Splintering Communications: The Reality of Digital Practices among People Experiencing Homelessness in an Urban Ghetto

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Abstract

This paper examines digital practices among people experiencing homelessness in Skid Row – an urban ghetto located in downtown Los Angeles, California. I conducted a grounded field research that employed ethnographic approaches and in-depth interviews with 40 Skid Row residents to understand their lived experiences and digital practices. Applying the theoretical framework of splintering urbanism, the study reveals that while telecommunication technologies were highly valued by the marginalized users, manifested in various technology mediated practices employed to assist their daily lives, the condition of homelessness in a poor living environment deprived from urban network infrastructure gave rise to a considerably precarious digital life. Specifically, the homeless people frequently struggled with searching for power to charge their devices, saving mobile data on their government assisted phones, finding Wi-Fi hotspots in public spaces, and protecting their phones amidst daily occurrences of mobile theft. These problems led to the interruptions of human communication and information seeking processes and affected their psychological wellbeing. The notion of "splintering communications" is thus introduced to illustrate the digital precariousness in the lives of the digital have-less, and the social context underlying their situations. The paper's implications for digital technology policies and practical projects are discussed.

Keywords*: homeless people, telecommunication technology, digital divides, splintering*

urbanism

Introduction

The proliferation of technology innovations and urban transformations in a "network society" (Castells, 2011) has given rise to various forms of social inequalities and digital divides (Servon, 2008; Van Dijk & Hacker, 2003). The notion of "working class ICTs[1]" adopted by the "information have-less" (Qui, 2007, 2008) is not exclusively restricted to the realms of developing countries and rural areas, as communications scholars have increasingly attended to the digital lives of underserved communities in resource-rich areas (Heeks & Shekhar, 2018; Nguyen, Chib & Mahalingham, 2017). Prior research suggests that uses of information communication technologies could facilitate marginalized populations in many ways (Fox & Warber, 2014; Mehra, Merkel & Bishop, 2004). However, the most vulnerable people might experience digital exclusion, facing struggles in gaining access to technological resources in the first place (Galperin, Bar & Kim, 2017; Marler, 2018). Additionally, after having the initial access, marginalized users may encounter myriad problems in maintaining the technology itself because it is subject to digital breakdowns or in paucity of supportive infrastructure (Gonzalez, 2016). This is especially problematic in the context of advanced cities where economic growth and high-tech infrastructure are associated with upward mobility for some but mean statis for others (Graham & Marvin, 2002). Nevertheless, extant research has largely neglected the importance of relating the struggles facing the marginalized to the wider context of urbanism and the uneven distribution of resources in urban spaces.

This paper examines digital practices of a group of the urban poor that is people

[1] Information Communication Technologies

experiencing homelessness and residing at encampments and/or transitional housing in Skid Row – an urban ghetto located in the global city of Los Angeles. I aim to unearth the people's everyday lived experiences and their digital world through a qualitative grounded research. Applying the perspective of *splintering urbanism* (Graham & Marvin, 2002), which concerns the socio-technical and infrastructural divides in modern cities, for data analysis, the paper sheds light on barriers to stable digital access and their consequences for the lives of the unstably housed users.

From Digital Divides to Digital Inequalities

Research on digital divides often talks about the fissure between the digital haves and the have-nots, predicating on the dominant assumption that technology access is binary. Accordingly, access has typically been measured via the quantitative approach of conducting one-time surveys asking whether or not one owns or uses a digital device such as the mobile phone and Internet (Gonzalez, 2016). Traditionally, Western and/or resource-rich urban societies are deemed more connected digitally than their non-Western and/or rural counterparts (Servon, 2008); therefore, past research tended to emphasize the lack of technology access among the poor, especially those living in rural areas or the global South. There is, however, a dearth of research that examines struggles in accessing digital technologies in resourced urban and Western societies, although a poor person in a rich country might have less socio-technical mobility than a person with equivalent income but living in a less opulent nation (Qureshi, 2015).

Recent research has moved away from the language of digital divides to consider digital inequalities, seeing technology access as a spectrum rather than a binary and situating it in the broader theoretical frames of social inequality. For instance, Gonzalez (2016)

discussed temporary disconnections in Internet access – that is what she labeled "*dependable instability*" – facing marginalized people in the United States and suggested that technological resources is a form of capital distributed unevenly to different groups, reflecting social inequality. Also, Marler (2019) argued that socio-digital inequalities resulted in the American urban poor's encountering difficulty in maintaining the technology after gaining access to it and hence they developed the strategy of accumulating multiple phones to sustain digital access. These findings suggest that digital access instability amongst the urban poor is a productive, yet understudied, area of inquiry. Extant studies have yet provided sufficient insights into the contextual contingence and the urban conditions influencing the digital access and use by underserved populations. The current study examines the digital lives of an urban group living in extreme poverty – the homeless people in Skid Row neighborhood. I aim to uncover seemingly hidden digital practices that are often overlooked in past studies on homeless technology that upheld a binary view on technology access.

Splintering Urbanism as a Theoretical Framework

The notion of *splintering urbanism* (Graham & Marvin, 2002) refers to the fragmentation in the provision of urban infrastructure and services such as power, water, and telecommunication, pointing to the issue of social inequality. Emphasizing the increasing polarizing of urban socio-technical structures, especially in Western cities, Graham and Marvin postulated that such patterns of infrastructural provision tends to produce "premium networked spaces" for the wealthy while simultaneously giving rise to marginalized spaces for less-powerful groups. In this process of production and reproduction of urban spaces, certain social groups and geographic areas experience "poverty of connections" to urban infrastructure including telecommunication infrastructures (Ohnmacht, Maksim, & Bergman,

2009).

There is little application of splintering urbanism in telecommunications studies in both the Global North and the Global South while little is known about the digital marginalization of underserved communities in urban spaces. This paper utilizes the perspective of splintering urbanism to explicate the socio-technical condition of the disenfranchised population of houseless people in Skid Row and the reality of their digital access and use, and reflect on the production and reproduction of urban poverty and social inequities in resource-rich societies.

Skid Row and Homeless Technology

Skid Row is but a typical example of a peripheral informal settlement in a large metropolis in the United States. The neighborhood exemplifies many characteristics of an urban ghetto that endures the conditions of socio-spatial isolation, poverty, violence, and limited access to urban services and amenities (Dear & Wolch, 1987; Holm & Glynn, 2002). There are about 8,000 to 11,000 people who live on the streets and emergency/transitional housing in the Skid Row area of about 50 city blocks (Los Angeles Chamber Commerce). Over the past decades, the place has hosted abandoned communities in Los Angeles, such as the poor, the mentally ill and criminals (Dear & Wolch, 1987), but the current population comprises of an increasing number of homeless families, youth, and women (Downtown Women's Action Coalition, 2011).

Past research on homeless technology has affirmed a growing level of reliance on digital technology and the extent of digital access among homeless people in the United States (Sala & Mignone, 2014). The large majority of the past studies used one-time

surveying as the method to examine whether or not homeless people have access to information communication technologies. The assumption is, again, digital access is a yes/no binary, without attention to the problem of "dependable instability" (Gonzalez, 2016) and periodic disruptions in digital access. Also, there are shortcomings of nuanced understanding of lived experiences of homeless people and the social context underlying their digital practices. For instance, it is unclear whether they used smartphones or working class technologies. Also, how could one conceptualize the degree of digital access if the users experience a precarious life, constantly facing the problems of phone thief, low-phone battery anxiety, and phone shutdown due to lack of charging facilities? This paper provides empirical evidence emerging from my grounded fieldwork to rigorously examine digital practices among the unstably housed in Skid Row and further discusses the wider urban conditions and social implications of these practices. My research questions are:

RQ1: What are the patterns of technology ownership and access among homeless people in Skid Row?

RQ2: How do they navigate access to telecommunication technology amidst the challenging living environment in Skid Row?

Methods

This is a field research that was conducted for the course of nine months since early September 2018 to June 2019. The study involves in-depth interviews and urban ethnographic approaches as field observations, encampment/shelter visits, participant engagement, and online observations. In addition to engaging with homeless people on the streets or in transitional housing, I attended various community activities in the neighborhood such as arts events and community meetings. Various notes were taken during the field observations and ethnographic journey. My work with the Los Angeles California Action

Network (LA CAN) – an NGO located in Skid Row that provides free meals and legal assistance for homeless people – also facilitated me in having contact with the population.

To recruit interviewing participants, I use convenient sampling method, for instance by asking people I met on the streets or in social events to join the study, I employed snowballing method whereby interviewed respondents referred their acquaintances to my study. In total, I interviewed 40 homeless men and women the majority of whom were African-Americans, followed by Whites and Hispanics.

Each in-depth interview lasted between one and two hours. Interviews were semi-structured, however, they all revolve around several major themes including: (i) homeless people's lived experiences and social relationships while living on the streets and/or transitional housing; (ii) their precedents to homelessness and life history; (iii) their technological devices that were owned or used since getting into homelessness (e.g. technology types, brands, periods of use, etc.); (iv) roles of technologies in their lives; and (v) struggles in getting access to physical devices, charging practices, and digital access and uses. All of the interviews were recorded and then transcribed in verbatim.

Data analysis was done through systematic coding using Nvivo software. The audio transcriptions and the notes taken during the ethnographic observations were coded in relation to the research questions aforementioned and emerging themes coming out of the data. Existing and emerging themes were coded and triangulated to draw out interesting findings and implications for the study (Slater, 1998).

Also, I regard reflexivity (Alvesson & Sk÷ldberg, 2009) as an important component of the research. As a housed person and a PhD student from a prestigious university, I could be considered an "outsider". Compared to an insider, an outsider could face more difficulty in getting access to the community, and supposedly have lower perquisite knowledge of the

population under study. I also acknowledge the differential class, economic, and educational backgrounds that might have introduced bias. However, past research showed that being an outsider could potentially result in a fresh view of the study subjects (Labaree, 2002). Besides, being a woman and having a minority ethnic background potentially did give me an advantage when I managed to get access to the homeless community and be accepted by the marginalized people. I believe that the realization and accompanying reflection did assist me in discerning my respondents' inner voices and struggles, and be able to listen to necessary silence as their stories unfolded.

Findings

Valued Roles of Information Communication Technologies

My fieldwork reveals that while living in a marginalized urban space with limited access to urban network infrastructure, homeless people in Skid Row still had access to digital devices. The majority of my respondents had a mobile phone, notably a government assistance phone, at the time of the interview, whereas the rest did not have a cell phone then but had had one or more devices before that. Followed the mobile phone are some other devices as speakers and radios. Several people also possessed a personal laptop computer while most of them had to travel to public libraries to access a desktop computer.

For all of my respondents, communications technologies were highly valued as they facilitated various aspects of their lives, typically in their socialization processes and uses for daily needs, information seeking and identity management. For instance, digital technologies assisted them in getting updates on free meal offerings, reading news, and accessing online resources for leisure purposes. The mobile phone, Internet and social media helped them in maintaining connections with their family members and friends from afar*: I often contact my*

daughter on the phone all the time. My day is not right if I don't speak to her. (Leah)[2]

My respondents also used the Internet for job search and sending job applications to companies. Additionally, the digital met their high need for representing a valued identity: They frequently concealed their living status from their families and friends, and used social media to project a better identity online. For instance, Facebook and Instagram were often used to post their beautiful photos and artworks or videos of them doing voluntary community work.

> *Well I only post good things on my Facebook and Instagram, like when I went to do some voluntary community work. My families and friends do not know that I am homeless and I don't want to disclose that to them. (Dante)*

These findings showed the importance of telecommunication, especially the mobile phone and its online/offline functions, in the lives of the marginalized. However, several critical questions remain unclear: To what extent did they access and use the technologies? Were there barriers that made challenging their digital access?

Splintering Communications: The Daily Digital Battle

The homeless condition and the challenging living situation in an urban ghetto jeopardized my respondents' telecommunications technology access. Life on the street means that they did not have what they wanted nor gained what they needed at the right time. In fact, they faced myriad problems in their digital life, ranging from lack of phone charging facilities to phone theft and barriers to Internet access. Under the surface of the notion of

[2] All of the respondents' real names were changed to keep their identity confidential.

'having' or 'owning' a phone was a real challenging battle these people had to combat each day.

The Free/Budget Phone

Not being excluded from communications technology, their digital access was, however, generally poor. All of my respondents who were having a phone at the time of my interviews used low-cost or free phones. With minimal financial resources, they could only afford budget/free phones acquired from assistance programs offered by the state or telecommunication companies. The most commonly type was the Lifeline Assistance Obama Phone, informally called the Obama phone, which is a free government cell phone given to qualified poor citizens. The problem with these free phones is that they offered the poor users with unlimited minutes but with minimal data allowance such that people oftentimes did not have enough mobile data for their needs. Also the material device itself could be fragile as it is not in good quality. Some people purchased downscale devices for themselves while others received gifted phones from their family members. Nevertheless, financial barriers barred the majority of them from purchasing good packages for mobile minutes and data usage.

Internet Access Precariousness

Internet access was a survival battle. The quality of the Obama phone's data plan, and public Wi-Fi access in Skid Row area, according to my informants, was less than perfect:

> *I have an Obama phone, but it is 'cheap' you know. Internet access is slow and not good at all. It runs out quickly, so I would have to go catch Wi-Fi here and there in or out of Skid Row. (Sunny)*

Public Wi-Fi in Skid Row neighborhood were unstable or even unavailable in many

transitional housing buildings. While free Wi-Fi offerings in coffee shops and public buildings outside Skid Row, especially in downtown Los Angeles, were viable alternatives, they required an extended travelling time, resulting in constant interruptions of Internet access.

> *I often go to the Central Library in downtown LA to get Wi-Fi. Sometimes I could do that in coffee shops like Starbucks as well. But walking is kinda tiring, it's at least 5 blocks from here or even more – twenty minute walk or so (Shelley)*

Worse, to sustain access to the Internet, the homeless people had to travel back and forth in a day between different free Wi-Fi hotspots in the city. Also, they had no choice but to save their mobile data by reducing the consumption of online apps and videos. Still, data were exhausted from time to time while they were catching public Wi-Fi, resulting in intermittent, or no Internet connection at all.

Daily Charging Struggles

No electricity in the encampments at sidewalks and the limited number of shared power outlets in transitional housing made phone charging a huge challenge. It was not a surprise to my respondents finding their phones running dead or having minimal battery percentages in a day. The anxiety over low phone battery was pervasive in their daily life. It was jeopardized in the situation when their phones suddenly turned off while they were on a conversation.

> *One day when I was talking to my daughter, who was living in another state, the phone shut down because the battery was off. (Tyler)*

Many people had to plan their day in advance for phone charging while their behaviors changed according to their phone's battery status.

It is very anxious when having a low battery phone. I always have to plan out my day ahead only for charging actually. Sometimes I had to change my plan just because of the phone-charging thing. One day I was on the way to the beach, but my phone was down so I had to make my way to a free charging station that was almost two miles away and when waited for an hour to power it up. (Wendy)

For those who lived in transitional housing, the battle for phone charging was no less severe. If one was diligent in charging their phone in the dorm and saving the battery by reducing the frequencies of phone use, his/her life was easier. But if one used the phone frequently and watched videos at night, their phone batteries might be exhausted by the next morning. The number of shared charging outlets in their dormitory rooms was limited while they had to negotiate with many other homeless fellows to get a charging slot:

I could charge my phone in the dorm at Poverty Department where I am living. But unfortunately the number of people outnumber the number of outlets available, so it is tough. We had to queue to charge our phones. Waiting time is annoying sometimes, not mentioning that some of the people live in the dorm are gangs or impolite people, you know, so sharing the charging space is not a good deal! (Matt)

Facing these struggles, people managed to find innovative ways to power their batteries. Some innovative approaches included dangerously getting electricity from electric poles on Skid Row streets, asking their friends who lived in permanent housing to help charge their phones, and paying gadget shops nearby an amount of up to $3 to charge a phone. The most common practice was to linger to various public spaces, such as Skid Row public parks, coffee shops, train stations, and public libraries, to charge their devices. However, when entering these spaces, they might encounter discriminatory gaze from the publics or by-passers upon their homelessness identity; or they might be prohibited downright

from entering those spaces. Also, if allowed to enter, they could only stay for a limited time for charging their phone, for instance up to an hour in the Los Angeles Central Library, without falling asleep or risk being excluded from the facility. My observations revealed that many people tried to avoid the pubic discriminatory gaze while charging their phone. The dynamics of phone charging thus suggests not only the phone charging struggles but the problem of social exclusion experienced by the marginalized people. Being excluded from premium network spaces means a precarious life struggling for gaining access to the very basic rights of phone charging or suffering the problem of low battery anxiety.

Phone Theft

Mobile theft was frequent and virtually inescapable. Oftentimes each of my respondents' phones could not be kept for long: The majority of them used to lose one phone or more at some point since sliding into homelessness. For a number of people, phone theft was too prevalent that each of their mobile phones could only stay with them for no more than a month. As a result, many had multiple devices, even up to twenty mobile phones over the course of about two years because they frequently experienced the problem of mobile theft.

Phone theft led to infrequent phone use, because although many of them had the option to obtain a new free assistant phone, the application process took time, meaning that they did not have a phone during the waiting period.

> *We often got the Obama phone. If we lost one, we would have to call to th government assistance program to report it. They would file the case and provide us a new Obama phone, but we would have to wait for around 3 weeks or more, meaning 3 weeks not using phone at all, at least 3 weeks I meant. (Peter)*

The same problem happened to those who received phone gifts from a family

member, as they had to wait for an extended time before a new phone arrived. For those who did not go through the government assistance program, mobile theft could result in no phone to use because they could not afford a new device immediately.

These problems required homeless people to develop strategies to protect their phones. For those who lived in emergency or transitional housing, what most of them did in their rooms at night was to watch their phone being charged till the battery was full. It was important for them to hide the phone under their beds or clothes to avoid mobile theft:

> *In transitional housing, at night I often stay awake till my phone is fully charged, then I put it under the mattress or deep in one of my pan pocket to avoid mobile theft in the room. (Dan)*

Those who lived on streets also had to hide their phones in secret locations in their tents.

> *I hide the phone under my chest or under the mattress when I sleep in my tent so that no one could take it from me. Oh my god, but still my phones were stolen so many times. I have had about 20 phones in total over the last two years since I stayed on Skid Row street because I lost one in every month or so I would say! (Liz)*

Splintering Communications: Consequences on Human Communication and Wellbeing

The splintering of communication technologies, notably the problems of unstable access, phone theft, and phone charging difficulty, precipitated myriad consequences on the lives of the urban homeless in Skid Row. These issues ranged from disruptions in their digital uses, disconnections in communication with others and information seeking processes, to psychological consequences such as the feelings of anxiety.

As discussed earlier, phone theft necessarily resulted in a period of not having a phone to use. However, even when having a mobile at hand, these poor users still faced

disruptions in their usage of mobile and Internet services for several reasons. First, when the phone battery was low or exhaust while people had nowhere to charge their phones, they had no choice but to stop using the device. Sustained uses led to an abrupt cut of their communication with others. Similarly, information seeking processes could be affected when the phone was suddenly dead. Sudden shutdown of the mobile uses could mean a conversation with a sick daughter was unfinished, a job opportunity could have been lost, and an appointment with one's doctor was missed.

> *Once I was on the line for a phone interview with a company, my phone turned off in-between. It was such a horrifying experience! Then I had to go to a café' to charge my phone to get it active again after about 30 plus minutes later. But sadly I did not receive any call back from the recruiter anymore nor I could reach out to them via phone. (Henry)*

Another way their digital world was affected is that the users had to limit their uses of mobile devices or services. For instance, instead of watching multiple videos, one could only do one to save mobile Internet data. Many people thus proactively turned off the phone or reduced the amount of time of talking to their families from a far to save the phone battery from time to time.

Further, psychological wellbeing was affected considerably. Take an example of mobile theft: The emotion following the event of phone loss could be heavy for the affected. Being marginalized socially from the wider society and in desperate need of healthcare, education, social support, and at the very least, the daily survival means facilitated by the digital, means that technology sometimes could have played a live or dead role in their lives. So losing phone and no Internet access could be detrimental, resulting in anxiety and life inconvenience:

I was always anxious and worried each time my phone was lost, and even when I could not charge the phone. I took so much time for me to walk around, even in darkness, on streets just to see if I could find the phone or if it was somehow thrown out to the street. No phones, well I feel devastated. (Debra)

I don't know what I will do without phone and Internet. Phone loss is truly a disastrous event. I wouldn't be able to talk with my daughter. You know, right now, I am kinda talking with her everyday; my day is not usual if I don't call her. (Pamela)

Unfortunately, no matter how much they valued the role of technology, the life on the street and in the urban ghetto lacking access to premium infrastructure resulted in the form of splintering communications or precarious communications and the various influences of these problems on their personal lives and psychological well-being.

Discussion

This paper contributes to the information communications technology scholarship by offering empirical evidence on the digital practices of a marginalized urban population that is homeless people in Skid Row – an inner city ghetto – in downtown Los Angeles. While the people appreciated the roles of telecommunications technologies, manifested in their appropriation of the digital for a variety of instrumental gains, they constantly struggled with gaining Internet access, forestalling mobile thief, and powering their phones. These problems illustrate the precarious digital world jeopardized by the condition of homelessness and the poor technological infrastructure available to them. Central to my findings is the dynamics of mobile/technology ownership and access that goes beyond the notion of yes/no binary that extant research on (homeless) technology access often tapped into. I pose these questions: What is the role of communications technology if the line is frequently interrupted, and if the

interim waiting time for charging a phone so that one can continue a conversation with his/her loved ones is unbearable? What is communications technology for information seeking if the Internet access, if at all, is sporadic or even downright denied? What is the role of digital technology if the process of getting the technology and sustaining it is a daily battle against a host of technological and social barriers? I thus introduce here the term "splintering communications" to illustrate the precarious nature and the reality of the digital practices experienced by the marginalized community under study.

Prior research on homelessness and technology paid substantial attention to how digital technology uses positively impacted the lives of homeless people, suggesting an increased reliance on technology among people experiencing homelessness and an optimistic view on the role of technology (Sala & Mignone, 2014). This study does not negate the prior findings, however, I challenge scholars in the growing area of technology and homelessness to revise their earlier findings and the overly celebratory discourse on the positive extent and impacts of digital use by the poor and the unstably housed. Further research can greatly benefit from paying attention to the lived experiences of marginalized people, taking into account the reality of splintering communications facing them found in this study, and the broader socio-technological contexts they are embedded in. Ideally, community engagement scholarship and grounded field methods can help future studies to probe into the dynamics of technology access, ownership and uses of underserved communities, as oppose to one-time statistical approaches that ask whether or not they own a digital device. At the very least, minding the reality of splintering communications in the lives of many people at the margins will facilitate future research in developing meaningful research instruments. Besides, while much research attended to the user segment, there needs to be more insights into non-users and those experiencing unstable access/use of digital technology.

Conclusion

This study reveals complex relationships between digital technology, urbanism, and marginality in the context of the networked society and the seemingly high-tech city of Los Angeles. The America's homeless capital of Skid Row exemplifies a marginalized space and a network ghetto (Graham & Marvin, 2002) embedded in the milieu of the urban fabrics with starkly competing values and distinct human conditions. Splintering urbanism is predicated on the practice of social division, within which premium network spaces are equipped with high-tech facilities and high-class living environment reserved for the rich, while network ghettos are deprived from basic infrastructure and urban utilities. The homeless people in Skid Row, located in short distance from the business district in downtown Los Angeles, is but a typical example of the urban poor residing in a marginalized urban space deprived from basic telecommunication infrastructure. Not being unphoned, the people in Skid Row embrace working class devices. While struggling in protecting their phones from mobile theft and being desperate to find available charging places and Wi-Fi hotspots, these individuals are further unwelcomed by people in public spaces. The digital practices and the problem of social discrimination point to the bigger problem of social inequalities manifested in the modern urban life and exacerbated by the practice of splintering urbanism. Also, the splintering of communications technology described in this study reveals a form of digital divides and digital exclusion, particularly in urban spaces, that was largely neglected in extant literature on communications and technology. As digital access has been measured primarily in a mechanical way – mainly through quantitative survey instruments without probing into the backdrop behind the "access" or the possible battles people had to struggle with before and while having the "access", research has missed important cues in conceptualizing digital access and the role of technology. How is "access" defined if one does

not have a phone now but had one three months ago before it got lost or broken? How to measure the ubiquity of a technology if it is constantly lost? These simple questions should be taken seriously.

In order to alleviate the problem of splintering communications, it is important for digital technology policy makers and practitioners to work towards improving the extent and the quality of digital access for urban underserved communities. Enhanced provision of effective and affordable digital devices and Internet access, especially for those living in urban ghettos, can have much potential in improving their present lives and reducing the digital divide in urban areas. At the same time, future technology innovations in cities should especially pay attention to these problems to avoid exacerbating the digital exclusion experienced by the urban poor and the splintering of urban technologies in different geo-locations and communities. The path is neither easy nor able to eradicate the root cause of the problem – that is social inequalities – but it can, at the very least, help to mitigate the digital struggles facing the urban poor's daily lives.

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