with language partners via modern messengers.

Overall: While participants sought devices that had particular features, they were often frustrated by the functionality of those features. In particular, the so-called *modernized* dumbphones (or, those mass-produced devices that were physically indistinguishable from the initial generation of dumbphones, but had some updated contents, such as KaiOS) were unpopular with participants, who saw them as failing at the basic tasks participants intended to use them for. Designer dumbphones, meanwhile, provided an alternate avenue as more reliable devices, however they too, given the relatively small size of production and subsequent community knowledge base, were still lacking for some use cases.

*4.2.2 Device form and hardware.* The hardware of the device played an important role in shaping users' experiences with dumbphones. In particular, the affordances of the devices with regards to the battery, form factor, and longevity – or how long the device could be used – came up.

In part, modern dumbphones are simply more power hungry than their predecessors, as they have improved screens and features that require more battery power to operate. While the devices themselves are more efficient, they are simply being asked to do more. For cases where users sought to use a dumbphone out of nostalgia, this was particularly bothersome. Reminiscing on the battery life of their first-generation dumbphones, U5-28 complained that their otherwise comparable modern device lasts *"maybe three days."* On the other hand, participants also noted that even the battery lives of their modern dumbphones was superior to that of smartphones they had used; U3-27 spoke of experiencing a large earthquake and being unable to contact their mother, as their Nokia X ran out of battery – *"I was, like, on top of a hill because there was...a tsunami warning...if I had a dumbphone this [my mobile phone battery running out in an emergency] wouldn't have happened."*

Similar to the mixed impressions of the battery life of modern dumbphones, participants were divided on the materials (and resultant durability) of dumbphones. While the tactile nature of dumbphones appealed to users, they were frustrated by the *"incredibly unpolished"* (U1-24) form of the devices and what they saw as poor performing chipsets (e.g., cheap Snapdragon ones). Having returned to dumbphones, T9 expected to enjoy the experience of T9 typing, but now found it a test of their patience and *"not fun."* At the same time, returning to a T9 format reminded this participant of the time when texts were *"precious"* and to be used sparingly, only for planning gatherings. Embodying this mixed perspective, U10-40 was, however, simultaneously appreciative of the device not being a *"precious glass slab."* Similarly, other participants saw value in the non-precious nature of dumbphones, with U3-27 expressing gratitude that they were no longer afraid of being *"marked"* (targeted as a potential victim for theft) when carrying around a dumbphone; indeed, U3-27 thought it more likely that if marked (robbed), the thief was more likely to actually give them a better phone out of pity.

As a result of the devices' hardware and material configurations, participants were ultimately concerned by the longevity of their devices. Speaking of their mass-produced contemporary

dumbphone, U1-24 saw the device as a *"cash grab"* by the manufacturer, as they saw the device as not being designed with any *"actual use"* in mind. Returning to a theme that emerged earlier with regard to device contents 4.2.1, participants were frustrated by devices being geared mostly towards emerging markets, as stand-ins for (or, cheaper alternatives to) smartphones. For example, U3-27, who is a resident of one of the more economically well-off nations in a larger region, found that dumbphones compatible with their regional network infrastructure were geared towards residents of the surrounding, less well-off nations, and were designed instead for not for *"people like me [who want to use a smartphone less]...they are designed for people who have never had a smartphone. They are designed for people who don't know what the Internet is...who don't know what Facebook[4] is."* Participants fantasized about dumbphone models that would last; U2-19, who sought a Kosher phone (and therefore would be using a dumbphone for the foreseeable future) summed up this desire, saying that they wouldn't be willing to pay thousands of dollars, but if it would last, they'd be willing pay pay several hundred. Some participants were pessimistic about the future of the dumbphone industry – U11-41 theorized that current dumbphone consumers might be pushed towards low end Android devices if the current trend of dumbphones-as-disposable continued.

These frustrations shed light on the the designer dumbphone customer market, or the portion of it represented by former traditional dumbphone users. Annoyed by constantly having to purchase short-lived mass-produced modern dumbphones, U7-27 justified their purchase of a designer dumbphone (which had a far larger monetary cost) because it was simply less frustrating to use and subject to frequent updates. Indeed, one of the creators of designer dumbphones (D1), mentioned their current program of battery replacement research, as a way to fight the *planned obsolescence*[5] they saw elsewhere in the cellphone industry.

Overall: Participants were often frustrated by the lack of longevity of their dumbphones, both in terms of the everyday life (e.g., battery use) and longer term (e.g., usability of phone's low-quality chipset). Frequently, participants cited frustrations with trying to use dumbphones that they felt were made for a different market – namely, for customers who couldn't afford a smartphone or had never used one before. As a result, some participants sought out designer dumbphones as a more long-term, reliable alternative to mass-produced traditional dumbphones. Pulling back from the specifics of the experiences with different devices, the larger description of experience demonstrates failures in the attempted *mobilisation* stage of translation in ANT. Namely, when participants intended to become actants within their information exchange networks (facilitating the transmission of information), they were confronted with failures of the assorted other actants to perform as desired (including their dumbphone devices, but also the companies behind those devices).

*4.2.3 Social experiences of digital disconnection.* Perhaps unsurprisingly, as a result of their dumbphone usage, participants experienced digital disconnection as they lived life in societies that presumed smartphone usage. These experiences were mediated in part by the governmental and societal expectations of participants' respective larger communities. While participants sought out digital disconnection, as part of their volitional non-use of smartphones, the social experiences of those moments digital disconnection ranged from positive to negative. Contact tracing, as employed for tracking contagion during the COVID-19 pandemic, demonstrates a clear example of this. U9-24, resident in India during the height of the pandemic, described concerns with freedom of movement, due to a requirement to download the official Indian governmental contact tracing app, *Aarogya Setu.* However, U9-24 ultimately did not experience social exclusion, as there is a

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[4]Now *Meta*
[5]*Planned obsolescence* is a term used to describe the intentional phasing-out of technical products after a defined time period, employed by corporations to ensure consumers purchase newer product models [30].

sizable portion of the larger Indian population without a smartphone for whom the app was not accessible. In contrast, as a resident of an EU nation with a very high percentage of smartphone ownership, U1-24 found it difficult to complete online transactions due to EU banking regulations regarding multi-factor authentication (or, MFA)[6], the most common methods for which involve confirmation via a smartphone-based app. Due in part to this obstacle, U1-24 employed an Android emulator on their laptop, to mimic smartphone ownership; while this solved U1-24's pressing issue, it remains a challenging long-term option for many potential dumbphone users, due to need for a modern desktop operating system, relatively high-capacity consumer hardware, and technical savvy. Accordingly, we group experiences into three categories: negative, positive, and neutral, with the last category including many experiences that participants described as "*inconvenient*" but ultimately neither harmful nor enjoyable.

The **negative experiences** ranged from serious to aggravating. For example, U1-24's health and safety was nearly compromised by their dumbphone use. After a late-night hospital discharge, U1-24 realized the metro was closed and attempted to locate a taxi, as they could not use the smartphone-based rideshare app that was their previous default. U1-24 was forced to walk around and ask owners of nearby shops where the taxi stop was. In the end, U1-24 was able to safely return home, however, the risk of danger to health and well-being was significant. On the more aggravating side, U7-27's housing complex is secured by a code that is accessed via a smartphone app. While U7-27 has the option of a physical card alternative, this participant frequently forgets or misplaces their card, and envies the easy access of the entry code co-located with other residents' smartphones. Professional expectations also presented difficulty for U7-27, as they are often working on site (as opposed to a regular office) and don't have access to emails or notifications that might be time-sensitive. While U7-27 has not yet had a serious repercussion from inaccessibility, they saw it as a potential obstacle should their role within the organization change. However, this was a major obstacle for U11-41's spouse, who U11-41 was trying to convince to become a dumbphone user, as the spouse felt compelled to reply instantly to messages received, both in a personal and professional capacity. U11-41 also noted that forgoing modern messengers, as required by many dumbphone options, represented a sacrifice in the sense that it created friction for both themselves and conversational partners, who were then required to configure new communication systems to reach U11-41. While U11-41 was personally fine with being the source of some friction, they recognized that other individuals might not be; we expand on this theme in 4.3.1.

Participants also experienced logistical challenges as a result of the COVID-19 pandemic. Important health measures, such as securing a test for the disease after possible exposure, were complicated by a lack of smartphone. For instance, having arranged a diagnostic test, U10-40 was informed they would receive a link over text that they would need to click in order to confirm their appointment. While U10-40's dumbphone did have a basic browser functionality, performing the action was difficult to execute. As a result of this experience, U10-40 began to reconsider their dumbphone usage, as they noted other personal and professional activities that required smartphone access. While currently able to have MFA codes required for logging into their secured professional email, U10-40 was concerned that losing voice or SMS options to receive those verification codes posed potential future concerns.

Similarly, U13-34's spouse, who doesn't own any kind of mobile phone, must travel from their main, office-based workplace to a remote area regularly for their profession. While U13-34's spouse has a landline work number in their office, they need MFA codes to access digital tools for their job while out in the field. The MFA system supports only one phone number and U13-34's spouse was forced to pick between their work landline and their home landline, which U13-34 could answer and

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use to pass along the code their spouse. In the end, U13-34's spouse was able to obtain a hardware token from their IT department, but the experience disrupted the spouse's workflow in the interim.

In contrast to the negative experiences of digital disconnection described above, several participants found their **disconnection experiences to be positive**. In part, these positive experiences were often the result of participants actively seeking that disconnection, instead of accidentally encountering it. Not having a camera on their designer dumbphone gave U6-41 a reason to avoid feeling compelled to take pictures of their child at swim practice. Further, hoping to teach their child healthy digital habits, U6-41 appreciated the lack of connectivity options on the device as it prevented them from being distracted while spending time with their child. Instead, U6-41 termed their parent-child time was a *"pure experience,"* or one not mediated through any kind of lens or screen.

While U6-41 saw their dumbphone as a way to reshape their relationship with their child, other participants used the absence of a smartphone as a way to create new relationships. Reflecting on the serendipity experienced as a result of their dumbphone usage, U7-27 explained that, now, when going to the dog park, they are more likely to strike up conversation with other pet-owners, rather than immerse themselves in their smartphone, as was their previous habit. U7-27 also made spontaneous connections in the process of getting lost in a public transportation system and being unable to extricate themself via smartphone-provided directions. Finally, while the experience of disconnection was *"jarring"* for U7-27, they felt peace in sitting out conversations around the latest models of smartphones.

Using a dumbphone to opt-out of the smartphone world also changed participants' own behavior with regards to self. U12-40, who self-describes as a *"news junkie"* now sets time aside to read a reputable public service news outlet instead of continually digesting news via their smartphone. For U12-40, the deluge of political news was simply too much to take in and they see their conscious consumption of a single outlet as an act of rehabilitation. Similarly, U8-51, who works with college students – who contacted U8-51 indiscriminate of personal vs working hours – used their dumbphone as a way to disengage from work. Use of a dumbphone made U8-51 relatively unreachable via email outside of business hours, except in cases of emergency, where a phone call was necessitated.

The last category of digital disconnection experiences are those **that changed or altered habits, but participants found ultimately minor in the grand scheme of their lives**. These disconnection experiences were neither positive nor negative, but participants found them worth remarking upon. Participants did describe feelings of awkwardness related to the relative latency in direct communication; U12-40 termed the experience of waiting for a friend at a restaurant potentially *"embarassing"* or *"boring"*, but was happy to trade this momentary discomfort for what they saw as all of the benefits the dumbphone brought them to other aspects of their life, such as eliminating technical distraction. Though participants described awareness of being unable to immediately search for information, as they would with a smartphone browser feature, they felt little impact on daily life. Being unable to quickly perform a Google search was ultimately of no or only very minimal effect on U2-19's life. U12-40 spoke of searching for a foreign book in a library, due to inability to retrieve the ISBN – while the ISBN would be a few smartphone taps away, U12-40 instead had a quick conversation with a library clerk. The experience was perhaps less streamlined, but the information U12-40 sought was still easily acquirable via more traditional methods of engagement.

Overall: While many participants did experience digital disconnection as a result of their dumbphone usage, those experiences varied greatly. In extreme cases, participants found themselves in situations where their health and safety was of concern, while, conversely, at least one participant regretted their use of smartphones at time when they felt a dumbphone could have important communication benefits, as a result of its relative durability. Between these two extremes, participants

experienced a host of disconnection events that were of little impact to their daily lives, subject, in part, to the lives they lead (e.g., situations where disconnection occurred were generally low stakes).

## 4.3   Implications of use

Given that their dumbphone use generally sets the participants apart from their smartphone-dominated communities, there are significant implications arising from dumbphone use. These implications can be grouped into two categories. The first (communication) is the implications that result from challenging the expected tools of communication in participants' respective contexts. Participants were divided on the effects of dumbphones on their social lives; some felt extreme negative or positive implications, with a third group falling somewhere between the two. The second implication – offloading – encompasses the tasks and activities participants had been accustomed to performing with a smartphone. Some of those activities were interpersonal; for example, being reachable to a spouse or children – and others manifest in new tools and objects, for example, having to tote around a physical camera in place of a smartphone's integrated camera.

*4.3.1   Communication.* Participants felt differently about changes to the kind, quality, and quantity of communication they experienced when using dumbphones. The nature of these impacts to communication ranged from beneficial to harmful, with some occurring between the two extremes, as a kind of noticeable, but ultimately neutral.

**Negative.** For those participants with negative experiences, group messages in particular proved frustrating due to a lack of message threading, with participants trying assorted workarounds, with little success (U10-40). Equally, negotiating other people's expectations around communication became frustrating when having to constantly remind conversational partners about a participant's dumbphone usage. As they are unable to easily view web links and photos sent to them, U7-27 described needing to remind their interlocutors of this fact regularly. Further, negotiating the expectations that they be constantly available over video chat, for example, required U7-27 to reset various interpersonal relationships.

**Positive.** For other participants, the experience was mostly positive. When a messaging group was set up on GroupMe, a modern messaging platform, for U8-51 and their coworkers, U8-51 was able to avoid joining the group, as a result of dumbphone usage, which they felt help them enforce work-life boundaries. The relief that U6-41 felt, no longer feeling compelled to communicate frequent status updates on their children, along with U13-34's similar dumbphone-induced rationale to stop sharing photos of their children on social media, represent a larger trend, per D1. Their client base includes a lot of parents, D1 explained, who seek out designer dumbphones as a way to still be reachable, but to help enforce anti-distraction technologies. Specifically, D1 noted, parents did not want to set a poor precedent in front of their children by always being on their smartphones. Many parents now keep in touch with extended family and friends by sharing photos and updates of their young children via smartphones, however, as D1 was told by one parent, those updates didn't manifest in meaningful relationships (as told to D1: *"I would send a photo to people...they saw a photo, but they didn't come hang out with my kid, they aren't getting to know my kid."*).

**Neutral.** Several participants were worried about the implications of dumbphone usage on their social lives, particularly in the context of the COVID-19 pandemic. U3-27, for example, was anxious about transitioning back to a dumbphone as they felt the majority of their distanced social life was taking place within the smartphone's confines. However, U3-27 realized that *"life goes on, beyond a smartphone."* Namely, those people with whom U3-27 wanted to be in contact were only a phone call or text away, rather than entirely unreachable. U7-27, initial subject to peer pressure to keep

a smartphone, realized that if those connections fell away, they were artificial relationships; any concerns of being a *"second class digital citizen"* did not pan out for U7-27.

The communication that did fall away, for U5-28, felt unimportant – their fear of missing out on smartphone-exclusive information flows (e.g., Snapchat) dissipated within a week or two. U1-24 observed that they now sent less memes to their friends and were otherwise unconcerned with the implications of their dumbphone usage with regards to communication. Likewise, U9-24 was unconcerned with the relationships that suffered from their dumbphone usage, explaining that *"If I'm close with someone and will actually want to keep a connection"* it's easy enough to find a way. U12-40 reported not missing the constant back-and-forth communication they experienced on smartphones, where no important information was exchanged. Instead, they now feel that communication (now, mostly occurring via email) is less frequent but of higher information quality. Regarding group messages, U11-41 felt that messages exchanged in WhatsApp (as a key smartphone-based modern messenger for their friend group) gave only a false sense of connection and that materially, those connections did not change since their shift to a dumbphone. The nature of communication was "*broadcasting more than dialogue*" on smartphones, in U5-28's opinion, compared to on dumbphones. U12-40 agreed, describing dumbphones as excelling at one-to-one communication.

Overall: The experience of using a dumbphone created obstacles to existing patterns of communications participants took part in. Encountering those obstacles was sometimes a negative experience (e.g., having to ask conversational partners to switch to different technologies), other times it was positive (e.g., helping to enforce professional vs personal boundaries). Finally, some changes took acclimating to, but participants ultimately found to be neutral (e.g., being excluded from group chat did not result in losing meaningful information access).

*4.3.2 Offloading.* As part of living in societies that expect smartphone usage, participants often developed patterns of *offloading* the tasks a smartphone would fulfill. Sometimes these tasks were offloaded onto family and friends, or other individuals, while other times they resulted in the need for more and purpose-driven objects and devices.

**Interpersonal.** The interpersonal offloading ranged from occasional to regular in frequency. U4-32, who lives in a highly networked nation (more than 95% of residents have smartphones) used their relative's smartphone when they had no other choice, which proved troublesome only when that relative was not around during an urgent tax-document issue.

In contrast, U3-27's connections "*know that I have like a crappy phone, so they know that if I don't answer to their text message like two seconds after they send it, it's because I'm probably still waiting for that message to arrive...so I'm constantly like just wait for me...they know that I'm like connected and not connected at the same time.*" While U3-27 does use their dumbphone for both personal and professional communication, they are able to explain the situation to social connections and their work connections are rarely conducted over text. In contrast, for U5-28, who uses also uses their dumbphone for work and personal lives both, explains that they had to train their colleagues to directly text them instead of sending an app-based chat that U5-28 would only see when they get back to a computer. U5-28 found irony in colleagues being resistant to SMS text them directly; the participant pointed out that app-based chats (e.g., Microsoft Teams or Google Hangouts) are merely iterations on initial SMS-based communication. In U5-28's personal life, meanwhile, they borrow their partner's smartphone when they want a good photo (sometimes to their partner's annoyance). U5-28's D&D (Dungeons and Dragons, a multi-person role-playing game) group members, who plan things via text, have to specially contact U5-28 about plans, since U5-28's phone does not process group messages. Reflecting on this offloading, U5-28 sees it as a small burden, distributed across multiple people.

U8-51 also uses their spouse's smartphone occasionally, in cases where the couple is away from home and needs to do some quick navigation or a web search. In order to facilitate text communication, U8-51 moved their original, smartphone-based mobile number to Google Voice (a SMS-based mobile texting service that can be accessed from a personal computer). Now, U8-51's spouse, before texting U8-51, must decide whether to use this Google Voice number, if not urgent, or text U8-51 's current dumbphone-associated mobile number, if urgent. U13-34 was more concerned with the effects of this offloading, wondering aloud if they – and their spouse who does not carry any cellphone – were creating inconvenience for other people, for which U13-34 expressed guilt. U13-34's guilt comes mostly from small moments, such as asking a person to e-mail something, instead of texting it, as they will be unable to receive a multi-media text easily. Sometimes those moments put U13-34 in a more vulnerable position; while attending a spontaneous political rally with their child, and wanting to have their photo taken, U13-34 asked a random passerby to take the photo and email it to them. U13-34 saw these kinds of acts as not major, but also not insignificant requests to those people they interacted with. Unlike U5-28 and U8-51, these accommodations solicited guilt in U13-34. Interestingly, U5-28 and U8-51 both belong to a dominant gender group who are more likely to feel safe or comfortable asking favors of strangers, where U13-34 belongs to a more marginalized gender.

**Device-based.** The second class of offloading is device-based, where expected smartphone functions were passed off onto other, additional devices that participants began to carry along with their dumbphones. U3-27's arsenal of tools include an iPod Touch for music, a digital camera for photos, and additionally a laptop if they need to check emails. U3-27 also purchased a traditional watch to round out their toolkit. U7-27 also purchased a music player and carried a separate digital GPS. U11-41's solution was to have a separate private and professional phone number each tied to a different phone (personal number to the dumbphone, work number to an old smartphone). They keep the dumbphone with private number on them at all times, so that they can leave their work phone number in their home office. Later, U11-41 swapped the smartphone for an Apple Watch with a SIM card and, so that they can read and respond to necessary professional communications. Unlike a smartphone, the Apple Watch does not invite endless interaction and provides a minimum functionality.

U8-51 found no good smartphone substitutes for certain activities, such as picking up prescriptions (which requires a smartphone and WiFi in their case) and depositing paper checks. Subsequently, they carry a backup smartphone that comes out only in case of these rare occasions. They also experimented with a traditional digital camera but found the smartphone camera quality to be higher and so employed it to take photos in their professional role, which requires frequent photography. Finally, employing the hotspot from their dumbphone, U8-51 uses the smartphone to listen to audio content a hour-long drive they complete weekly. U8-51 does employ some physical devices, such as a new, digital GPS, and credits the proliferation of flashlights in their home to the lack of smartphone-based flashlight feature. However, the experience generally feels more *"hybrid"* to U8-51 , as opposed to the *"pure[er]"* dumbphone experience they experienced as a young adult, as they will, in cases where they anticipate experiencing profound digital disconnection, carry the backup smartphone.

Overall: At points where they encountered the loss of smartphone functionality, participants created alternate paths to achieve their goals. In some cases, they asked other individuals to temporarily extend their smartphone ownership to the participant. In other cases, particularly with regards to regular needs for smartphone services, participants purchased an array of devices to stand in for the smartphone; notably, many of these devices were originally stand-alone and only became smartphone functionalities much later. In their adoption of earlier versions of these

physical offloading objects, participants demonstrate their role not as smartphone rejectors, but as embracers of comparatively-dated technical products.

## 5  DISCUSSION

We first review of the key, high-level findings from our interview corpus. Then, we present those findings in conjunction with Actor-Network Theory (ANT). In doing so, we are able demonstrate the complex networks that participants built around themselves (and in which participants themselves became actants) in order to achieve desired information exchange as dumbphone users.

### 5.1  Reflecting on the motivations for, and experiences of, contemporary dumbphone usage

Our analysis yields two primary axes of insight: motivations for contemporary dumbphone usage, and, second insight into the contemporary experience of dumbphone usage in smartphone-based societies.

*5.1.1  Anachronistic technology adoption.* Often, participants described their motivation for dumb-phones not in terms of what they wanted, but what they wanted to *get away from*. For those participants who were direct about their rejection of contemporary smartphone culture, they often personified their smartphone devices, e.g., as a *"hungry monster"* (U3-27). Embracing a dumbphone was, thus, a conscious act of smartphone rejection. Dumbphones were also presented as a tool for health (to avoid the overwhelming nature of choice present in smartphones) and a way to enact religious devotion (e.g., helping eliminate the un-Kosher digital temptations). Even for a few participants who described their nostalgic interest in dumbphone usage, this desire was shaped by a frustration with what they saw as an overwhelming, ever-present need for connection arising from their smartphone.

Given their ideological motivations for usage, participants were motivated to experiment with multiple devices, in order to find one that allowed them to practice their ideological bent. Many participants described issues with finding dumbphones that would work – from an infrastructure standpoint – in their sociotechnical settings. Participants often tried traditional dumbphones imported from other parts of the world, where dumbphones are still more universally relied upon (compared to smartphones). Further, participants, who again identified as having financial and practical access to smartphones, were willing to experiment with multiple devices, given their relatively low cost per device, as compared to smartphones. Major challenges for participants included the longevity of the device – or how long it could withstand regular use, including battery life – and whether or not it had certain modern messengers that are common in their respective social circles.

For participants who were planning on long-term dumbphone usage, e.g., those practicing religious devotion, enacting sociopolitical resistance to Big Tech, or employing dumbphones as a tool for health and wellness, the emergence of the designer dumbphone market becomes more clear. Paying near-smartphone prices eliminates one key surface benefit to dumbphones, as they are generally a much cheaper option. However, given how hard participants had to search for functional dumbphones, those that were clearly updated for a contemporary sociotechnical era were worth their price to participants, as they were more adapted to modern network frequencies and communication needs (e.g., modern messenger integration). This finding was corroborated by interviews with creators of designer dumbphones, who additionally pointed out that portions of their customer base seek the devices as ways to have functional connectivity, but avoid what those customers see as government or Big Tech surveillance. Further, the creators also pointed to parents, who purchase their devices for themselves, to lessen their children's exposure to cell phones (from

decreased use by parent) or presence on social media (by having a reason to not share photos or updates of children on those platforms). Other parents purchase the phones for their children, to prevent them from being immersed in social media or engage in potentially sensitive exchanges of media.

An important note about the designer dumbphones we examined is that many of them are marketed only towards North American and European markets. For participants we talked to who are from high-income nations or societies in otherwise lower-income nations or regions (that is, countries much more well off than other countries in that region), designer dumbphones were often not an option. Although that has to do in part with strategic choices related to network infrastructure, it will be interesting to see whether – as emerging nations continue to progress technologically potentially transition to smartphones, and, eventually to dissatisfaction with smartphones – they become more prominent globally.

*5.1.2   Experience of dumbphone use.* While the fact that participants experience digital disconnection, given their use of anachronistic technology, the precise nature of that disconnection varied greatly between participants. Given the benefits described by our population of (designer) dumbphone users, particularly in terms of helping avoid distraction and promote wellness, future attempts to provide access to dumbphones for the larger population should pay careful attention to the span of these disconnection experiences. Further, they are meaningful for designers of digital systems – particularly regarding government, social, and health services – to be sensitive to the limitations of this class of devices, to ensure equal digital access.

Those disconnection experiences ranged from the ordinary or uneventful to potentially dangerous. Some participants experienced mild discomfort or embarrassment while being unable to confirm either their late arrival, or that of a friend, resulting in a wait at a public meeting place. Still others struggled to obtain safe transport after being discharged from the hospital, as the de facto transportation options required smartphone-based ridesharing or ride-hailing apps. The COVID-19 pandemic is also an interesting consideration, given the move towards digitally-based services as public health precaution. Participants described issues with accessing COVID-19 tests and participating in contact tracing schemes; both are important public health instruments, however in all-digital form, they limit the participation of those employing anachronistic mobile phones.

## 5.2   Employing ANT to understand contemporary dumbphone usage as a complex sociotechnical undertaking

To navigating life with a dumbphone, when they were expected to have access to smartphone functionalities, participants developed support networks. Our participants are those who are expected to be smartphone users, thus a dumbphone is not an alternative to a smartphone, but rather a replacement. Swapping smartphone for dumbphone resulted in two avenues of action, both of which require human and non-human actors to accomplish successful information exchange.

First, depending on the individual participant, some features of smartphones were actually dissatisfying or unappealing and participants subsequently chose to do away with these features (e.g., being constantly available to co-workers). Dismissing these features required shifting work to other people in their larger networks, such as asking a partner for use of their smartphone to take a snapshot. Second, for those functionalities of smartphones that participants wanted to preserve, despite their dumbphone usage, they once again returned to their networks in order to replicate those functionalities that their dumbphones lacked out-of-the-box.

These networks are an example of ANT in practice. In particular, each participant's network can be understood as a single example of a pattern of ANT at work. ANT is well-suited to describe the details of these networks as it allows for the integration of both human and non-human actants.

Given that participants frequently engaged in personification of their devices, ANT is particularly flexible in allowing us to incorporate non-human objects as actants in participants' networks.

Each participant forms their own small ANT system, with the participant interacting with a host of social and natural factors to achieve their goal: the communication frequency and type they desire. Critically, the participants themselves are actants in the network. They are both conveyors of information exchange as well as activators of different network nodes (actants). Taking a top-down approach, we first examine the motivations of participants in using dumbphones, which give rise to each participant's own ANT system, or communication network in primarily-smartphone-based societies. his provides a study in users of anachronistic technologies and volitional technical (non)use. In particular, we identify why some of our interviewees were willing to pay high prices for designer dumbphones – which represent, in the grand scheme of technological progress, outdated technology – and hypothesize where the dumbphone market might be headed in the future.

Our findings thus shed light on the concept of digital disconnection in the contemporary era and what the implications of that disconnection can be. We can examine these concepts in conjunction with privilege – or, how the demographic of intentional disconnection seekers differs from those who are forced to experience digital disconnection – and the affordances of volitional (dis)connection. These experiences demonstrate open black boxes; when participants' communication systems fail, we can make sense of how those communication systems actually take place and identify the various actants.

Finally, with a look towards expanding the perceived benefits of dumbphones to a larger population, we examine how participants' communication networks come to be assembled and the implications of those networks when they function and when they fail. Here, we pull in Granovetter's notion of *weak connections* [27] to make sense of what kinds of connections are potentially being compromised. Specifically, we observe a pattern of the degradation of weak connections when participants either experiment with or return to using a dumbphone. We examine this pattern in conjunction with effects of the COVID-19 pandemic and the impacts of isolation felt by many in this period.

*5.2.1 Assembling the network: Dumbphones as a study in volitional technical (non)use.* In this sub-section, we thus explore how these examples of ANT networks come to be developed by participants. Practices of volitional technical (non)use challenge the idea that technical progress is always straightforward and uniformly beneficial. Our participants are all individuals who have the option to use a smartphone and many are former smartphone users. However, they choose to use an outdated (anachronistic) technology and, in most cases, go out of their way to do so – they have to build practices (e.g., printing out directions before leaving home, instead of using a smartphone GPS application) and relationships (e.g., engaging with strangers to ask them for help) as a result of their chosen technological lifestyle.

We theorize that participants' motivations for using dumbphones, instead of smartphones, are part of the reason they are willing to take the time and effort to assemble these alternative networks to support information exchanges. In particular, when we consider those listed above, e.g., printing out directions rather than typing them into a smartphone while on-the-go, represents a non-insignificant amount of forethought and a need for premeditated patterns of movement. In assembling these networks, participants must break into what were previously were black boxes (that is, transit directions) into a series of concrete steps that must be facilitated by the new network.

If we consider each of our participants as having their own, applied copy of an ANT network, offloading suggests other actants in participants' communication networks. For example, we see the confluence of social relationships and dumbphone use when participants (e.g., U8-51) relies on their spouse for rare occasions when they are out and about and in need of a smartphone, or otherwise

face inability to gain access to goods or services they hope to obtain. The natural worlds also play a role. Besides the technical infrastructures built for smartphones, which participants try to navigate with dumbphones, their experiences are quite literally shaped by the natural landscape; consider U3-27's longing for a dumbphone during their tsunami encounter. The actants that shape the experience of dumbphone usage are thus a range of human (e.g., U8-51's spouse) and non-human (e.g., U3-27's tsunami). As we are focused primarily on the experiences of our participants in this work, we risk giving the misleading impression that our participants are conducting these networks as external actors; instead, they are very much embedded actants within the network, both employing, and being employed by, other actants in order to facilitate their own desired information transmission.

Discussion of non-human actants also extends to those participants actively bring into their networks. Several participants described a series of items that they employ to engage in certain processes. For U8-51, a physical GPS becomes a substitute for a GPS app on a smartphone. While it could be argued that the GPS app is itself merely an entirely-digital of a physical GPS navigator, this relationship becomes more complicated when participants wanted to engage in social processes that were made possible in part only by the development of smartphones. Again, U8-51's experience is additionally augmented by their spouse and the couple's relationship – U8-51's spouse is willing to take the time to think before texting U8-51, to figure out which of U8-51's phone numbers to use. When U10-40 struggled to check in for a COVID-19 test due to their difficulty opening the link, the process itself was premised on having access to a smartphone, as opposed to a functionality that had been rolled into a smartphone. When U13-34 spontaneously joined a political rally with their child, creating a visual reminder (that is, photograph) required not only the presence of another individual's smartphone with a camera and connectivity to share that photo, but also that stranger became a part of U13-34's network developed for, and around, their dumbphone usage.

Again, with a view towards potentially offering dumbphones as a more widely-accessible option, identifying these actants – both human and not – lends insight into what additional tools and infrastructure could be needed. In particular, the idea that many social systems have now been developed around expected smartphone use (e.g., GPS in hand-held form) require potential users to reflect on what essential infrastructure is necessited by their environment. Further, unlike smartphones that can more readily maintain certain functionalities across context-switches (e.g., having support for more direct messaging systems, to match expectations of a new social or cultural group, such as moving from SMS to WhatsApp during a move from US to EU), dumbphones appear to be highly-tailored to the environments for which they are created. What changes could be made to dumbphones to support portability between environments? How would relationships between actants transform as a result of those changes?

### 5.3 Employing the network: Participation and privilege in digital disconnection

Digital disconnection has been studied both as a chosen state and a compulsory one, as we describe in the related work [14, 25, 45]. Our participants experienced both kinds of disconnection as the result of their dumbphone usage. In order to mitigate these experiences, they relied on the networks developed around their dumbphone usage. These offloading networks, as described above, are a mix of device-based and interpersonal, corresponding to both human and non-human actants.

Our discussion of these two phenomenons takes place in conjunction with one of privilege; while use of anachronistic technologies is often – but not exclusively, with hipster culture being one such exception [72] – the result of lack of access to current tech, those with access to smartphones actively choose to reject them. This pattern is a meaningful study for the CSCW community as we focus on the evolution and creation of new technology to support communication and interpersonal relationships.

Further, through these recalls of digital disconnection, we can take a view into the so-called *black boxes* of the communication networks our participants have developed. These sites of disconnection give a view into the relationships between various actants (also allowing us to identify the actants) particularly with a view towards the translation that must be performed between them.

*5.3.1 Making sense of disconnection experiences.* Participants experienced a range of disconnection scenarios. Each of these scenarios, to be successfully navigated, requires a functional network. However, in the stated cases of disconnection, the network, as black box, fails. In some cases, these failures were dangerous, for example, those that threatened participants' health and safety (e.g., being unable to safely return from the hospital), while the other gave participants freedom from existing social norms or expectations (e.g., being unable to join a workplace group chat that could violate work-life boundaries). This first set, or experiences that threatened health and safety, underlines the importance of building not only emergency systems to be tolerant of old and aging technology, but also questions the role of technical expectations in citizen services. For example, the move towards cashless societies, such that in Sweden, has been critiqued along the same premise [51]. Further, while in many cases participants were able to work around obstacles they faced with dumbphones, those solutions often required a great deal of technical savvy; for example, U1-24 navigating the need for two-factor authentication codes delivered via app by running an Android emulator on their PC.

Stepping back, we can see how dumbphones act as mediators in the relationships between the network's actants. When U1-24 wants to perform a banking operation, but is blocked from doing so, the dumbphone fails to properly mediate the transfer of information from U1-24 to their banking institution, which is in turn subject to wider EU regulation, enacted by the EU parliament. If we are concerned with potentially reaching other groups – beyond our participants – with the perceived benefits of dumbphones, we must consider how malfunctions in translation could effect safety-critical tasks, given that potential user's lifestyle and social worlds.

This second set – including the participant whose failed communication network allows them to enact work-life boundaries – suggests that a functional network can also be discongruent with the hopes and desires of participants, as seamless communication and information exchange demands can be unreasonable – for example, professional ones that overstep the bounds of the professional role. Here, we are also reminded of the personalized nature of each enaction of the ANT network, by each participant. This serves as a reminder of the social embedding of each applied network, suggesting that participants can have mixed aims regarding the network's functionality.

*5.3.2 Identifying the role of privilege.* For the participants we interviewed, and whom we specifically sought out because they had the option to use a smartphone but instead chose a dumbphone, privilege is baked into the experience. Ironically, using a device that is out-of-date in terms of core features and functionalities requires the time and energy to devote to overcoming obstacles tied to that use. This is not to say that participants were ignorant of what it took for them to be able to exist in societies that assumed smartphone ownership and usage, but rather that there exist barriers for other groups and individuals who might be interested in using dumbphones. For example, individuals who are at risk of surveillance by an oppressive government may appreciate some of the disconnection features that dumbphones present, while simultaneously being concerned with standing out from their fellow nationals by using a visibly anachronistic device.

In general, participants were both happy and comfortable to add more actants to their networks. This is likely to change, however, if the movement begins to encompass a more diverse group of participants. While in some contexts carrying around an additional physical device (e.g., non-phone-hosted camera) was a positive experience for our participants, we can imagine situations where being weighed down by additional objects could be challenging – for example, parents

with small children or individuals with mobility complications. Of course, there remains the larger, all-encompassing question of who might be able to withstand experiences of disconnection and, for those in more vulnerable positions, how might we scaffold predictions of what potential disconnection sites might be?

## 5.4 Future Work

This work provides an exploration of a variety of contemporary dumbphone users, with mixed demographics along the lines of geographic location, age, and cultural setting. While this work is not meant to describe an empirical evaluation of the impacts of contemporary dumbphone usage on communication quality, we can envision future work more focused on this topic.

Namely, participants routinely discussed the impact of dumbphone adoption on their communication practices and partners. In cases of political or ideological adoption, participants often gave up or lessened their use of social media in tandem with quitting using a smartphone. Participants described decreased communication with those individuals who *didn't* really matter (per U9-24's quote, "*I am in touch with the people who really matter*"), or weaker connections. These weaker connections are relationships that were maintained in part through the most broadcast-style of communication facilitated by smartphones, as opposed to the more direct interaction necessitated by dumbphone use. Although participants did not suggest they were upset by the loss of those weak connections, the long term implications are less clear. Granovetter argues that these kinds of weak ties provide critical *bridges* between social groups, while strong tied (e.g., those participants maintained with family and close friends) create only insular clusters of individuals [27]. Future work is needed to identify whether or not the loss of these weak ties has meaningful implications for the professional and personal welfare of participants.

While dumbphone use required the development of new actants and relationships in participants' communication networks, the reach of those networks, conversely, appears to have shrunk. In other words, in order to achieve what generally became a smaller set of social contacts, participants had to build new actants into their networks (often in the form of other people or objects to replace missing device functionality). Some participants felt that these new, smaller collections of social contacts carried the same amount of information – e.g., still being able to contact those individuals who matter to a participant – it's hard to know what the long term implications of these condensed networks are.

Further, it is hard for us to uncover the implications of the dissolution of these weak connections for our participant pool, as many participants have either recently returned to, or begun experimenting with, dumbphones. Future work should examine whether participants felt an acute loss of a diminished pool of weak connections in the future, or if they found the implications to be minimal. Given, too, the context of the COVID-19 pandemic [74], it seems that participants were more likely to ascribe any feelings of loneliness or isolation to the general isolation imposed by the pandemic, rather than the experience of dumbphone use. Notably, for those participants who thought about switching back to smartphones during the pandemic – with the logic that they would need to be more connected, following what Wolski observes at a larger scale [79] – they found this to not be a significant issue in practice and the true burden of dumbphone use was instead having to do with digital disconnection to goods and services, rather than other individuals.

## 5.5 Limitations

There are two considerations to take when digesting our findings. First, this study focuses on the experiences of individuals who choose to use a dumbphone when they could both afford and have access to smartphones. While we intentionally narrowed our scope to this population, this of course leaves out large portions of the global population who may lack one or both of these things.

The experiences of dumbphone users in countries and societies where it is still the norm is still important to consider, particularly with respect to the role that designer dumbphones would play in those environments, were they available. The second consideration is the demographics of our interviewees. In particular, they lean heavily male. We discuss potential reasons for this earlier in the work, but this could be in part a factor of our recruitment methods (using Reddit, which is already gendered in use). However, as there are no statistics to our knowledge on the gender breakdown of dumbphone usage, we are not sure if their use in the context which our work studies is perhaps already strictly gendered.

## 6   CONCLUSIONS

Continuing conversations in CSCW of volitional technical (non)use, we examine the phenomenon of modern dumbphone adoption by those individuals who have the means and resources to choose a smartphone. We present dumbphones as case of an anachronistic (or, outdated) technology preferred by some users over the state-of-the-art. In particular, there is such a desire for dumbphones that several boutique firms are producing *designer* dumbphones suited to both contemporary network infrastructure and customers tastes. We report the findings of interviews with thirteen participants: eight users of traditional dumbphones and five users of designer dumbphones. We additionally report on interviews with two creators of designer dumbphones. Our interview corpus includes the motivations for dumbphone adoption, ranging from religious and political to behavioral and therapeutic, from both the user and creator side. It details the range of experiences of disconnection participants experienced as a result of their use, ranging from JOMO (Joy of Missing Out [3]) to fear, discomfort, and isolation. We analyze these experiences through lenses of gender and privilege, as a means of identifying who is able to participate in this phenomenon and what they might risk or gain in using a dumbphone. Further, we identify the combinations of *offloading* that dumbphone users enact, onto both other individuals, via interpersonal relationships, and objects, such as additional tools to supplement a dumbphone's reduced feature set compared to smartphones. These offloading practices demonstrate how, in societies and cultures that expect smartphone usage, dumbphone users distribute the functionalities present in smartphones but not dumbphones across a range of human and non-human actors. In examining the development of these networks, we can identify potential costs of dumbphone usage, along with ways to enable dumbphone usage, while protecting against unsafe cases of digital disconnection. Finally, the resulting changes to participants' communication habits and partners are examined, as participants' social networks generally condensed to fewer and stronger ties. Our findings challenge the notion that most robust and frequent communication is always desired by mobile phone users. Further, they present a situation in which users are not rejecting the digital environments in which they participate, but instead seek ways to more closely mediate their interactions with and in those worlds.

## 7   ACKNOWLEDGMENTS

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# A DEVICE TERMINOLOGY GUIDE

Breakdowns of mobile device terminology, in the context of this work:

- Traditional or basic dumbphone: akin to the first generation of mobile devices (aka, pre-smartphone cell phones). Our use of *dumb* is in accordance with the preferred terminology of our participants, to signify the benefits of the devices, as being *dumb* is a prized state, that strips away the – in participants' perspectives – negative features of *smart*phones. They are often characterized by a tactile T-9 keyboard (or, nine-button) and lack of touchscreen. In most cases, their form and contents have been minimally updated since the advent of smartphones; while some models may offer more contemporary features, such as integration of modern messengers, they are ultimately designed for individuals who either cannot afford a smartphone, or use the device as a kind of pre-smartphone. Engaging with these smartphone-staple features, such as modern messengers or a Web browser, are cumbersome and the form factor of the device hinders easy engagement. These devices are usually created by large corporations that produce the devices for use in areas where smartphones are either not financially or practically accessible, e.g., in relatively low-income or low-infrastructure environments.

- Feature phones: depending on the exact model, these devices generally retain the form and functionality of traditional or basic dumbphones, but are slightly more advanced, while still not yet being a smartphone. For example, they may have a full QWERTY|Z keyboard, a partial touchscreen, or basic email functionality, but they do not allow for the installation of general purpose applications like a smartphone does, though they may have small, curated marketplaces of specially-designed apps.

- Designer dumbphone: these are dumbphones created in reaction to smartphones. They are usually updated for usage in the contemporary technical era in one or more ways, for example, integrating a modern messenger, a mapping application, or audiobook capacity, while still retaining the essence of a dumbphone – namely, no Web browser and extremely limited network data access, if any at all. The form factor is, while often aesthetic by design, meant to

limit user interaction. For example, they may retain the T-9 keyboard or employ other features like an e-Ink screen. These devices are produced by small organizations as consumer devices and are often more expensive than their traditional or basic counterparts. Some devices began as artistic provocations, rather than commercial products, before being made more readily accessible to the general public as consumer devices. These devices are often targeted to – and may exclusively be available – in relatively high-income, high-infrastructure parts of the world, where smartphones are generally readily accessible financially and practically.

- Smartphone: any device that includes more functionality than those listed previously, almost exclusively characterized by a touchscreen, along with a Web browser and network data capacity. BlackBerries, for example, could be considered an early smartphone, despite the tactile keyboard, as they allowed for almost unlimited Web browsing. Similarly, all models of iPhone and most touchscreen-featuring, Android-based mobile phones.

## B DEVICES USED BY PARTICIPANTS

The following table lists those devices participants had previously or currently use. Depending on individual participant memory, many devices are described only by their brand and form (i.e., missing model number or name). Devices are grouped by dumbphone or smartphone according to which group participants felt they belonged in. Devices are reported in aggregate in keeping with Nissenbaum's concept of contextual integrity [49]. For interviewees from the r/dumbphones forum, combinations of prior devices are often unique and could be used to de-anonymize participants.

| Brand | Dumbphones Traditional | Designer | Smartphones Androids | iOS | Other |
|-------|------------------------|----------|----------------------|-----|-------|
| *Nokia* | 8110 (2), 216, 3310 (2), 6300 (2), 150, model unknown (2), candy bar device (model unknown), 100, 1616, 1100, 2720, 225 4G | | | | Asha 303, Asha 501, X, X2 |

| | | | | |
|---|---|---|---|---|
| *Sam-sung* | Model unknown (2), slider phone (model un-known) | | Star, S9 (2), Note 4, Galaxy (mul-tiple; models un-known), Galaxy S3, Galaxy S10E | |
| *ZTE* | Z432 | | Blade | |
| *LG* | Classic flip (2), LGV20, K30, Model unknown | | Opti-mus V, Lucid, G7 ThinQ | |
| *Kyocera* | DuraXV Extreme, DuraXD, DuraXV, model unknown | | | |
| *Win-dows* | | | | Windows Phone 7, Cingular 3125, model unknown (2) |
| *Ele-phone* | | | P7000 | |
| *Vernee* | | | Apollo Lite | |
| *Doogee* | | | Pixel (as-sorted) | |
| *Xiaomi* | | | Redmi Note 3 | |
| *BQ* | | | Aquar-ius X2 | |

| | | | | | |
|---|---|---|---|---|---|
| *Black-berry* | | | | | Black-berry Q10, Black-berry Classic, model unknown (2) |
| *Sonim* | XPS | | | | |
| *Motorola* | Candy bar (model un-known) | | G7, 2016 device (model un-known), Mo-torola G Power, Moto G Play, Moto G, Droid Razr HD, LCD device (model un-known) | | |
| *Sony* | Ericsson T18 | | | | Ericsson (model un-known) |
| *Apple* | | | | iPhone 4S, iPhone 5, iPhone 6S, iPhone SE (2020), iPhone 13 Mini, Model unknown | |

| | | | | |
|---|---|---|---|---|
| *BLU* | | | | Sky OS smartphone |
| *Verizon-branded* | Model unknown | | | |
| *Light* | | Phone I (2), Phone II (3) | | |
| *Huawei* | | | Model unknown | |
| *Alcatel* | Go Flip, model unknown, Smart-Flip 3 | | | |
| *OnePlus* | | | Model unknown | |
| *Google* | | | Pixel (model unknown) | |
| *CAT* | S22 flip | | | |
| *Sunbeam* | | F1 (2) | | |
| *Punkt.* | | MP02 (2) | | |
| *Lava* | | | X1 Selfie | |
| *Schok* | Classic flip (2), LGV20, K30, Model unknown | | | |
| *AGM* | G6 | | | |
| *HTC* | | | Droid Eris | |
| *X-Tigi* | Model unknown | | | |
| *Mudita* | | Pure | | |

## C   PROTOCOL FOR USERS OF TRADITIONAL AND DESIGNER DUMBPHONES.

[Participant background]

- In general terms, without naming organizations, what is your professional role? In what industry do you work?

[Acquisition practices]

- To the best of your memory, can you please list all current and previous models of mobile phones you've owned?
- Who purchased these devices (e.g., parent)?
- Did you have a choice of device models?
- How would you categorize the kinds of phones you've owned? Or, what were the major distinctions?
- At what age did you start using mobile phones? What kind of device was your first mobile phone (specifically, dumb- or smart-phone)?
- Follow up: Have you been using (participant's described device type) constantly, intermittently, or irregularly since then?
- Follow up, if first device was not a dumbphone: At what point did you start using a 'dumbphone'; can you tell me why you started using one or switched to using one?
- Follow up, to why switched: For each reason given, can you tell me more about how using the dumbphone helped you address that concern or motivation?

[Use setting]

- Do you use your dumbphone for personal or work communications (or both)?
- How common is it for people in your family, or your friends, or colleagues to use a dumbphone?
- Follow up, if those around them or not using a dumbphone: Do you feel isolated as a dumbphone user, or in good company?

[Designer dumbphones]

- For participants who *did not* list a designer dumbphone in their previous or current devices: Have you ever heard of a designer dumbphone?
- For participants who *did* list a designer dumbphone among their previous or current devices:
  - If not answered earlier in protocol: Did you use a traditional dumbphone before switching to a 'designer' one?
  - How did you find out about 'designer dumbphones'?
  - Follow up, if via the Internet (e.g., social media): Do you feel like there's a large designer dumbphone community?
  - Is there a term you would use other than 'designer dumbphone' to describe your device?
  - Why did you purchase *this* device (this substituted for the specific model of designer dumbphone(s) they own)?
  - What has been you experience using the device?
  - Follow up, if participant previously used a basic (or traditional) dumbphone: What did you notice using the designer version of a dumbphone? How do the types of devices compare to one another?

[General reflection]

- How did your life change (or did it change) when you started using a dumbphone?
- Did you have a fixed period in which you planned to use a dumbphone, or was it open ended?
- What features about your dumbphone(s) do you like? Which do you dislike?
- If you could add one or two features to your dumbphone(s), what would you add?

- Does your dumbphone meet your current communication needs? What about your current interaction needs?
- For participants currently using a dumbphone: Do you feel like you will be forced to switch to a smartphone?
- For participants who recently quit using a dumbphone in favor of a smartphone: Why did you switch back to a smartphone from your dumbphone?

[Meta-cognition]

- Have you ever paid attention to how much time you spend (or spent) on computers, tablets, or smartphones? For example, have you paid attention to something like Apple's screen time notification?
- Follow up, if yes to above: Did you keep track of this information yourself or did you use an automated system (e.g., Apple screen time feature, or a 3rd party app or service)?
- How did or does your experience with a dumbphone change your perspective on your personal technology use, if it did change?
- Have your views on the role of technology in society changed at all since you switched?
- Follow up, if yes to either of two previous: Have you made any behavioral changes (e.g., limiting screen time) as a result of these evolving perspectives?
- Follow up to above, if participant did make any behavioral changes: How did you replace those interactions (e.g., emoji reply to text messages), or did they disappear altogether?

[Personal and professional implications]

- How easy has it been to switch given your professional role and obligations? What about personal obligations (e.g., childcare or other family caretaking duties)?
- Follow up to above: Do you feel like it would be easier or harder for someone else to make the same switch you did?
- How have your close personal contacts (e.g., partner, children, parents, close friends) responded to your dumbphone use?
- What about your professional contacts (e.g., coworkers, members of your extended professional network)?

Protocol for creators of designer dumbphones. Same general inquiry questions (e.g. background, acquisition practices as above). Additional questions, with (the device) substituted for specific model of designer dumbphone they work on:

[Motivation for design]

- What inspired you to design (the device)?
- What need did you see / do you see (the device) filling?
- Who did you envision as the key demographic, or target population, when you were designing and testing out (the device)?
- What, in your mind, separates (the device) from more traditional, or basic, smartphones?
- Why do you think your customers buy (the device), as opposed to a smartphone? As opposed to a basic dumbphone?

[Choices made in design]

- Can you walk me through the hardware of (the device)? How did you make these design choices?
- Can you walk me through the content (applications) of (the device)? How did you decide on this particular application suite?
- What is one feature you would add to (the device), now that you've had time to see the response to (the device)?

- How did you choose the price for (the device)?

[Reception]
- What do you think is the most common demographic for users of (the device)?
- Who would you *like* to have access to (the device)?