

When the Internet Goes Down in Bangladesh

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ABSTRACT

We present a study of internet use and its *forced non-use* in Bangladesh. In light of current initiatives on state and industry actors to improve internet access and bridge the ‘digital divide’ for underserved, under-resourced, and under-represented communities across the world, we offer a situated, qualitative perspective on what the current state of internet use looks like for select social groups in Bangladesh. We analyze how a state-imposed ban attempted to effect the non-use of particular web-based services and how the affected populations found *or did not find* workarounds in response. We also discuss takeaways for researchers as well as industry and state actors studying and working towards more equitable access to the internet in the ‘developing’ world.

Author Keywords

Internet; Facebook; Censorship; Bangladesh; ICTD

ACM Classification Keywords

H.5.3. [Group and Organization Interfaces]: Collaborative Computing

INTRODUCTION

“The dream is real: free internet has come to Bangladesh! Internet.org, Mark Zuckerberg’s project to connect people to the internet in developing nations, has launched in Bangladesh. . . .” [66]

In May 2015, Facebook launched its Free Basics initiative in Bangladesh in partnership with Robi - one of Bangladesh’s

largest mobile operators - purportedly to bring free internet access to the unconnected Bangladeshi population (72% of the country’s people [54]). This, among other efforts, was part of the Bangladeshi government’s effort to bridge the so-called digital divide in support of a “Digital Bangladesh” through a set of ICT initiatives [70]. Due to growing affordability and accessibility of online-able devices and zero-rated plans such as Free Basics, the internet is increasingly being introduced to socioeconomically and regionally diverse populations. It is worth noting that Bangladesh is not alone in this drive towards the digital, with internet access being a big part of the push. The list of countries that have embraced Free Basics is fast growing [65], even as the notion of connecting people via free internet draws considerable criticism and discussions on the topic of net neutrality across the world [9,82]. In addition to Facebook’s Internet.org initiative, other industry actors, large and small, are making concerted efforts to connect the ‘next billion’ by granting globally and historically underserved and under-represented individuals and communities internet access free of charge [15, 17, 30, 67–69].

Our study is situated in Bangladesh and adopts a qualitative approach to examine internet use and access. It took place at a time when the Bangladeshi government had taken measures to impose a ban on accessing Facebook and other sites due to political complications. *Did this ban make a difference to the lives of diversely motivated Bangladeshis? How did they respond to this ban? And finally, what might we learn about internet access and use/non-use from this scenario?* Our study addresses these questions, also providing takeaways for researchers and state/industry actors studying and working towards more equitable access to the internet in the ‘developing world’. We highlight that even as the Bangladeshi government claims to promote “Digital” and pushes for bridging the ‘digital divide’, it unwittingly exacerbated this divide via forced non-use of the internet, creating an environment where the people who are able to find workarounds, do so, while the rest are left at a marked disadvantage.

As a discipline centered on the collaborative and social aspects of computing, questions around access, power, and workflow improvisations become central to CSCW. In line with prior CSCW research [23, 41, 77], our findings demonstrate that when access to computing is limited or denied for a set of users as a result of various power dynamics, the lives of those users are affected both in online and offline settings, sometimes resulting in creative improvisations and workarounds. Social Networking Sites (SNSs) like Facebook or WhatsApp are widely popular across the globe, and are increasingly being viewed as powerful platforms for supporting large scale communication, collaboration, and cultural exchange [24, 40]. The use of these sites is frequently ingrained in the lives of people in ways such that their sudden removal is likely to disrupt usual workflows, compelling them to develop new ones. In addition, when limits on access are imposed by larger infrastructural politics, their effects must be studied with a view to understanding the “politics and poetics” that surround the imposition and/or removal of computing technologies [35]. This perspective calls for reassessing our optimism towards building a free and fair collaborative computing platform over existing internet infrastructures that are controllable by a central power. Our study contributes to established and growing CSCW literature around access and infrastructures, and aims to advance this work by presenting the influence of and responses to the internet ban imposed by the Bangladeshi government in late 2015. Our study also contributes to recent discussions in CSCW and HCI disciplines around non-use, disruption, and voice [16, 34, 38, 73, 78, 80], as we discuss below.

Our paper begins with a discussion of related literature that we draw on, extending the conversations that examine SNS and internet use (/non-use) in the ‘developing world’. We then provide the background for the context in which our study took place. Offering the details of our methodological approach, we dive into our findings in the next section. We conclude with a discussion of our findings, also highlighting our main intended takeaways for the CSCW community.

RELATED WORK

We now situate our study in a body of work that examines questions of internet access and SNS use in ‘developing’ parts of the world. Much of this work has been done in the field of Information and Communication Technology and Development (ICTD). In addition, we present a summary of where the current discourse around infrastructure, politics, and development stands and how our research connects with it.

Internet Access & ICTD

Internet use by individuals in ‘developed’ countries is an extensively researched phenomenon, particularly in the fields of CSCW and HCI. However, with the growing adoption of internet and SNSs in ‘developing’ countries, as well as the diversity of efforts towards bringing more individuals online, the need for more work in this area is evident [25, 78, 79]. This paper contributes to the (slowly but steadily) growing body of work on internet and social media use and non-use in developing parts of the world [16, 34, 38, 73, 78, 80]. In addition to illuminating how and why individuals appropriate social

media tools, growing work on internet access in ‘developing’ countries speaks to the worldwide popularity of SNSs with a majority of studies focusing on Facebook. Studies in South Africa and India (among others) have examined the perceived affordances and subsequent benefits of Facebook use [18, 34], focusing on youth as the lead adopters.

While the desire to access the internet and SNSs is well documented [23, 34, 80], multiple factors impact the ways in which individuals in resource-constrained settings of the ‘developing world’ may access and use the internet. For example, in Kenya, growing online participation, primarily on Facebook, is limited by high costs, access to computing, and unreliable electricity [80]. When studying youth in internet cafes in Ghana, Burrell [20] found barriers to online engagement from pre-established Euro-American cultural norms as well as costs and connection speed. Among Facebook non-users in Zambia, individuals were interested in using the site, but a variety of barriers prevented them from doing so [78]. In India, the introduction of high-speed broadband service into households led to “full-fledged exploration” of the internet where slow speeds had previously limited variations of use [47]. Apart from technical challenges, oftentimes the use of internet is subject to power and control by the government. For example, in China, many websites are not permitted for use [81]. Moreover, the posts on SNSs are under surveillance by the government to stop spreading anti-governmental sentiments [64]. China is not the only country, however, where the values held by the government are imposed upon citizens through internet censorship. The Singapore government has banned websites displaying pornography, information about drugs, and online piracy [3, 46]. In Saudi Arabia, the internet traffic has to pass through a filter that does not allow materials that are “immoral” to the government (e.g., pornographic content and documents supporting LGBT rights) [37, 74]. There are many other examples where different internet services were banned or subjected to forced non-use by the government.

Although barriers exist, studies of populations living in regions outside of the ‘developed’ world demonstrate the persistence and creativity of individuals in the negotiation of constraints [23, 43, 44]. For example, individuals in ‘developing’ contexts are shown to rely on ‘intermediated interactions’ to bypass issues of access related to literacy, financial, and technological constraints [23, 41, 48]. In rural Northern China, Oreglia et al. [41] found that individuals use “information brokers” to assist them with their information needs. A study on political activists in a Palestinian village observed that individuals used internet connections at workplaces and a 3G network through an Israeli mobile phone provider to bypass access issues [77]. In the context of Cuba, Dye et al. [23] found that individuals relied on friends outside Cuba to upload content for them on Facebook and conduct internet searches on their behalf. These studies on barriers and workarounds to access speak to the blurring lines between classifications of use and non-use in ‘developing’ contexts. Instead of viewing the distinction between use and non-use as a ‘digital divide’, some have argued for an approach that considers a spectrum of use instead [4, 33, 36]. This paper

contributes to a nascent but growing body of work that seeks to provide more nuance to our understanding of use, non-use, and the factors that influence them.

Infrastructure, Politics, and the Development Discourse

Large infrastructures like the internet, when deployed in societies with asymmetric power distribution, often turn to demonstrations of power themselves. Larkin, in his celebrated article, “*Politics and Poetics of Infrastructure*”, has explained how large-scale infrastructures often generate wonder, hope, and marvel among common people [35]. He also mentions how those same infrastructures operate according to existing power politics instead of following the poetic representations they embody. Internet in Bangladesh, like in many ‘developing’ countries, has been advertised as a tool for development by the government. The promise of “*Digital Bangladesh*” of the current government has been underpinned by technology evangelists like Zuckerberg, as we pointed out above. However, as Jackson et al. posit, infrastructures are best understood when they fall apart [32]. When the government was threatened by potential national security risks, its assurances for increased internet access were compromised. The government’s concern about security overshadowed the utility of the internet for general people. Graham and Marvin extend the argument of infrastructural politics by explaining how one’s position in the infrastructure’s network actually determines the service one may get from it [28]. Their argument illustrates how certain individuals, either because they are members of a privileged class or because of their technical expertise, get better services from the internet during both banned and active periods. Infrastructural politics are also related to the idea of “residuality” as advanced by Star and Bowker [51]. They explain how scientific and technological infrastructures, in a power-laden political landscape, shape and update themselves by ignoring the needs of the marginal populations and calling them “residual”. These studies help to frame and understand the politics embedded within internet technology and national development in the context of Bangladesh.

This critical perspective of internet infrastructure in Bangladesh is essentially rooted in the post-development criticism that has influenced scholarship in the CSCW and HCI communities. Early post-development scholars have attacked international development programs by questioning their motives. Escobar, for example, has criticized the way the World Bank created “problems” in Colombia and then imposed solutions to those “problems”. He has argued that the ‘development’ initiatives mostly benefited the Bank itself in the name of helping people in ‘developing’ countries [26]. Similarly, in the context of Lesotho, Ferguson demonstrated how Western utilitarian and dualist approaches toward the local livestock in the name of ‘development’ were actually acting against the local culture and prosperity [27]. Cammack has attacked the ‘development’ initiatives by the World Bank, IMF, and other international development organizations by saying that those organizations are actually creating a new proletariat class by giving poor people access to things that the organization feel those people “need” [21]. The essence of this line of scholarship was echoed by Sen when he defined development as

freedom, saying that freedom advocates for individuals’ and communities’ liberty from hierarchical power politics and the imposition of moral and utilitarian standards [49]. During the last decade, in similar vein, the HCI and CSCW communities have been introduced to the idea of *Ludic Design* [39]. The central idea of ludic design is freedom that can be achieved through play. Very recently, Chirumamilla and Pal brought this issue to ICTD scholarship, proposing freedom to the people through the use of technologies by suggesting that people refrain from judging others based on functional standards of technology use [22]. If we set these standards aside for a second, all the rationales that have been put forth to justify the banning of the internet may come to question. These studies thus provide us with the background to reassess the politics and collaboration among the government, technology evangelists, international organizations, and the common people of Bangladesh towards establishing a “digital” future for their country.

BACKGROUND

The internet went down in Bangladesh for over an hour on November 18, 2015 [8]. Government officials called it an “accident” that occurred when they were trying to block certain applications according to the directives issued by the state [8]. It was confirmed later [8] that there were, in fact, no such directives to cut off the internet. The Internet Service Providers (ISPs) stated that they had received letters from the Bangladesh Telecommunication Regulatory Commission (BTRC) with instructions to block four applications (Facebook, Viber, WhatsApp, and Facebook Messenger) around 11am. These ISPs started receiving complaints from their customers around noon that they were having trouble accessing Facebook [13]. From 1pm onwards, there was a complete internet blackout in Bangladesh for about an hour [13]. The ban on the use of aforementioned applications was still in place when the internet was restored after the hour.

Though the ban was supposedly lifted 22 days later on December 10, 2015, only Facebook was unblocked [11]. Connectivity issues were still experienced on other SNSs. Three days later, on December 13, Skype, IMO, Twitter were blocked for “security reasons” [62]. Everything was finally unblocked (and usable) on December 14 [45]. During the 26 days’ ban, Facebook, Facebook Messenger, Viber, WhatsApp, Skype, IMO, Twitter, and Instagram were blocked repeatedly [7, 10]. Even though Google products, Slack, and Trello were not supposedly blocked, our study participants (details below) found them difficult to access.

The ban was imposed exactly one week after the Bangladeshi Prime Minister Sheikh Hasina mentioned the nation’s security concerns in Parliament. She was quoted as saying that some people were misusing the blocked applications to carry out criminal and terrorist activities, adding: “*Therefore, I will suspend operation of these apps for some days’ time, as needed, in order to arrest the perpetrators.*” [59]. The Bangladeshi government had requested information on some Facebook users, stating national security as the compelling reason for the request, but Facebook turned them down [12]. In a successive attempt, however, it was reported that the

Bangladeshi government had been successful in procuring some of the requested data [60]. The type of data Facebook revealed and to what extent they fulfilled the demands placed by the Bangladeshi government were not disclosed.

State-imposed controls on the internet are not new for Bangladesh. For example, on January 18, 2015, SNSs such as Viber, WhatsApp, Tango, and Line were blocked due to “security reasons” for four days [58]. On May 30, 2010, Facebook was banned for a week after caricatures of Prophet Muhammad, Prime Minister Sheikh Hasina and the then leader of the opposition party were published on it [5]. The ban was lifted after a week [6].

METHODOLOGY

Our study was conducted in rural and urban settings of Bangladesh from December 2015 to April 2016. With the goal of first understanding the current, emerging use of the internet and then determining the impact of the ban on internet use, we conducted 21 semi-structured interviews for our study. Our goal was to identify prominent social groups of internet users who were likely to have experienced the effects of the ban. These participant groups were selected with the objective of securing multiple diverse perspectives, drawing on communities of university students, professionals, socioeconomically disadvantaged internet users, middle-aged internet users, those using SNSs to run their businesses, and online activists.

Our initial pool of participants was selected through the help of personal contacts (friends and family) of the first author, who helped gain access by word of mouth. Subsequent recruitment relied on snowball sampling. We continued to snowball until our data had reached the point of saturation [29]. The set of social groups we targeted also grew as we pursued our research; we stopped adding to our list of groups once our data reached saturation. Interviews were conducted one-on-one in person and at locations preferred by the participants. Participation was entirely voluntary and each interview lasted 20-40 minutes. Participants were assured that their responses would be duly anonymized. We made a special effort overall to ensure gender balance in every group. In the group of business owners, however, we were unable to add women to our sample, as explained below. Most interviewees held at least one mobile phone for their personal use and were active users of SNSs, primarily Facebook. The exceptions are mentioned below.

None of the students we interviewed were employed in any capacity. They were solely dependent on their family for tuition and other expenses. This group was comprised of students from various private universities and medical colleges located in the Bangladeshi capital of Dhaka and Savar, a town 26 KM away from Dhaka. They were all 21-25 years old. The professionals, on the other hand, were older. Their ages ranged from 25 to 28 and their monthly earnings from 10,000 BDT (USD 127) to 45,000 BDT (USD 575). This group consisted of a software engineer, two medical interns, and a business analyst from an international insurance company. The socioeconomically disadvantaged group of participants was recruited from Savar and consisted primarily of ready-made

	Age	Sex	Social Group	Interview Location
P1	21	M	University Students	Dhaka
P2	25	F	University Students	Savar
P3	22	M	University Students	Dhaka
P4	24	F	University Students	Savar
P5	27	F	Professionals	Dhaka
P6	25	M	Professionals	Dhaka
P7	26	F	Professionals	Savar
P8	28	F	Professionals	Savar
P9	25	F	Socioeconomically Disadvantaged Internet Users	Savar
P10	21	M	Socioeconomically Disadvantaged Internet Users	Savar
P11	20	F	Socioeconomically Disadvantaged Internet Users	Savar
P12	30	F	Socioeconomically Disadvantaged Internet Users	Savar
P13	55	M	Middle-Aged Internet Users	Savar
P14	65	M	Middle-Aged Internet Users	Dhaka
P15	45	F	Middle-Aged Internet Users	Dhaka
P16	54	F	Middle-Aged Internet Users	Dhaka
P17	58	F	Middle-Aged Internet Users	Dhaka
P18	18	M	Business Owners Operating Through SNS	Dhaka
P19	23	M	Business Owners Operating Through SNS	Dhaka
P20	20	M	Business Owners Operating Through SNS	Savar
P21	35	M	Online Activists	Savar

Table 1. Description of Participants

garment workers. Since it was a job requirement for these workers to be educated up to class 8, they were functionally literate. Their salaries ranged from 8000 BDT (USD 100) to 12,000 BDT (USD 150). This group of participants had little or no access to technology due to the acutely demanding nature of their jobs. All participants left for work daily at 6am and returned at 8pm. This left them very little time to accomplish much else during the day. However, we identified one male user in this group who actively used SNSs to communicate with his friends and family.

The middle aged (45-65 years old) group of internet users consisted of a university instructor, housewives, a bank employee, and a government employee. The participants of this group were relatively more financially stable than other groups. Their monthly incomes ranged from 50,000 BDT (USD 639) to 100,000 BDT (USD 1,277). Some of their relatives and wards were either already settled abroad or had recently moved there for higher studies.

Our next group of participants was comprised solely of university students who were actively running online businesses using Facebook. They were between 18 and 23 years old. As their businesses were young, the turnovers they saw ranged from 3,000 BDT (USD 39) to 6,000 BDT (USD 77) per month. This group did not include women, unfortunately, because the women business owners were reluctant to share with us their views regarding the ban. On being asked about the reasons for their reluctance, one woman replied that she was unwilling to participate in any interview, online or offline. This may have been due to the fact that the interviewer was a young male and talking to him regarding sensitive issues seemed avoidable. Regardless, we did not push further. Lastly, our participants included a male online activist who actively used the internet and Facebook to raise awareness regarding social causes. He is 35 years old.

The first author was raised in Savar and was a resident of Dhaka at the time that our study was conducted. Thus, he was able to recruit initial interview participants in both locations without much difficulty. He is a native Bengali speaker and conducted all interviews in Bengali, after which he transcribed and translated (to English) each of the interview recordings. The data was then put through inductive analysis, as we iteratively distilled relevant themes relating to internet use before, during, and after the ban. All authors participated in analyzing the data, bringing diverse combinations of expertise in qualitative research methodologies as well as social media research in context of the 'developing' world. The second author offered perspective from her qualitative work on internet and social media access in Cuba, another 'developing' country affected by censorship. The third author is also Bangladeshi, and has several years of experience in conducting ethnographic research in marginalized contexts of Bangladesh. The last author is also an ethnographer, with experience conducting social media research, also in the context of international development. We acknowledge that we bring an emancipatory action research perspective to our analysis, a theme that is dominant in each of our prior research undertakings.

FINDINGS

Whether it is because of the state-wide shift towards a "Digital Bangladesh" or because of the increasing affordability and accessibility of mobile phones and the internet, the penetration of these technologies in Bangladesh has grown considerably in recent years [56, 70]. With this growing penetration, diverse uses and *users* of technology have emerged, as we present below. The goal of our study was to understand the impact of the ban imposed by the Bangladeshi government on the internet and social media practices of diverse social groups. However, to be able to discuss this impact, we first present a brief overview of what internet activity looked like before the ban was imposed. We subsequently address the impact of the ban on our participants and their online and offline activity as we discuss how their use of the internet and other SNSs was affected, the workarounds that our participants developed to contend with the ban, and what happened when the ban was lifted.

Before the Ban: Why did participants use the internet?

To the best of our knowledge, no research thus far has investigated the internet, mobile, and social media practices of Bangladeshi users. Quantitative studies done so far are also limited in scope, only presenting data regarding the growing uptake of mobile connections. One purpose of our study, therefore, is to provide an introduction to what these technologies, especially the internet, enable for the social groups our participants belong to. In this way, we add a missing Bangladeshi perspective to the corpus of literature on internet practices of users in the 'developing' world. Some of these practices parallel those of users in other countries; others are yet unstudied.

For Communication

The single strongest pull to social media and the internet for our study participants was the need to communicate with family and friends who were far away, so they could maintain these relationship ties. This is, by no means, a new finding. It simply confirms what we have found to be true in other literature on social media use in the 'developing' world [2], especially since movement from villages to small towns, small towns to cities, and cities to other countries is quite common.

"I do use it (internet) for communicating with my friends. All of my friends live outside Dhaka ... some of them live in the village, some of them in Dhaka. I communicate with them." — P10

Our participants used Facebook regularly for connecting and socializing with friends. It was the only application that was accessed daily by almost all of our participants.

For Academics

For some of our student participants, we found that exam notices, instructional content, and course syllabi were circulated by faculty at various universities using social media. Given that the penetration of SNSs among youth is high, as we heard, this makes sense.

"Even our class routines are available on Facebook. We have a group with all the students of our batch. The

teacher sometimes posts and sometimes the class representative posts notices and exam content on behalf of the teacher. So Facebook is mainly to get connected with everyone even in our class. Then Gmail, for checking mails from teachers, if there are any important files. For study purpose.” — P1

Google Drive appeared to be popularly used by our student participants for submitting assignments. One student participant mentioned:

“We have to submit our soft copy of assignment and presentation in Google Drive. When we need to edit any assignment, we upload it in Google Drive and give it a finishing touch.” — P2

For Business

Informal businesses that only exist online and not in physical shops are common in Bangladesh. Since services like Amazon, Alibaba, etc. do not exist yet, Facebook pages for small businesses are very popular. These are also easier to put together and operate than websites. In addition, it is common for customers to place orders via personal Facebook messages to business owners and have their purchases delivered to their homes. A participant from our business social group shared that he bought the latest iPhones from Singapore and had them delivered to Bangladesh upon receiving confirmed purchase requests from local buyers. His friends would connect him to customers, who would send him a Facebook message if they were interested. Since this was a small business exercise, he did not need a Facebook page, but the site helped him to stay in communication with his customers.

“I had a mobile business based on internet. It was when iPhone 6s was launched. In that time, internet helped me a lot. Like, there are relatives of mine in Singapore. I can know the price of the iPhone 6s in Singapore from my home. I took orders from Facebook and placed them on internet.” — P20

The participant mentioned that newer models of the iPhone arrived much later in Bangladesh than their actual release date in the international market. Based on the demand he had seen in his social circles for newer models, he decided to turn this time gap into a potential business. He explained:

“There is iCenter. The iCenter is in Dhanmondi (Dhaka), opposite of MediNova. If they bring mobiles, they bring them quite late. The 6s came two months after its release. So I took that opportunity. Probably, iPhone 6s was released on September 26 and only after four days my Khala (mother’s sister) was coming. There was high demand for Apple [phones]. So I could get good price. I saw that even if I charged 10 to 15 thousand Taka more, I could sell it to customers. I bought three mobiles. As the phones were bought by my family members, I didn’t have any tax issues. Seven to eight people came in total. So it saved the tax money. I was informed about the price from there (Singapore). Let’s say, if the Singapore dollar was 60 taka (USD 0.8) and the price of the phone was 60,000 taka (USD 800), I demanded 75,000 taka (USD 954) from the market. I used to check

the price of the phone and price of the Singapore dollars online. I could see if there was any fluctuation in the price.” — P20

Apart from the above-mentioned use of Facebook for running businesses, which is quite common, we found a business which functioned like a platform for finding teachers and matching them with students who wanted tutoring. One small business owner we interviewed shared:

“We have a group on Facebook. We put posts there for finding teachers for tuition. Once we get a tutor, we set him up with a student. We take 50% of the first month’s salary. That is our business.” — P18

The business above advertises for teachers on its Facebook group, stating the requirements of the student (the subject that the student needs help in and an expected salary). Prospective teachers contact the business (or Facebook group) owner by replying to the post and they get selected on a “first come, first served” basis. Certain university backgrounds are given preference when teachers are selected from a pool of prospective applicants. When we asked one business owner why he chose to use Facebook for this business, he answered:

“... everyone was using it. Most people have access to internet now and are using Facebook if nothing else. It is easy for us to get noticed if we post something there.” — P19

For Health

In Bangladesh, Drug Information Management System (DIMS) is the leading mobile-based drug inventory application that allows quick access to information on clinical drugs. Practical Diagnosis and Management (PDM) is a functional point-of-care mobile app that provides easily accessible clinical advice pertaining to diagnosis and cure of typical medical conditions. Since information is clinically focused and well-organized in the offline version of the app, medical practitioners can easily surf through and retrieve desired information no matter where they are. Hence, they can provide in-patient care effectively at the point-of-care. As one medical intern who participated in our study shared:

“We have an application named DIMS. If you put a drug name here it will give the name of the drug under different companies, its benefits, complications, everything. I use it for diagnosing patients sometimes.” — P8

Student participants mentioned that they were using these applications regularly for self-diagnoses. They also shared that applications like WhatsApp and Viber helped them to connect and discuss diagnoses with their peers as needed.

“If I want to know about something related to medical issues, I gather the information from the internet. I use DIMS and PDM (Android applications for smartphones). These applications are for Drugs and Diseases.” — P4

For Local and Global News

Going online on news portals to find articles regarding current affairs was a popular use of the internet among partici-

pants. The first author, too, was repeatedly checking online news sources to learn about updates regarding verdicts for war criminals, which were being delivered during the time of this research. Generally, after an execution verdict, a nationwide strike would be called on the next day by Jamaat-e-Islami [52, 55, 61]. To avoid getting caught in street violence, the first author checked on the news portals for relevant verdicts before, during, and after the ban. Participants also mentioned that they were unable to connect to online Bangladeshi news portals to check news once the ban went into effect, because of which they were no longer able to stay informed about local safety-related concerns.

For Leisure

As mobile internet becomes increasingly widespread [19, 31], thanks to the launch of 3G connectivity in rural and urban parts of Bangladesh, many more people are now using the internet on their personal devices to satisfy their desire for entertainment. YouTube and SoundCloud were the most popular applications used by our participants in this regard. Recent years have seen a growing research focus on entertainment-driven uses of the internet in low-resource environments and we confirm these findings for the Bangladeshi context [44].

“When I want to hear songs, I use Youtube and SoundCloud. I don’t save them on my PC. I don’t stream online movies. I download them using torrent.” — P13

Among the social groups we studied, communication, academics, business, diagnoses, news, and entertainment were the predominant draws for engagement with the internet and SNSs. We now discuss how our participants’ responded and how several of their internet activities discussed above were affected when the ban was first put in place by the Bangladeshi government.

Affected by the Ban: Confusion and Loss

The ban came unannounced and connectivity went down for several applications and websites all of a sudden. We tried to understand how the work practices and lives of our participants were impacted as a result.

“What happened?”

On November 18, 2015, the government issued an unannounced ban on the internet and connectivity went down. Due to the internet blackout, around 1pm, the first author noticed the loss of his internet connection. He was with his coworkers and the tools they were using became inaccessible since most of them were online applications. The ISP that provided the internet connection for the workplace did not have a good reputation for providing reliable internet connectivity. As a result, the author assumed that it was business per usual. Then when the internet connection was restored after about an hour, he could not access most of the sites he normally visited - Facebook, Trello, Slack, Gmail etc. This is when it became apparent that something was off with the internet connection. One of his coworkers mentioned that the government had blocked some applications and websites. To verify this, the author checked news from a local news portal and discovered that this was indeed the case.

It took some time for our participants to understand that a ban had been put in place. Almost everyone we spoke to struggled to understand why their mobiles and computers had stopped working. Some participants thought there was a problem with their internet settings. For example, one participant shared:

“I had no clue what was wrong with my mobile. I didn’t know about the ban. I thought there must be something wrong with my mobile internet settings.” — P16

Another participant mentioned that he found out about the ban from the television news:

“When I was not getting a connection, I came to know (about the ban) automatically ... I heard from my surroundings and then it appeared on the television news after some time.” — P3

Since there was little understanding to begin with, and not everyone had heard the news, confusion ensued as people tried to make sense of what was going on. There were also other participants who did not feel the effects of the ban at all, such as those who came from more socioeconomically disadvantaged groups, e.g. *“I have heard about Facebook. I have never used it. I don’t know what people do there ... When is there time to use it?” — P9*, and then those who did experience the effects of the ban, but much later, such as a banker who shared:

“I didn’t know it on the first day. After I come home, I normally go out to meet my friends in the evening. I stayed home on the day it was banned. On the next evening, I came to know about it from my friends. I took out my mobile and found that it was not working.” — P14

Debates and Rumors

The confusion caused by the ban led to strong criticism of the government. Many questioned its motives, arguing that *“this ban doesn’t increase security. You see if there was a person who wanted to do any mischief, would he do it publicly on Facebook?” — P17*. Participants were enraged and considered the ban to be an attack on their freedom of expression.

“We are living in a democratic country. They [the government] don’t have the right to do such things. One should have the right to say anything, share anything.” — P5

Others were annoyed that these actions had occurred suddenly without informing the public in advance. As one participant said:

“They should not have banned it suddenly. They should have given a few days’ notice.” — P20

By contrast, there was one participant who expressed support for the ban - not in the interest of national security, but more because of personal complaints regarding the messages that they had received on Facebook:

“I support the ban on Facebook. There are a lot of people who send offensive messages on Facebook. I don’t like it at all.” — P6

Rumors also began to circulate in an attempt to explain the government's actions in relation to the ban. There was speculation that Facebook had stopped working because there was a requirement that those who wished to use Facebook in Bangladesh would need to show their national identification card to register for a Facebook account. This rumor generated quite a bit of conversation in our interviews. Most participants shared that they could not figure out why this would be required. Others discussed that it would reduce the number of fake accounts on Facebook so was actually a good move. The women participants who were internet users - and had all been victims of online harassment - unanimously agreed that this would help to reduce such instances of harassment.

Sense of Disconnectedness

As mentioned, communicating with friends and family was one of the most common uses of the internet and SNSs for our participants, who complained that the ban had affected them very badly because they were no longer able to communicate with anyone. One participant shared:

“At that time our results of the final medical exam were to be published. I couldn't communicate with friends at all. We normally use Viber and WhatsApp for communication. We tried for a long time to connect without any luck. Then at night I came to know from the news that these applications were shut down. I had the tension of results, couldn't communicate at all.” — P4

Dhaka, the capital city of Bangladesh, faces extremely heavy traffic on weekdays as its population is constantly and rapidly on the rise [57]. It was ranked the tenth most populous city of the world by the UN in 2014 [72]. At the time of Eid, however, the traffic goes down considerably as most residents leave the capital to meet their families spread across the country [14]. One student participant compared his experience during the ban to the Dhaka traffic on Eid:

“I mean there was a lot less [Facebook] traffic at that time. You know how Dhaka is during Eid. It was like that.” — P2

Rise in Expenses

As communication was affected by the ban, participants took to other means of staying connected to their contacts that were not as inexpensive. One participant, whose son lived in Singapore, shared:

“We used to talk daily with our son for long intervals. But once the ban was imposed, we had to call him on his mobile. At that time my mobile bill crossed more than 5,000 Taka [USD 64] for the first time. Still we could not talk to him for long. He insisted not to talk for long as it was costing us a lot.” — P14

This participant had a monthly phone allowance of 5,000 Taka from his office. This was the first time that he overshot this amount.

Business Losses

We mentioned that our participants included small business owners, particularly those who used Facebook to run their

businesses. We found both from the customers' and the business' points of view that these were also affected by the ban. One of the online business owners we interviewed shared that he would post frequent updates regarding new products on the Facebook page for their business. When the ban went into place, he was unable to post updates or conduct any online transactions as a result:

“We didn't post any new update for our products. Who would see? We posted some updates initially but there was no order. So we stopped posting. Now [after the ban has been lifted], we are posting again.” — P19

Not only were business owners affected, potential customers were also disgruntled because they were unable to make online transactions. One of our student participants mentioned that his aunt had been visiting and, before she left, he had wanted to send his cousins presents in the form of t-shirts:

“I wanted to send t-shirts for my cousins who live abroad. So I looked up a site online and found some really good clothes. They didn't have any physical stores. So, I messaged them mentioning that I urgently needed those shirts, as my Khala (Aunt) was leaving the day after. But they didn't reply. They replied after one week when the ban was lifted saying that they couldn't reply because of the ban. See - I couldn't get the t-shirts. I had even told my cousins that I am sending t-shirts for you guys. But it didn't happen. I really feel bad about it. I didn't present anything to them. It was the first time I had a chance to send them something. It didn't feel right.” —P2

This is yet another example of how online resources, or the absence thereof, ended up impacting real-life experiences and causing users (now non-users) discomfort.

Cancellation of Events

As mentioned above, Google Drive was actively used by some of our student participants for the submission of their assignments. Faculty members also use it for assigning students readings or assignments for exams as well as sharing other important information. When the ban was imposed, these services suddenly became unavailable. The university authorities were forced to postpone the midterm exam, which was quite an unusual event for the university:

“Our mid [exam session] was going on at the time. So we were unable to download the slides. Then our faculty members provided us with the slides manually and our mid was postponed.” —P4

Other events were also canceled due to the unavailability of the internet. For example, one of our participants was a social activist who actively uses Facebook. He discussed an event named “Concert for Kombol” that he had organized in December 2014 [53]. *Kombol* is the Bengali word for blanket. The ticket for attending the concert was a blanket, which was later delivered as a donation to people in Northern Bangladesh who were experiencing an extreme cold wave at the time. When the ban was imposed, the participant was organizing a concert to help 11 freedom fighters by raising

funds for building them grocery stores. Since the event relied heavily on Facebook-sourced publicity, which was out of the question because of the ban, this concert had to be postponed.

“For the following Friday, December 11, we had a program planned - ‘Concert for Freedom Fighters’. The plan was simple. We had identified 11 freedom fighters Chittagong who are now beggars. Our plan was to build each of them a grocery store with the money from the concert. We can’t do it now because Facebook is closed.” — P21

The cancellation of both the midterm exam and the charity concert was disruptive and had serious financial and/or administrative consequences for the parties concerned - the students and university staff in the first case and the concert organizers, attendees, and freedom fighters in the second.

Response to the Ban: Adjustments and Workarounds

As we established above, the impact of the ban was different across social groups. In response to the ban, participants from these groups began to experiment with different ways by which they could still use desired services and applications. We now discuss how these practices unfolded and highlight that although some individuals were able to develop workarounds (such as those we list below), others were not and merely had to wait until the ban was lifted.

Several applications that were popularly used by the Bangladeshi people for communication were blocked. This drew people towards those applications that served similar purposes but were less popular and not blocked. Given that one set of applications could be used but another could not, our participants were confused regarding the purpose of the ban, since it had only become tedious but not impossible to meet their goals. As one participant shared:

“Banning Facebook, Viber, and Whatsapp for security purposes was not sufficient. For example, I used IMO to operate those apps. So, ultimately, nothing happened.” —P20

Some participants learned that they could bypass the ban by using Virtual Private Network (VPN) software. As one student said, *“I Googled and learned how to use the blocked sites.”* Most participants who learned to use VPN, however, did so thanks to their social contacts who informed them of this workaround. Peers, friends, and social circles were responsible for helping the population at large to access the internet. They did not always know how the software worked, but were familiar with the steps required to access websites of interest. One participant shared:

“At first I could not use it [Facebook] during the ban at all. Then I was discussing with my daughter one day. She installed an application on my mobile and after that it was okay. I could use Facebook after that with no problem.” — P13

Prior to the ban, only one of our participants knew how to use software to mask an IP address. This participant said that he was intrigued by the concept of the “Dark Web” and there-

fore did not have any problem accessing restricted sites and services right from the start of the ban. Apart from him, none of our participants had any understanding of VPN or how it worked before the ban. Even after the ban, no in-depth understanding of VPN was necessary; it was sufficient that participants had learned to use it. As one participant mentioned:

“I know that you connect to the server as you were in a private network. That’s all I know . . . I didn’t know it before (the ban).” — P15

The knowledge around using VPN gradually became more widespread. One female student shared that there was a boy in her vicinity who was frequently messaging her to meet him. She had resisted his advances. However, when the internet went down, the boy - who did not know much about technology - thought that the girl had hacked into his Facebook account and taken away his account access. He was enraged and threatened her, saying he would create a scene on her college campus if she did not *“give him his account back”*. Afraid that he might cause trouble, the participant asked around, figured out how to use VPN, and gave him the information so he could use his account again. This story, while offering a novel use scenario for the VPN workaround, also illustrates that knowledge of this workaround had become fairly commonplace.

Although some individuals were in possession of mobile phones which could support VPN, others were not. One participant told us that she had a mobile device that did not have an option for VPN support. She was therefore unable to access the banned applications on her mobile phone although she knew that her friends were using them:

“I was totally unable to communicate. Besides, I use Lumia, that is why I could not get any supporting application to run those apps . . . I searched my app store writing VPN, but my phone did not support as it was not an android phone.” — P8

What we found was that while some internet users were able to quickly adjust and work around the ban, others were simply prevented from accessing the internet for the duration of the ban. Thus, those who had knowledge or had access to those who had knowledge of workarounds were at an advantage compared to those who were relegated to a state of non-use instead. Previously, all users had access. However, now, the gap had been widened due to the ban, also expanding the pre-existing ‘digital divide’. This is not to say that the government did not respond to this widespread adoption of VPN software. One participant mentioned that he was returning home from college when he was stopped by the police who wanted to check if he had VPN installed on his mobile:

“I was going home after finishing classes at my university. Then some policemen stopped my rickshaw and asked me to show them if I had VPN on my mobile and harassed me. I understood that they were not any ranked officers but were constables. They were taking advantage of the situation by taking the mobile, whether one is using VPN or not, and not returning it. Then they also said you are using VPN illegally and breaking the rule.

Fortunately, I had not started using VPN at that time so I was spared. But the person in front of me had VPN on his phone, so the police officers took his phone and did not return it.” — P1

The police’s justification was that if people were using VPN they were engaged in an illegal activity. So their phone had to be seized, even if there was no such directive issued by the government. Though our participant did not lose his phone, there were others who were not as fortunate.

Lifting of the Ban: Relief and Preparedness

As mentioned in the background for our study, the ban on Facebook was lifted after 22 days [11]. During this interval, people experienced loss of business and livelihood, academic complications, and communication issues as discussed earlier. When asked about the withdrawal of the ban, our participants expressed relief:

“Everything is okay now. I can chat with my friends as I did before. Everything feels normal!” — P13

Participants also expressed concern regarding potential future bans, fully expecting this to be a common occurrence in times to come. VPN software and other workarounds were widely used by our participants to bypass the ban, as mentioned above, and it was evident that the use of these applications would resurface when the next ban was put in place:

“I would use VPN if Facebook is blocked again. It’s (VPN) easy to use.” — P3

During this study, we observed how concerning the ban was for people conducted their businesses on SNSs. All these participants agreed that it was necessary for them to have an independent website for running their business. One business owner explained his future business plan developed on account of the ban:

“We [our participant and his business partner] have decided to move our page to a separate website. We have already selected a name for the domain and booked it. Our development is still in progress and we are planning to launch the website in a few months.” — P18

Though we cannot directly ascribe this shift to the ban, participants agreed that Facebook’s advertising policy had made it easier for them to reach their target customers, and the ban had ended up hurting them significantly as a result.

DISCUSSION

It is essential for initiatives that we mentioned in the introduction, which aim to perpetuate internet access in the context of ‘developing’ countries such as Bangladesh, to pay greater attention to the current technology practices of their target users. Extensive research on the topic of the ‘digital divide’ has emphasized widely that introducing technology for developmental outcomes without careful examination of the scenarios in which they are to be used could turn out to be disadvantageous to the target audience [75, 76]. Our research extends this body of work by demonstrating that just as careless introduction of technology can be problematic, so is the case with a careless ‘taking away’ of technology as well.

Our first situated account of internet and SNS use in Bangladesh targets industry- and state-level ‘agents of change’ so they can adopt a more informed approach as they design technologies for different Bangladeshi social groups. Our findings indicated prevalent use of internet and SNSs for communication, academics, business, health, news, and leisure. Facebook and SNSs are not formally designed for several of the use cases we identified, such as running businesses via messaging or Facebook pages alone or exchanging course syllabi using SNSs. There is immense potential to design for these scenarios more suitably.

Our findings also highlight the community-centric nature of both “problems” and their “solutions”. We see how most struggles that our participants experienced were better understood from a social perspective. We also saw that collaborative approaches adopted by these participants helped them to work around the effects of the ban, such as in the case of the female participant who asked around to learn how to use VPN so she could stop being threatened by the boy. However, knowledge of VPN is not widespread to begin with. This then raises the question - what about individuals who do not have social ties to technologically-savvy people to help them during times of forced non-use? In future work, we intend to pay closer attention to this. This question also brings us to question the current Bangladeshi government claims that it is trying to expand internet connectivity and make the country “Digital”, when the gap between people with certain social capital and those without is widening. Our study offers some examples to illustrate this.

We mentioned earlier that the government had requested Facebook to give information regarding some users and, although Facebook initially turned down the request, it later submitted this information to the government. This news was published in May 2016, close to the completion of our study. Participants shared that they were alarmed by the news and concerned about their privacy on Facebook. Though some of them initially supported the blocking of Facebook for security reasons, none of them were comfortable with the thought of being monitored on Facebook. Future work might find compelling research questions to pursue in regards to the effects that these perceptions of online activity monitoring have, if any, on SNS use by the social groups we studied.

In addition to presenting findings from our fieldwork, we draw connections with broader aspects of technology, collaboration, and ‘development’ that sit at the heart of CSCW scholarship. First, the technical infrastructure of the internet allows a central authority to control the traffic of content and impose censorship. While this kind of infrastructure may be helpful for institutionalizing government-supported values in the country, it may result in suppressing competing values and associated voices. This misalignment calls for designing and developing a more democratic and representative internet infrastructure. It will be difficult for the internet to be a free and open, collaborative platform (or a ludic platform, even) for marginalized peoples if the very infrastructure of internet is not free and/or democratic. Technologies like VPN may help some people to find workarounds, as we found, but that

is not a long-term solution to the problem. We contend that the internet infrastructure needs to be made more democratic and decentralized to support future development of individual and local voices, the “next billion” that are now the focus of significant public discourse. This may be achieved in various ways, and we invite future CSCW researchers to engage on this subject. The possibilities of scaling up “intranet” infrastructures and connecting smaller “intranets” through *ad hoc* channels could be potentially transformative for the groups we study. These smaller infrastructures and their interaction with the larger state-supported infrastructures merit greater study, particularly in contexts that do not boast a long history of democracy. Alternatively, easy and accessible public VPN may have helped our participants. While these and other technical solutions are important, we must also keep in mind that a true democratic practice is required in the country in the first place to ensure the voice and liberty of the citizens. For this, a comprehensive effort from politicians, intellectuals, artists, scientists, engineers, businessmen, policy makers, educators, and laypersons is required to establish a democratic environment in the country. Otherwise, citizens’ efforts towards being connected to the internet through technical workarounds may lead to a bitter relationship with the government, as we also noted in the encounter with the police, potentially causing further disruption of use and violence.

Finally, the findings of this study are essentially connected with the sudden dispossession of infrastructural support, which has been a growing concern of HCI and CSCW scholarship in recent years. Tomlinson et al.’s celebrated work on “Crisis Informatics” has illustrated situations where central infrastructures may not be able to serve people [71]. A rich branch of HCI and CSCW scholarship has also shown how alternative technical infrastructures and human collaboration can combat sudden disasters [42, 50]. However, in many man-made disasters, infrastructural supports are often unavailable or illegal. That kind of forced detachment from infrastructural support has recently received attention due to the burgeoning growth of internal migrants and international refugees [63]. Researchers have shown that informal technical practices like hacking, breaking, repairing, and making can help empower marginalized communities in such situations [1]. Furthermore, they have suggested that collaboration, sympathy, and help among the people are crucial here. Our study shows how technical workarounds could allow some people to get services from internet. It is worth examining in future scholarship how we might connect these people with others so that such services become ubiquitous even under conditions such as bans? We suggest that both technical means *and* human factors like sympathy, responsibility, and collaboration are needed to ensure a seamless internet service in the face of bans. In cases where technical and democratic infrastructures fall apart, people may need to stand together, develop trust, respect, and collaborative ties, and engage in novel kinds of technical practices to make services ubiquitously available among them. This ‘human’ facet of collapse informatics is undeniably as critical for CSCW research as are technical infrastructures and deserves greater attention as such.

CONCLUSION

With our qualitative investigation of internet use and the impact of a state-imposed ban on internet and/or SNS use in Bangladesh, this paper aims to achieve three objectives. First, we present the first account of internet use by disparate social groups in Bangladesh. Second, we discuss the impact of the ban on these social groups, also illustrating how deeply intertwined online and offline really are. Third, we highlight how the purported plans of the Bangladeshi government to bridge the ‘digital divide’ in the country ended up exacerbating this divide for the time that the ban was imposed, as we discuss the workarounds that were developed (or not) to combat the effects of the ban. The takeaways of our research emphasize the relevance of integrating democratic values, such as those of voice and participation, into large-scale, top-down infrastructures such as those of the internet. Future scholarship might attempt to unpack how ground-up infrastructures emerge in response to the experienced lack of such democratic values.

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