

# Digital Inequality and Second-Order Disasters: Social Media in the Typhoon Haiyan Recovery

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## Abstract

This article investigates the intersection of digital and social inequality in the context of disaster recovery. In doing so, the article responds to the optimism present in recent claims about “humanitarian technology” which refers to the empowering uses and applications of interactive technologies by disaster-affected people. Drawing on a long-term ethnography with affected communities recovering from Typhoon Haiyan that hit the Philippines in 2013 triggering a massive humanitarian response, the article offers a grounded assessment of the role of social media in disaster recovery. In particular, the article focuses on whether any positive consequences associated with digital media use are equally spread among better off and socially marginalized participants. The analysis reveals sharp digital inequalities which map onto existing social inequalities. While some of our already better-off participants have access to a rich media landscape which they are able to navigate often reaping significant benefits, low-income participants are trapped in a delayed recovery with diminished social media opportunities. The fact that some participants are using social media to recover at a rapid pace while others are languishing behind represents a deepening of social inequalities. In this sense, digital inequality can amplify social inequalities leading to a potential “second-order disaster.” This refers to humanly perpetuated disasters that can even surpass the effects of the natural disaster.

## Keywords

social media and disasters, crisis communication, humanitarianism, digital inequality, social inequality, mobile phones, social networking sites, media environments, polymedia, ethnography

Disasters are almost always a story of social inequality. Although they are thought to hit indiscriminately at one level, natural disasters have highly stratified effects affecting most adversely those who are already disadvantaged. Low-income people are more likely to live in unsafe housing and are thus vulnerable to suffer casualties, material damages, and displacement. Hurricane Katrina is the typical case in point (Klein, 2007), but the observation is widely supported (Klinenberg, 2002). Crucially, the asymmetrical effects are not only felt during the actual disaster event but are perpetuated and heightened in the recovery period. Recent studies have shown that the aftermath of disasters can have as, if not more, deleterious effects on affected populations as the original calamity (Adams, 2013; Sheller, 2013). Recovery can be delayed due to corruption, profiteering, or inadequate governance leading to a second-order disaster (Adams, 2013), a humanly perpetuated disaster which further traps disadvantaged populations into precarious life conditions.

In this article, I ask whether new communication technologies can mitigate the consequences of disasters and

disaster recovery for affected populations. I pay particular attention to questions of social inequality and how it intersects with digital inequality. Are new communication technologies able to ameliorate the effects of “second-order disasters,” and if so, who benefits? Are any positive consequences equally spread among better-off and socially marginalized participants?

Much optimism has greeted new communication technologies in the field of disaster research. It is even claimed that digital innovations such as social media are transforming humanitarian relief by enabling “people-centered humanitarian action” which empowers disaster-affected communities to coordinate and respond to their own problems (World Disasters Report [WDR], 2013). This optimism

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has given rise to the term “humanitarian technology” referring to the uses and applications of technology by disaster-affected communities during recovery (WDR, 2013). Yet, despite the enthusiasm regarding the role of digital technologies as tools for disaster recovery, more evidence is needed to assess their impact. Parallel research in the field of Internet studies suggests that despite the initial optimism about the Internet as the “great potential equalizer” (Compaine, 2001), the effects of technological uptake are at best complex, while much recent evidence points to potential amplification of social inequalities (Hargittai, 2008; Hargittai & Hinnant, 2008; Schrader, 2013).

The article draws on ethnographic research on the recovery from Typhoon Haiyan (known locally as Yolanda) which struck the islands of the Philippine archipelago on 8 November 2008. Haiyan remains the strongest storm ever recorded with over 6,300 casualties and more than 12 million people affected (National Economic and Development Authority [NEDA], 2013).<sup>1</sup> Between April 2014 and January 2015, our team<sup>2</sup> has been conducting fieldwork in two areas affected by the Typhoon, examining the role of communication environments in disaster recovery. In particular, we have been investigating the uses of social and mobile media by both directly affected populations and humanitarian organizations involved in the recovery process, although the article primarily reports on interviews and participant observation with affected people. By exploring the structural consequences of recovery in the everyday lives of affected people, I here combine the macro- and micro-levels of analysis. The article observes sharp digital inequalities which map onto existing social inequalities. While some of our already better-off participants have access to a rich media landscape which they are able to navigate often reaping significant benefits, low-income participants are trapped in a delayed recovery with diminished access to and skills to use interactive technologies. The fact that some participants are using social media to recover at a rapid pace while others are languishing behind represents a deepening of social inequalities. In this sense, digital inequality can amplify social inequalities leading to a potential “second-order disaster”—a humanly perpetuated disaster that can even surpass the effects of the natural disaster (Adams, 2013). The following section brings together the three literatures that inform the study’s analytical framework.

## When Is a Disaster? Emergencies and Recovery Politics

Disasters are notoriously under-theorized in social science. The strong emphasis on applied research acts as “a barrier to theoretical innovation” (Tierney, 2007). Much writing on disasters focuses on the events themselves and their immediate aftermath, while the historical context of disasters and the long-term recovery process have received significantly less attention (although see Bankoff (2003) for a historical account

of disasters as a way of life in the Philippines). The temporality of disaster is hugely significant. While most research focuses on disaster events, I argue that the drawn out and less spectacular process of recovery can be more harmful than the original event. The argument was made by Klein (2007) and her theory of disaster capitalism which involves an initial “shock treatment” to economies following events such as natural disasters. The outsourcing of reconstruction from the government to private contractors who turn recovery into a for-private endeavor exacerbates inequalities at the expense of those most in need. The “shock doctrine” in Klein’s work echoes Agamben’s (2005) “state of exception” and its subsequent applications in the field of humanitarian relief (Fassin & Vasquez, 2005). Fassin and Vasquez (2005) have shown how “emergencies” or exceptional circumstances have legitimated problematic interventions and policies which would not have been otherwise tolerated.

Adams (2013) extends Klein’s argument by observing that New Orleans after Hurricane Katrina suffered a “second-order disaster” as the recovery’s disastrous consequences surpassed the impact of the storm itself. In New Orleans, market-driven disaster recovery became a lucrative business which exacerbated inequalities of race, class, and gender and prevented those displaced by the disaster from ever recovering (Adams, 2013; Adams, van Hattum, & English, 2009). While private contractors turned recovery into opportunities for profit, the real recovery was left up to non-governmental organizations (NGOs) and volunteers and as a result was extremely delayed (Adams, 2013, p. 5). Meanwhile, middle-class participants were left to “pull themselves up by their own bootstraps” a view that they often internalized (Adams et al., 2009, p. 631). Katrina provided an exemplar of neoliberal capitalism understood both as “market-driven governance” (Somers, 2008) and a broader ethos of “self-governing” that values self-reliance and entrepreneurialism (Ong, 2006). Later in the article, we will discuss how Typhoon Haiyan represents a hybrid case combining some of the above elements, such as state withdrawal, which have led to a delayed recovery. Similar to the study by Adams (2013), the present research documents the consequences of delayed recovery drawing on the actual experiences of affected populations. By combining the micro- and macro-levels of analysis, I aim to understand the structural consequences of long-term disaster recovery and the role of social and mobile media in post-Haiyan Philippines.

## Humanitarian Technologies? Social Media in Disasters

Most work on digital media and disasters has focused on Western contexts (e.g. Hughes & Palen, 2009; Palen, 2008), thus assuming ubiquitous Internet connectivity among affected populations. Most studies have examined social media and especially Twitter (Bruns, Burgess, Crawford, & Shaw, 2012; Murthy, 2013), while much work has focused

on how “big data” can help plan and coordinate government responses to crises. Research has also examined the ways users participate in social media to share or seek information and coordinate action (Hughes & Palen, 2009; Palen, Starbird, Vieweg, & Hughes, 2010; Starbird et al., 2015), while studies have also highlighted the phenomenon of digital volunteerism—how distant others can offer help via interactive platforms (Meier, 2015; Starbird & Palen, 2011). The overwhelming popularity of big data approaches in disaster and humanitarian response needs to be weighed against the awareness of the ontological and epistemological limitations of social analytics (Crawford & Finn, 2014), such as the fact that they only represent active users and not necessarily those who are most affected and whose digital footprint may be too small to be even noticed. Basing recovery efforts on big data risks misdirecting resources from those most in need to those who are able to generate most “noise.” Particularly relevant to this study is the issue of the uneven distribution of big data globally. During Haiyan’s first 3 days, 230,000 relevant tweets were collected by the United Nations Office for the Coordination of Humanitarian Affairs’ (UN OCHA) Micromappers compared to 4 million during Hurricane Sandy in the United States during a similar timeframe (Meier, 2015, p. 28). In the case of Haiyan, it is safe to assume that most of these tweets were from outsiders “looking in” given that communications infrastructures in the affected areas were completely damaged and remained down for over a month after the event. One of the few studies to have looked at social media and disasters in a global south context (the Pakistan floods of 2010) found that most Tweets were from non-local people commenting on the events (Murthy & Longwell, 2013, p. 840), confirming that social media users are asymmetrically distributed globally. Quite apart from the need to develop research in the contexts where disasters occur most frequently, more qualitative work is necessary that offers an in-depth account of the actual uses of technology by disaster-affected people. This is imperative given the optimism surrounding the potential of new media for humanitarian emergencies.

The low cost and interactive nature of digital technologies such as SMS and social media are thought to be a “driving force in the new humanitarianism of today” (WDR, 2013, p. 154). Interactive technologies are claimed to empower local communities, facilitate information dissemination and collective problem-solving, and improve the accountability of humanitarian organizations. The optimism that technological innovation can catalyze a shift in power relationships within humanitarianism underpins the term “humanitarian technology” used by humanitarian organizations to refer to the use and applications of technology by disaster-affected communities “to respond, recover and rebuild more effectively” (WDR, 2013, p. 13). Yet, there is little evidence from non-Western contexts to support such claims. Although the literature on social media and disasters is growing, what seems to be particularly missing from some of the accounts on “humanitarian

technology” is the perspective of the affected populations themselves, which is surprising given the emphasis on “people-centered action” in the above accounts. Clear evidence is required whether digital technologies can actually enable new technologized forms of resilience and recovery for at-risk groups and whether power is indeed redistributed. The neoliberal tone of self-reliance (Ong, 2006) is here coupled with a problematic understanding of technology as inherently progressive and equally distributed among populations. As the next section will highlight, technological uptake is almost always stratified.

## Digital and Social Inequalities

Digital inequality refers to both how existing social inequalities shape the adoption and uses of communication technologies as well as to how different uses of these technologies can influence social stratification (Hargittai & Hsieh, 2013, p. 141). Both definitions apply to the present research, but this article focuses mainly on the latter dimension for which there is less conclusive empirical evidence.

The debate on digital inequality has evolved from early conceptualizations of the digital divide as a binary category relating to access, to the differentiated online skills and uses of the web. The shift is more salient as Internet connectivity has become increasingly pervasive at least in the developed world context. DiMaggio, Hargittai, Neuman, and Shafer (2004) suggested different dimensions of inequality, including technical means (e.g. the quality of connection), autonomy of use (e.g. location of access), and the ability to use the medium effectively. The differentiation in online skills and the ability to take advantage of the medium’s opportunities are termed as the “second-level digital divide” (Hargittai, 2002) and encompass differentiated levels of online participation and capital-enhancing activities (Hargittai & Hinnant, 2008). Differentiated online skills (in relation to analysis, evaluation and content creation) are also at the core of recent revisions of the concept of media literacy (Livingstone, 2004) which also encompass access inequalities (first-order divides).

Research has established that socioeconomic status and education are strong predictors for the type of online activities that users pursue. A US study found that those with higher levels of education were more likely to pursue “capital-enhancing activities,” effectively activities that improve one’s life chances such as searching for financial or political information (Hargittai & Hinnant, 2008, p. 606). Conversely, users of lower income were more likely to display risky online behavior such as gambling (Hargittai & Hinnant, 2008, p. 607). The strong relationship between socioeconomic status, education, and online skills is confirmed by other quantitative studies (see Hargittai & Welejkó, 2008; Schradie, 2013), while studies have also highlighted gender inequalities (Helsper, 2010; Schradie, 2011), with women less likely to share creations on the web (Hargittai & Welejkó, 2008).

Although there is plenty of evidence to support how social stratification shapes digital inequality (including differentiated access and online uses and skills), there is less conclusive evidence about whether digital inequality reproduces social inequalities. Research suggests that digital literacy has implications for education (Buckingham, 2007) and employment opportunities (Fountain, 2005), while studies have supported a positive relationship between online activities and social connectivity (Rainie & Wellman, 2012). Links have also been made between seeking news online and engaging in political talk and civic participation (Shah, Cho, Eveland, & Kwak, 2005) echoing earlier arguments about news media and the virtuous cycle of positive reinforcement (Norris, 2000). A qualitative study of transnational families suggested that differentiated access and skills can engender “care divides” with Internet-connected migrants better able to care for their left-behind children at a distance (Madianou, 2014). That study emphasized the range of platforms available to migrants and their ability to navigate media environments, conceptualized as “polymedia.” Users able to exploit the affordances of different platforms were able to report a more diversified experience of mothering at a distance compared to those with access to a limited range of media (Madianou, 2012, 2014).

The above findings suggest that disparities in people’s online uses can potentially compound social inequalities rather than alleviate them. If some users (typically, those in already advantageous positions) are more skilled than others and have access to a range of platforms, they can take advantage of the web’s numerous opportunities. By contrast, users who are less well equipped to navigate the web (usually those who are already more socially disadvantaged) are less likely to benefit from any opportunities. As a result, online inequalities can further exacerbate social inequalities rather than create a level playing field (see Hargittai & Hsieh, 2013). More longitudinal research is needed to evidence the implications of online uses for social inequalities. Additionally, more qualitative research is needed to understand deeply the consequences of inequality and complement the findings of quantitative research which dominates this field. Given the injuries of social inequality are often “hidden” (Sennett & Cobb, 1972), an ethnographic approach is well suited to unearth the implications of digital inequity. This article aims to do so by focusing on the hitherto understudied intersection of digital inequality and disaster recovery.

Most work on digital inequality has addressed Western, or “global North,” contexts. When addressing the developing world context, research has typically focused on access issues (usually the “global divide” between the global north and global south, see Norris (2001) among others) and considerably less on differential literacies and uses. While the emphasis on first level divides is understandable given the low rates of Internet access in parts of the world, especially African countries (International Telecommunication Union [ITU], 2010), the developing world picture is very complex with several

countries pioneering innovations and platforms. One such example is the Philippines, dubbed the “texting” and “social networking capital of the world” (Perterra, 2010; Russell, 2011). Countries like the Philippines and Kenya have pioneered mobile money applications as evidenced by the popularity of the M-Pesa platform which handles almost 25% of Kenya’s gross domestic product (GDP) (The Economist, 2012). National figures, however, conceal regional differences. In the Philippines, Internet use is still largely an urban, middle-class phenomenon (Madianou & Miller, 2012) rendering access divides still relevant. As always, of course, growth in user statistics does not mean that everyone uses the medium or benefits from it in similar ways. I will here explore both first- and second-order digital divides as part of the effort to establish not only how existing social stratification shapes access and online skills but also to evidence whether digital inequalities heighten existing social inequalities, thus affecting the outcomes of recovery in post-disaster Philippines.

## The Empirical Context

The article draws on a multi-sited ethnography in two locations Tacloban, Leyte, and Sabay, Cebu,<sup>3</sup> where we have been conducting participant observation and interviews with 101 participants (several of whom are interviewed more than once) between April 2014 and January 2015. The study also includes interviews with 38 experts (representatives from humanitarian organizations, other civil society groups, government agencies, as well as telecommunications companies and other digital platform developers) which inform this article contextually. Our qualitative sample aimed to be as diverse as possible while retaining a social class and gender balance (55 women and 46 men; 63 very low or low income and 38 middle class). The two fieldsites were selected for a number of reasons. Tacloban, an urban center and regional administrative capital, suffered the highest number of casualties as it was where the typhoon first made landfall. Storm surge waves submerged most parts of the city with whole neighborhoods completely destroyed. Sabay, a remote island community off the northern coast of Cebu, suffered very significant material damages but few casualties as it was not affected by the storm surge. The article draws on data from both fieldsites, but the aim here is not to develop a full comparison.

Ethnography is ideal for investigating deeply the perspective and experience of affected populations which are often missing from the disaster literature. Ethnography is particularly well suited for dealing with potentially vulnerable populations such as those affected by disaster (Adams, 2013). Participant observation allowed us to develop long-term rapport, trust, and empathy over the course of 10 months. During our fieldwork, we spent time with our key participants and their extended families. We shared meals, sang karaoke at neighborhood fiestas, and attended church services, community consultations, and protest rallies. We supplemented traditional participant observation with online ethnography in

order to have a full overview of our participants' actual media practices.<sup>4</sup> The long-term nature of ethnography allowed us to develop a close understanding of the politics of disaster recovery. We need more "slow research" to understand emergencies. As we were able to follow developments for a period of over 10 months, our research does not just provide a snapshot of the Haiyan aftermath but a sustained account of our participants' experiences and struggles over the course of a year. This long-term insight is vital for understanding the intersection of recovery and inequality.

### Recovering from Haiyan: A Second-Order Disaster?

The first impression of Tacloban one year after Haiyan is of a bustling city. Most shops and hotels are back in business and the streets in the downtown area are clear of debris and congested with traffic. Schools have reopened and so has the main mall in the outskirts of the city which also functions as a social space (as is typical in most Philippine cities) while a new mall in the downtown area is being built. Several reconstruction projects and events were planned in the run up to the one-year anniversary from the Typhoon and the Pope's visit in January 2015. There are even signs of gentrification, with a new trendy hotel and pop-up bars and restaurants which mainly cater for the foreign aid workers. Yet, it does not take long to see the wounds that the Typhoon has inflicted. The evidence is not just found in the black silt—residue from the tsunami-like storm surge—that still covers most buildings, or the dust from the ubiquitous construction sites, or even the long queues in shops that still suggest a state of emergency. Just a short tricycle ride from the city center, one encounters a sea of tents in what used to be one of the most densely populated *barangays*<sup>5</sup> by the shore. Like in several other parts of the city and wider metropolitan area, in *barangay Lido* thousands of people live without electricity, running water, or sanitation in what is officially described as a dangerous zone because of its proximity to the sea.

One year from Haiyan, families who were most affected by the disaster continue to live in unsafe temporary housing (e.g. tents or shanties), many of which are erected in the affected *barangays* within the so-called no built zone which is within 40 m from the sea. From our first visits to the most affected neighborhoods in April 2014 until November 2014, we witnessed little change to the living conditions of many of our low-income participants, confirming delays in the recovery. For some participants, the only evident change is that the tent material got worn from usage and exposure to the elements, especially the rain following the start of the wet season (June–October). By November 2014, our main fieldwork *barangay* of Buwan on the shore of Tacloban was evidently left behind compared to other parts of the city, especially those along the designated route for the Papal visit which received concerted cosmetic intervention. In Buwan, the debris and large cargo ships that had been washed ashore

and which were wedged among the makeshift homes remained stark reminders of the disaster. One year on, the ships were yet to be dismantled. The temporary homes of Buwan looked worn out, and unsurprisingly, some did not survive the strength of Typhoon Hagupit in December 2014. Buwan "had been forgotten," according to the locals. It is not surprising then that some of our participants hoped that the cargo ships wedged in the neighborhood would not be moved. These ships, which became iconic images of Haiyan, remained a destination for disaster tourism which at least brought visitors to the *barangay* keen to take pictures and buy refreshments from the *sari-sari* stores. More importantly, disaster tourism and the symbols of the calamity validated the degree of desperation felt by many locals. At least the debris represented the reason humanitarian agencies would continue to visit and help the *barangay*. In other neighborhoods, those families who were transferred from the "no built zone" were accommodated in bunkhouses or other temporary accommodation described as short-term.<sup>6</sup> It is not surprising that during the period of April–October 2014, shelter was the most pressing issue for the affected people, and this was made explicit in all community consultation meetings which we have been attending.

The other critical need during our fieldwork was livelihood. Unemployment is rife especially in Tacloban where thousands of people lost their jobs when the companies in which they worked were completely destroyed. In both Tacloban and Sabay (where fishing is key to the economy), fishermen lost their boats while crops were destroyed. Although the local economy is gradually picking up with shops and other companies reopening, 11 of our participants who lost their jobs after the Typhoon remained unemployed for at least 8 months after the disaster. Almost all of our participants were affected by unemployment as they had family members who lost their jobs or key income sources after the Typhoon.

The reasons for the slow and uneven recovery relate to a number of factors including political and economic. Recovery is very politicized involving power struggles between national and local government. A total of 36 government departments are involved in the recovery process, while a government unit was formed in order to coordinate the different government departments and stakeholders in the recovery process. Office for the Presidential Assistant for Rehabilitation and Recovery (OPARR) operates without a budget of its own, and apart from coordinating government activities and policies, its remit involves the liaison with the private sector and its involvement in the recovery post-Haiyan. Given the complexities of the recovery politics, it is not surprising that until 1 August, the Haiyan-affected areas were still officially declared to be in the "emergency phase," with the government stating the launch of the recovery in August 2014, nine months after the Typhoon made landfall. The government only published its recovery masterplan on 29 October 2014, one year after the disaster. A prolonged

emergency phase can provide some justification as to why policies are not implemented. As discussed earlier, emergencies as a state of “exception” are deeply political.

It is thus not surprising that much of the actual recovery work has been left to humanitarian and other organizations such as international non-governmental organizations (INGOs), UN agencies, or religious organizations, as was also confirmed by local stakeholders whom we interviewed. The presence of major humanitarian and UN agencies is very salient in both Tacloban and Sabay. Most INGOs work together with the Philippine government Department of Social Work and Development (DSWD), although some organizations, especially religious charities, operate autonomously. Private companies, including the major telecommunication and media organizations, are also present in the recovery via OPARR, confirming the emergence of “philanthrocapitalism” (Adams, 2013). The question is whether these international agencies and private companies, despite their dedicated efforts, can handle the recovery from an event of such magnitude. Haiyan represents a hybrid case combining elements from the ideology of “emergencies” and “disaster capitalism” (the withdrawal of the state and the fact that the real recovery is handled by NGOs) all compounded by the local political culture of clientelism (Rafael, 1990).

It may be a little too early<sup>7</sup> to safely conclude whether the recovery from Haiyan represents a second-order disaster. A continuous assessment of the situation is necessary for at least two years after the event as this will provide a measure of comparison with other disasters such as Hurricane Katrina (see Adams, 2013). However, there is already ample evidence to confirm that the recovery for those most affected is very delayed and, in some areas, stalled. Those most affected by the typhoon continue to live in unsafe or temporary housing, have lost livelihood, or are unemployed and remain largely dependent on handouts given mostly by their relatives abroad<sup>8</sup> or INGOs and religious organizations. Such handouts have now dried out given that most INGOs left Tacloban and Sabay a year after the Typhoon, and it remains to be seen if and how this gap will be filled. Those who suffered the greatest loss of life and material destruction were already the poorest people. The fact that the recovery plan was only announced one year after the disaster created a precarious situation which suggests that, unless recovery picks up, Haiyan could turn into a second-order disaster. The remaining article explores whether new communication technologies can provide opportunities to improve life chances and speed up recovery—or whether they might compound the effects of delayed recovery, potentially confirming a second-order disaster.

## Media Environments: Access and Skills

In our interviews, we asked participants to map the devices, media, and platforms they had access to as well as what they used them for. This mapping exercise revealed a sharp access

divide, suggesting that first-order digital divides persist among our participants. Our analysis divided our participants into four categories depending on the media environments they had access to:

- Media poor: no mobile phone and minimal access traditional media; no Internet connection (9 participants);
- Minimal owners: a feature mobile phone with some access to traditional media but without autonomous Internet access (33 participants);
- Moderate owners: a feature phone with some web connectivity (most typically Facebook)<sup>9</sup> plus some traditional media and occasional use of Internet cafes (22 participants);
- Media rich: smartphone and/or a range of other Internet-enabled devices plus traditional media (37 participants).

This classification suggests that 42 out of our 101 participants (well over one-third of our sample) have no Internet access, while another 22 have irregular access which is heavily or exclusively centered on Facebook. Almost all these are very low or low-income participants, while most participants without Internet access are women (29). Conversely, the overwhelming majority of middle-class participants (25) had access to a rich environment of communication technologies and platforms, with only three participants reporting no Internet access. Despite exceptions (e.g. 10 low-income users owned smartphones), our finding confirms that socioeconomic status is directly linked to media access. Our qualitative data concur with our ethnographic observations in our fieldsites for over 10 months as well as with survey findings<sup>10</sup> (Hartmann, Rhoades, & Santo, 2014), suggesting that these figures are likely to represent wider trends. Interestingly, these figures also reflect the situation before the typhoon, suggesting that those who lost their devices during the storm were able to replace what they lost by the time we interviewed them.

Differentiated access is in turn directly linked to the digital skills of participants and their ability to produce content. The question of online skills becomes redundant for those participants without Internet access. Of the 37 participants with regular Internet access, only 24 were identified as advanced users, that is, users who were able to navigate the various platforms autonomously, search for information, and produce content (e.g. blogs, photography, regular posts on social media) especially relating to the recovery. Advanced users would be involved in collective problem-solving, fundraising, protest, and forms of digital storytelling. Most of the 24 advanced users were middle class, with six low-income participants. Most advanced users were also male, with only six women reporting advanced content production. We thus observe class- and gender-specific second-order divides confirming patterns from other empirical contexts.

One limitation of the digital literacy literature is that it does not pay enough attention to the uses of feature mobile phones which remain the most popular device globally (World Bank, 2012). Our 33 participants with access to a feature phone (31 of whom were poor or very poor) often reported creative uses of their phones usually involving texting. The single most important way in which mobile phones made a difference was in facilitating socialities and relationships of obligation which sustained a number of our participants, confirming findings with other low-income populations (Horst & Miller, 2006). The following sections will report on the uses of texting also in the context of the recovery in an attempt to correct the “Western-centric” bias of the digital literacy literature. Still we recognize the asymmetry between “media-rich” participants (who have access to a range of devices and platforms) and those who are media poor or only own a feature phone with no Internet capability. Having access to a number of devices does not guarantee digital literacy or advanced online skills, but it does provide participant the potential to manage and enhance their social networks and harness them for their personal advantage. The next section will discuss the capital-enhancing activities reported by some of these “media-rich” participants.

## Disaster as Opportunity

In the climate of delayed recovery, do new communication technologies and social media offer opportunities to affected populations? In our research, we observed that several of our participants experienced Haiyan as an opportunity to improve or to change their lives. Usually, these were opportunities for business or work, while sometimes the change concerned a broader sense of appreciation of one’s life. Such was the example of Alf, a hotel manager in central Tacloban who felt that Yolanda set him on a path for “self-actualisation.” Similarly, Joe, another middle-class participant, reported that while before Yolanda he was too “self-absorbed,” after the Typhoon he “felt part of something greater” and mainly uses social media for community organizing and fundraising. Rose, a professional who was also heavily involved in local politics, was active in fundraising, mobilizing her Manila contacts to send help that she then distributed.

For other participants, the opportunities were clearly instrumental and status-enhancing. Bong, a Tacloban entrepreneur, opened his restaurant and hotel after the Typhoon and used social media and personal networks for marketing and keeping in touch with humanitarians who were the main clients. Gus was another Tacloban entrepreneur involved in the hospitality sector who used social media to expand his business and seek new opportunities. Gus acquired visibility through his prolific social media use which landed him contracts to host foreign journalists and humanitarian organizations during their Tacloban stints. No one exemplifies the theme of “disaster as opportunity” more than Ernie, a Sabay entrepreneur, whose charity acquired a newfound purpose

after the Typhoon. Ernie uses social media for crowdsourcing, fundraising, and extending his own personal social and political capital in the island community. His online activity intensified considerably post-Typhoon as reflected in his upgraded smartphone and monthly bill which increased from 2,000 to 10,000 pesos (42–214US\$), an amount that greatly exceeds most local monthly salaries.

Alice, a 22-year-old University student from a middle-class background, was preparing for her final year exams when Haiyan struck. Although her family’s home was completely destroyed, she was able to pass her exams successfully a month after the Typhoon, which is a testament to her abilities and determination. Shortly after her graduation, Alice landed a volunteering job with one of the largest INGOs stationed in the city. She found out about this opportunity through an SMS “blast” that was sent through one of her friends. Although hers is a volunteering job, she receives a monthly allowance which is well over double the local minimum salary. Alice enjoys the interactions with humanitarian workers and spoke thoughtfully about this experience of self-development. This work opportunity was critical for Alice’s family as her allowance is the only family income given her father lost his job after Yolanda and remains unemployed at the time of writing. This example also points to the precariousness of the middle class in the Philippines—in the absence of a welfare state, one’s status can easily slip from relative comfort to poverty following a life-changing effect (Parreñas, 2001).

Despite the differences in the above examples, almost all participants who spoke of “disaster as opportunity” came from educated, middle-class backgrounds. Although these participants experienced some material damage (severe in Alice’s case) as a result of the Typhoon, most were able to repair their homes and none reported casualties in the family. A striking similarity in these narratives is that social and mobile media have been instrumental in enhancing these participants’ life chances. Social media enabled these participants to seize opportunities to rebuild and to improve their lives in the recovery process. Social media do not operate in a vacuum but within existing social networks. Participants were able to maintain and exploit their existing social capital through their media environments. Alice found her job through a “text blast” while Bong, Joe, Gus, Rose, and Ernie harnessed their social networks in order to drum up support for their charity work and personal interests. Some of the above examples suggest that social media can be more than tools for maintaining existing social capital—they can also be constitutive in creating life chances.

Another important observation concerns the range of platforms employed by these participants. Most of the above participants exploit the affordances of a range of platforms to improve their position in the aftermath of Haiyan. So, for example, when a participant uses Facebook, YouTube, blogging, photography, various chat applications, as well as email and texting, then they are more likely

to produce a compelling narrative about their charity or business. Such were the cases of Joe and Ernie who run successful fundraising campaigns using a range of platforms. This points to a rather neglected dimension of digital access and skills: the access to and ability to navigate a range of platforms, or else a polymedia environment, to suit one's needs. The theory of polymedia shifts our focus from discrete platforms or technologies to media environments and the ways users navigate them in order to manage their needs (Madianou & Miller, 2013). I argue that a polymedia approach can make an original contribution to the digital inequality literature. Our present analysis suggests that those with access to and skills to navigate a polymedia environment have a greater chance to benefit from life-enhancing opportunities.

### Perpetuating Inequalities

Turning our attention to our poorer participants requires us to pay attention to what is missing. The contrast to the "disaster as opportunity" theme is stark as we here observe an absence of job opportunities or significant forms of redistribution. If middle-class participants were able to use communication technologies and navigate polymedia environments in order to improve their lives, by contrast the overwhelming majority of our low-income participants did not report such experiences. We have no examples of mobile phone or Internet use for finding jobs or for collective problem-solving. Our earlier analysis suggests that diminished digital access and skills may be contributing factors. Recall that nine participants did not even own a mobile phone, over one-third of respondents had no Internet access, and the majority of advanced users were middle class. The argument, of course, is not simply technological. Digital inequality compounds existing circumstances. For example, polymedia allowed better-off participants to exploit and expand their already existing social networks. But the previous section also argued that social media can become constitutive of opportunities, and for this to occur, digital access and skills are a precondition.

Our 10-month fieldwork allowed us to observe the regeneration of parts of downtown Tacloban and how the lives of some better-off participants were even transformed for the better (documented in earlier sections). During this time, we also observed stasis in the poorer *barangays* where people continue to live in temporary shelter waiting for decisions to be made about their relocation. Inaction, of course, quickly turns into deterioration, and this was certainly our feeling in our last visit to *Buwan* where the fragile shelter structures were showing the wear of several months' heavy use coupled with intense weather phenomena including recent typhoons. Our poorest participants continue to be unemployed and partly dependent on agency handouts, help from relatives, or irregular work arrangements (such as setting up a street barbeque).

I recognize, however, that mobile phones play a role in the context of social practices and informal work arrangements. Given that mobiles continue to be the most popular digital devices globally, practices such as SMS need to be understood in a meaningful way and inform discussions of digital inequality which focus exclusively on Internet access and skills. This matters when examining questions of digital access and skills in the developing world context. Our fieldwork revealed a wide range of uses of technology for sociality, recreation, and re-establishing routines following the disruption of the disaster. I here focus on the role of texting in the maintenance of social relationships of obligation on which our participants depended, a finding reported by other studies (Horst & Miller, 2006). Patron-client ties structure social relationships in the Philippines (Rafael, 1990) and are further sustained via texting. Texting requests for help was common among our participants as was texting blessings and religious homilies, the latter acquiring a "phatic" function as a form of relationship acknowledgement or greeting. Recipients for these messages would be powerful locals ("big" men or women—McKay, 2012) or relatives in Manila or abroad. Facebook was used similarly. The "like" button acquired a phatic function (essentially reaffirming relationships) while private messaging was used for money requests among other things. Recall that several feature phones had basic Facebook functionality. Maintaining socialities through texting or social media is not a trivial matter, but a serious coping mechanism in societies without a welfare state. The uses reported here achieve a degree of redistribution through remittances, but can also be seen to entrench existing dependencies between powerful benefactors and poor beneficiaries.

Relationships of dependency are also potentially engendered by other social media uses which could be interpreted as risky. We met participants who were involved in scams aiming to generate money from foreigners. A more widespread trend among poorer female participants with some Internet access was online dating with an aim to meet foreign men and eventually strike a better future. There are countless Filipino "dating" groups on Facebook alone which often represent a potential escape route from the disaster zone and the country.<sup>11</sup> At least 11 of our lower income participants with Facebook-enabled phones were actively involved in dating practices while our Internet café ethnography revealed that dating was one of the most popular pursuits. Although these dating sites and groups pre-date Haiyan, they have become more popular after the Typhoon given the high unemployment and economic depression among low-income people in Tacloban. This phenomenon is too complex to fully address here (see Constable (2005) for a thoughtful account of "mailto-order brides"), but such practices arguably add a gendered transnational power asymmetry to existing local inequalities.

All these practices take place while Tacloban and Sabay recover at different paces. As noted earlier, the center of Tacloban—and the tourist resorts of Sabay—are moving ahead while the poorer *barangays* are left behind. Yet, the conclusion here is neither technological nor social determinism. Indeed, we have one powerful example when a group of very low-income women managed to use texting to improve their living conditions. This group of women supported by an advocacy group targeted the local government with an SMS campaign (a “text brigade”) so that their tents could be repaired. Their texting campaign was successful while one woman, Dina, has grown in confidence through this experience and is now building her own home. Under the right conditions (in this case the presence of a local NGO was catalytic), digital skills can be acquired and put to good effect.

## Conclusion

One year after the disaster, many of our low-income participants remain in temporary housing and without stable forms of income. Political and economic reasons have combined to produce a very slow—if not stalled—recovery, and the effects are felt acutely in the poorest *barangays* which have seen little positive change during our fieldwork. These are the neighborhoods that are most affected by the Typhoon. Conversely, a group of our middle-class participants appear unaffected by the slow recovery. By contrast, they are recovering well and in some cases are strengthening their position by harnessing the potential of social media to improve their life chances. The fact that some participants are recovering at a rapid pace while others are languishing behind represents a deepening of social inequalities. Those who are already relatively better off have access to a richer media landscape which they are able to navigate often reaping significant benefits. By contrast, the more disadvantaged participants draw on a diminished media landscape and are less likely to take advantage of any social media opportunities. Rather than democratizing opportunities or creating a “level playing field,” the web exacerbates social inequalities by heightening the life chances for the better off while leaving the poorer participants behind. The potential of so-called humanitarian technologies to help disaster-affected communities “respond to their own problems” (WDR, 2013, p. 13) is only realized for some participants, but certainly not for those who were most adversely affected by the disaster.

Given that over one-third of our participants (predominantly low income and female) lacked Internet access while several did not even own a feature phone, we observe that first-order digital divides remain relevant in this post-disaster context and are linked to digital skills. Our analysis examined the uses of feature mobile phones, recognizing that SMS is critical for populations without Internet access. Discussions of digital literacy in non-Western contexts need to take into account texting and other feature phone practices

and skills. In general, the article is informed by a wider approach of media environments that maps and analyzes all communicative opportunities available to our participants rather than assuming the usefulness of a given platform. Our approach pointed to a new dimension of digital inequality that focuses on a participant’s capacity to navigate media environments. Those able to combine a range of platforms and navigate a “polymedia” environment embodied the theme “disaster as opportunity” as they explored life-enhancing opportunities that led to potential personal gain. In a sense, these participants are responding to the climate of disaster capitalism by embracing the neoliberal tenet of entrepreneurialism (Ong, 2006). By contrast, our poorer participants’ personal uses of texting and social media, when present, do not achieve any significant redistribution. Although they constitute important coping mechanisms within the post-disaster environment, because these uses are steeped in already existing asymmetrical relationships within the Philippines and globally, they potentially entrench dependencies to powerful others.

We conclude that digital inequalities amplify social inequalities and compound the effects of delayed recovery. This is a toxic mix for engendering “second-order disasters”—the humanly perpetuated disasters that can surpass the actual disaster. Typhoon Haiyan is not a second-order disaster yet—but the delayed recovery can turn into one unless the issues relating to recovery policies and social inequalities are addressed. We also conclude that without digital equality, new communication technologies cannot be “humanitarian technologies.” The consequences of disaster and delayed recovery cannot be mitigated when technological uptake is so stratified, potentially amplifying existing inequalities.

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## Notes

1. The exact number of casualties is contested and not yet completely verified. For example, the 6,300 figure does not include missing people or those who were unidentified, bringing up the unofficial death toll to well over 10,000 (<http://newsinfo.inquirer.net/616060/yolanda-death-toll-still-vague-8-months-later>).
2. Team members are Liezel Longboan (Postdoctoral Research Assistant) and Jonathan Ong, Nicole Curato, and Jayeel Cornelio (co-Investigators). I gratefully acknowledge their invaluable contribution.
3. Sabay is a pseudonym used to protect the anonymity of our participants given the size of the island. All geographical

and other proper names have been changed with the exception of Tacloban which is a highly urbanized city (population: 220,000) and immediately recognized as the area most hit by the storm surge. Although we have retained references to Tacloban, we have changed names of all neighborhoods and municipalities where we conducted fieldwork.

4. The reason we did not include Twitter or other social media analytics was because of the absence of local Tweets about the recovery compounded by the fact that Internet was down for more than month after the disaster. None of our 101 participants used Twitter, a trend validated by our wider ethnography.
5. *Barangay* is the smallest political and administrative unit in the Philippines.
6. The politics of relocation (e.g. moving fishing populations in landlocked rural areas with little or no infrastructure for employment) is a large topic that exceeds the scope of the present piece.
7. At the time of writing which is 14 months after the disaster.
8. Overseas relatives, part of the massive flow of Filipino migration, provided much support to our participants. Typically, it is our already better off participants who had such connections.
9. The major mobile phone companies offer dedicated Facebook packages costing 40PHP (0.8 USD) for 2 days unlimited use.
10. A survey conducted by International Organization for Migration (IOM) in Tacloban found that 83% of the population had access to at least a feature phone, but only 14% accessed the net via their personal devices (smartphones or personal computers [PCs]) (Hartmann et al., 2014).
11. The Philippines is one of the most migrant nations globally, with over 10% of the population working abroad.

## References

- Adams, V. (2013). *Markets of sorrow, labours of faith: New Orleans in the wake of Katrina*. Durham, NC: Duke University Press.
- Adams, V., van Hattum, T., & English, D. (2009). Chronic disaster syndrome: Displacement, disaster capitalism, and the eviction of the poor in New Orleans. *American Ethnologist*, 36, 615–636.
- Agamben, G. (2005). *State of exception*. Chicago, IL: Chicago University Press.
- Bankoff, G. (2003). *Cultures of disaster: Society and natural hazards in the Philippines*. London, England: Taylor & Francis.
- Bruns, A., Burgess, J., Crawford, K., & Shaw, F. (2012). *#qlfdloods and @QPSMedia: Crisis communication on Twitter in the 2011 South East Queensland floods*. Brisbane, Queensland, Australia: ARC Centre for Excellence for Creative Industries and Innovation.
- Buckingham, D. (2007). Digital media literacies: Rethinking media education in the age of the internet. *Research in Comparative and International Education*, 2, 43–55.
- Compaine, B. M. (2001). Information gaps. In B. M. Compaine (Ed.), *The digital divide: Facing a crisis or creating a myth?* (pp. 105–118). Cambridge, MA: MIT Press.
- Constable, N. (2005). *Romance on a global stage*. Berkeley: University of California Press.
- Crawford, K., & Finn, M. (2014). The limits of crisis data: Analytical and ethical challenges of using social and mobile data to understand disasters. *GeoJournal*, 80, 491–502.
- DiMaggio, P., Hargittai, E., Neuman, W. R., & Shafer, S. (2004). Digital inequality: From unequal access to differentiated use. In K. Neckerman (Ed.), *Social inequality* (pp. 355–400). New York, NY: Russell Sage.
- Fassin, D., & Vasquez, P. (2005). Humanitarian exception as the rule: The political theology of the 1999 Tragedia in Venezuela. *American Ethnologist*, 32, 382–405.
- Fountain, C. (2005). Finding a job in the internet age. *Social Forces*, 83, 1235–1262.
- Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7. doi:10.5210/fm.v7i4.942
- Hargittai, E. (2008). The digital reproduction of inequality. In D. Grusky (Ed.), *Social stratification* (pp. 936–944). Boulder, CO: Westview Press.
- Hargittai, E., & Hinnant, A. (2008). Digital inequality: Differences in young adults' use of the internet. *Communication Research*, 35, 602–621.
- Hargittai, E., & Hsieh, P. (2013). Digital inequality. In W. Dutton (Ed.), *The Oxford handbook of Internet studies* (pp. 129–150). Oxford, UK: Oxford University Press.
- Hargittai, E., & Welejek, G. (2008). The participation divide: Content creation and sharing in the digital age. *Communication, Information & Society*, 11, 239–256.
- Hartmann, C., Rhoades, A., & Santo, J. (2014). *Starting the conversation: Information, feedback and accountability through communications with communities in post-Typhoon Philippines*. Geneva, Switzerland: International Organization for Migration (IOM).
- Helsper, E. J. (2010). Gendered internet use across generations and life stages. *Communication Research*, 37, 352–374.
- Horst, H., & Miller, D. (2006). *The cell phone: An anthropology of communication*. Oxford, UK: Berg.
- Hughes, A., & Palen, L. (2009). Twitter adoption and use in mass convergence and emergency events. *International Journal of Emergency Management*, 6, 248–260.
- ITU (2010). *The world in 2010*. Geneva: International Telecommunication Union.
- Klein, N. (2007). *The shock doctrine: The rise of disaster capitalism*. New York, NY: Penguin.
- Klinenberg, E. (2002). *Heat wave: A social autopsy of disaster in Chicago*. Chicago, IL: Chicago University Press.
- The Economist (2012, August 23). Let us in: Mobile-money services. *The Economist*. Retrieved from [http://www.economist.com/node/21560878?fsrc=scn/tw\\_ec/let\\_us\\_in](http://www.economist.com/node/21560878?fsrc=scn/tw_ec/let_us_in)
- Livingstone, S. (2004). Media literacy and the challenge of new information and communication technologies. *Communication Review*, 7, 3–14.
- Madianou, M. (2012). Migration and the accentuated ambivalence of motherhood: The role of ICTs in Filipino transnational families. *Global Networks*, 12, 277–295.
- Madianou, M. (2014). Smartphones as polymedia. *Journal of Computer-Mediated Communication*, 19, 667–680.
- Madianou, M., & Miller, D. (2012). *Migration and new media: Transnational families and polymedia*. London, England: Routledge.
- Madianou, M., & Miller, D. (2013). Polymedia: Towards a new theory of digital media in interpersonal communication. *International Journal of Cultural Studies*, 16, 169–187.

- McKay, D. (2012). *Global Filipinos*. Bloomington, IN: Indiana University Press.
- Meier, P. (2015). *Digital humanitarians*. London, England: CRC Press.
- Murthy, D. (2013). *Twitter*. Cambridge, UK: Polity.
- Murthy, D., & Longwell, S. (2013). Twitter and disasters: The uses of Twitter in the 2010 Pakistan floods. *Information, Communication & Society*, 16, 837–855.
- National Economic and Development Authority. (2013). *Reconstruction assistance on Yolanda* (Government Report). Pasig, Philippines: National Economic and Development Authority. Available from <http://www.neda.gov.ph>
- Norris, P. (2000). *A virtuous circle: Political communications in the post-industrial democracies*. Cambridge, UK and New York, NY: Cambridge University Press.
- Norris, P. (2001). *The democratic divide*. Cambridge, MA: Harvard University Press.
- Ong, A. (2006). *Neoliberalism as exception*. Durham, NC: Duke University Press.
- Palen, L. (2008). Online social media in crisis events. *EDUCAUSE Quarterly*, 31, 76–78.
- Palen, L., Starbird, K., Vieweg, S., & Hughes, A. (2010). Twitter-based information distribution during the 2009 Red River Valley flood threat. *Bulletin of the American Society for Information Science and Technology*, 36(5), 13–17.
- Parreñas, R. (2001). *Servants of globalization, women, migration and domestic work*. Stanford, CA: Stanford University Press.
- Pertierra, R. (2010). *The anthropology of new media in the Philippines*. Manila, Philippines: Ateneo de Manila University Press.
- Rafael, V. (1990). Patronage and pornography: Ideology and spectatorship in the Marcos years. *Comparative Studies in Society and History*, 32, 282–304.
- Rainie, L., & Wellman, B. (2012). *Networked: The new social operating system*. Cambridge, MA: MIT Press.
- Russell, J. (2011). Philippines named social networking capital of the world. *Asian Correspondent*. Retrieved from <http://asiancorrespondent.com/54475/philippines-named-the-social-networking-capital-of-the-world-indonesia-malaysia-amongst-top-10/>
- Schradie, J. (2011). The digital production gap. *Poetics*, 39, 145–168.
- Schradie, J. (2013). The trend of class, race and ethnicity in social media inequality. *Information, Communication & Society*, 15, 555–571. doi:10.1080/1369118X.2012.665939
- Sennett, R., & Cobb, J. (1972). *The hidden injuries of class*. Cambridge, UK: Cambridge University Press.
- Shah, D. V., Cho, J., Eveland, W., & Kwak, N. (2005). Information and expression in a digital age: Modeling internet effects on civic participation. *Communication Research*, 32, 531–565.
- Sheller, M. (2013). The islanding effect: Post-disaster mobility systems and humanitarian logics in Haiti. *Cultural Geographies*, 20, 185–204.
- Somers, M. R. (2008). *Genealogies of citizenship: Markets, statelessness and the right to have rights*. Cambridge, UK: Cambridge University Press.
- Starbird, K., & Palen, L. (2011, May 7–12). *Voluntweeters: Self-organizing by digital volunteers in times of crisis*. Proceedings of the ACM 2011 Conference on Human Factors in Computing Systems (CHI 2011), Vancouver, British Columbia, Canada.
- Starbird, K., Dailey, D., Walken, A. H., Lechine, T., Pavia, R., & Bostrom, A. (2015). Social media, public participation and the 2010 BP Deep Horizon oil spill. *Human and Ecological Risk Assessment*, 21, 605–630.
- Tierney, K. (2007). From the margins to the mainstream? Disaster research at the crossroads. *Annual Review of Sociology*, 33, 503–525.
- World Bank (2012). *Information and Communications for Development: Maximizing Mobile*. Washington, DC: World Bank.
- World Disasters Report. (2013). *Technology and the future of humanitarian action*. Geneva, Switzerland: International Federation of Red Cross and Red Crescent Societies.

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