Research Article

Emergent Practices Around CGNet Swara: A Voice Forum for Citizen Journalism in Rural India

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Abstract

Rural communities in India are often underserved by the mainstream media. While there is a public discourse surrounding the issues they face, this dialogue typically takes place on television, in newspaper editorials, and on the Internet. Unfortunately, participation in such forums is limited to the most privileged members of society, excluding those individuals who have the largest stake in the conversation. This article examines an effort to foster a more inclusive dialogue by means of a simple technology: an interactive voice forum. Called CGNet Swara, the system enables callers to record messages of local interest, as well as to listen to messages that others have recorded. Messages are also posted on the Internet as a supplement to an existing discussion forum. In almost three years of deployment in India, CGNet Swara has logged more than 137,000 phone calls and released 2,100 messages. To understand the emergent practices surrounding this system, we conducted interviews with 42 diverse stakeholders, including callers, bureaucrats, and media members. Our analysis contributes to the understanding of voice-based media as a vehicle of social inclusion for remote and underprivileged populations.

Introduction

The rapid penetration of mobile phones in the world's low-income regions has triggered widespread interest in building mobile systems and applications to benefit education, health, government, and other social ends. Recently, some projects from the ICTD conference series have emphasized the role of users as active participants and producers of information, analogous to Web 2.0 (Agarwal, Kumar, Nanavati, & Rajput, 2009; Banks & Hersman, 2009; Patel, Chittamuru, Jain, Dave, & Parikh, 2010; Sterling, 2009). Participatory processes are of particular interest to development practitioners, since they encourage accountability, local ownership, and problem solving, and these processes situate a broader share of power, decision making, and influence with communities, rather than outsiders (Midgley, Hall, Hardiman, & Narine, 1986). And as a medium for increasing or enabling participation, mobiles hold particular promise (Goggin & Clark, 2009), due partly to their support of voice communication. The spoken format transcends literacy, machine-written text/font issues, and local language issues, and it is accessible from any handset.

In this article, we offer a case study of a citizen journalism network, previously reliant on computers and the Internet, and we examine its evolution as it has adopted a voice-based interface for recording and listening to information over the phone. The focus of our study is CGNet, which targets the Indian state of Chhattisgarh. In the words of its founder, "CGNet is the people's website of Chhattisgarh, where everybody is a journalist. It is a citizens' journalism forum whose mission is the democratization of journalism, where journalism is not restricted only to journalists" (Choudhary, 2009). Since 2004, the CGNet website and mailing list have provided a forum for discussion of the Chhattisgarh region, specifically for issues related to its development and people. While the site and mailing list are active, with more than 230 messages per month, dependence on the Internet made it difficult for rural communities—those most impacted by the issues at hand—to access or contribute to the dialogue. Internet penetration in Chhattisgarh stands at 0.5% (India Ministry of Communications & Information Technology, 2010).

Out of this ecosystem was born CGNet Swara,[1] a portal to CGNet that uses mobile phones to extend participation beyond the Internet's reach. Before we proceed, a note is in order regarding our approach to this article. Our primary tone is one of external examination and critique, as the first two authors played no role in the creation of either CGNet or CGNet Swara. However, the third author is a member of the CGNet Swara technical team. He facilitated this study by providing call logs, contact details, and system analytics to the other authors. While this study was done with the knowledge and consent of the full CGNet Swara team, the conclusions reached do not necessarily represent their views.
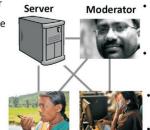
CGNet Swara users place an ordinary phone call to the system, which presents them with two options: Press "1" to record a message, or press

Figure 1. CGNet Swara ecosystem.

"2" to listen to other messages (see Figure 1). A trained journalist moderates the recordings prior to publishing them on the channel. Published recordings are accessible via both the phone and a website,[2] where they are also summarized in text form. The CGNet Swara staff often seeks to spur action on the reports by disseminating them to contacts in the mainstream media, as well as in the government. In the first 34 months of its deployment, CGNet Swara featured 2,100 reports and logged more than 137,000 calls into the system. As detailed in the coming sections, some reports have led to the redress of important grievances that benefited several communities.

Our goal in this article is to understand the usage, perceptions, and impact of this platform during the period when it transitioned from CGNet to CGNet Swara. We start by characterizing the system's content through conducting an analysis of more than 1,000 voice recordings. Then, we examine the social ecosystem that created (and was created by) the platform via interviews with 42 diverse stakeholders, including contributors, listeners, and the moderator, as well as such external actors as journalists and government authorities. Based on our analysis of these conversations, we identified three themes: 1) the experience of users interacting with the voice interface, 2) the emergent practice of using the platform as a mechanism for grievance

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1. *Swara is the Sanskrit word for voice.*
2. *http://cgnetswara.org/*

reporting, and 3) the complex relationship between CGNet Swara and established media outlets. We conclude by positioning our inquiry into CGNet Swara at the intersection of overlapping but distinct academic discourses in addition to ICT4D, spanning citizen journalism, community informatics, and e-governance/transparency.

Related Work

The devices we call mobile phones offer varied bundles of features and affordances, made more powerful by both their networks and the off-device protocols running on servers in data centers. Technologists and development practitioners can (and have) built applications to take advantage of SMS, USSD, MMS, still photos, video upload and playback, and the broader Internet via the data channel (Donner, Verclas, & Toyama, 2008). Their decisions involve oft-debated tradeoffs among affordability, richness, and reach. And yet every handset on the planet has a microphone and a speaker, and voice is as close to a universally shared approach to communication as humans have. Voice is not a panacea; it is linear and hard to search, languages are fragmented, and phone calls can be costly relative to other messaging channels. But in many circumstances, voice interfaces offer ubiquity, affordability, and ease of use (Goggin & Clark, 2009; Patel, 2010).

Thus, it is encouraging to see a burst of voice applications tackling a variety of development problems in a variety of resource-constrained settings. Examples include giving voicemail to homeless individuals in the United States (Le Dantec et al., 2011), automated answering machines for community radios in India to build engagement (Koradia & Seth, 2012), offering ad hoc group support for NGOs (Odero et al., 2010), delivering health information (Sherwani et al., 2007), bringing Web content to resource-constrained classroom settings (Ford & Botha, 2007), and exchanging agricultural advice for (Plauché & Nallasamy, 2007) and by (Patel et al., 2010) farmers in India.

Some voice projects stress navigation of voice menus, others leverage speech recognition, and still others try to capture and retain contributors' voices. These last systems are perhaps the most interesting for those seeking to facilitate participatory processes in communities where low literacy or other factors

reduce access to or use of other media (from letters to the editor to blogging). Specific voice-based implementations have begun to blur the lines between mobile handsets and community radio, allowing communities with little or no capacity to create text-based content to be both listeners to and producers of the "stories" they want to tell and the agendas they want to set (Bailur, 2007; Frohlich et al., 2009; Kotkar, Thies, & Amarasinghe, 2008; Ranganathan & Sarin, 2011; Slater, Tacchi, & Lewis, 2002; Sterling, 2009).

Still, many of these community platforms remain pilots or experiments. Deployment of broader systems for sustained use in the field remains rare. As a 2010 review of citizen media by the Open Society Foundation suggested:

> Very few of the projects we documented report back to citizens via text or voice systems about the information they have collected. Aside from CGNet Swara, only the Budget Tracking Tool in Kenya and the African Elections Project allow citizens to access, rather than only report, information via non-Internet-connected phones. (Avila, Feigenblatt, Heacock, & Heller, 2010, p. 35)

Evolution of CGNet Swara

The geopolitical context for this work is Chhattisgarh, a small state in central India that was formed in 2000. Chhattisgarh is populated primarily by the Adivasis, an indigenous people who are among the poorest and most socioeconomically disadvantaged in all of India. Of the state's 25 million inhabitants, 80% live in rural areas, and 30% are illiterate. The area is also home to the Maoist insurgency, a violent left-wing movement. In 2007, Prime Minister Manmohan Singh designated this insurgency as India's greatest internal security threat.

Chhattisgarh is a difficult environment for the media. Due to a shortage of trained journalists in rural areas, there are no established news sources in the local tribal languages, such as Kurukh or Gondi, each of which has more than 2 million speakers. The situation is worsened by regulations surrounding community radio in India. In addition to the high cost of establishing a community radio station, it is illegal to broadcast or discuss news via community radio. While newspapers and television stations have a presence in the state, only rarely do they cater to the needs or broadcast the voices of the Adivasi population.

CGNet addresses this need by providing a platform for tribal community members to report and discuss issues that are meaningful to them. Reports from such citizen journalists flow through personal communication to a CGNet moderator, who broadcasts their stories for discussion on the CGNet website and mailing list. Since its establishment in 2004, CGNet has been recognized (Manthan Award, 2008) as fostering dialogue and effecting change within the state. As of July 2011, CGNet's mailing list had more than 2,000 members. However, due to dependence on computers and the Internet, most of those members were drawn from the urban, English-speaking elite.

CGNet Swara's goal is to extend CGNet's reach to anyone with access to a low-end mobile phone. As described previously, callers record stories and listen to other recordings by navigating a simple interactive voice response (IVR) system. Recordings, which can be a maximum of three minutes, undergo moderation to ensure they are clear, audible, and appropriate for dissemination. Once the moderator approves a post, it is available for listening on both the phone and the Internet website. The website also includes the moderator's textual summary of each post (typically translated to English, though occasionally left in Hindi) to facilitate search and browsing. To keep the phone line available for multiple callers, only the four most recent posts are available for playback on the phone. These posts are played in time order, with the most recent first; callers may skip to the next post by pressing a key. Currently, there is no ability to search or browse older posts via the phone, though the textual summaries of posts are searchable on the website.

The technology underlying CGNet Swara is simple. Following a vision established years ago (Kotkar et al., 2008), a Linux server uses Asterisk (an open source telephony platform) in combination with LoudBlog (an open source audio blogging platform) to provide the key functionality. The IVR system logic is written in Python and is available as a free, open source download. The server uses three GSM modems (Topex Mobilink IP), available for about US$500 each in India, to interface with mobile SIM cards. The server also connects to a pair of BRI digital landlines (supporting two parallel calls each) to

support the original phone number publicized for the system.

Airtime cost is an important consideration for any system using voice calls to report and disseminate information. During the first six months of the CGNet Swara deployment, the phone call costs were supported by the callers themselves. However, as the server was based in Bangalore, this constituted a long-distance call from Chhattisgarh, and CGNet staff were concerned that this (temporary) geographic anomaly was artificially stunting service expansion. Thus, starting in August 2010, calls to CGNet Swara became free for a limited period (as of this writing, it is still ongoing). Rather than using a toll-free number, which can be costly in India, callers are asked to send a "missed call" to the server. To send a *missed call,* users dial the Swara number and hang up while the phone is still ringing. The server then returns the call immediately. Since answering the call is free and sending missed calls is commonplace in India (Donner, 2008), this incurs no inconvenience or expense to callers. The cost borne by the server is approximately Rs.0.60 (US$0.012) per minute.

Deployment and Usage Statistics

CGNet Swara was deployed in February 2010. Preceding deployment, 29 students, social activists, and Chhattisgarh residents attended a two-day training camp. CGNet's founder, a former BBC journalist who also serves as the principal moderator for CGNet and CGNet Swara, led the instruction. The camp included an introduction to citizen journalism, as well as practice sessions on interacting with the technology. While this event was important to raise visibility of the service, of the 20 trainees who owned cell phones at the time, only two were active CGNet Swara users six months later. Thus, awareness and participation in the system spread mainly by word of mouth.

As of December 2012, CGNet Swara had received 137,000 phone calls and posted 2,100 recordings (see Figure 2). Currently, it publishes about three new posts and receives approximately 200 calls per day; thus, the vast majority of callers only listen to content. System posts were contributed by at least 715 distinct callers.[3] As in many systems hosting user-generated content (Ocha & Duval,

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3. Caller ID was unavailable for the project's first six months. Thus, the number of distinct callers is actually higher than reported.
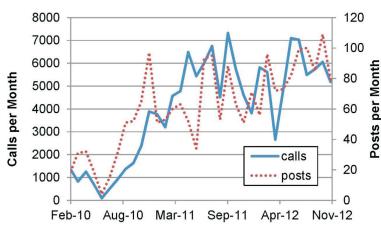
Figure 2. Monthly traffic (calls and posts) to CGNet Swara (the dip in early 2010 was due to an outage while the server moved to a new location).

Some types of recordings were unexpected. For example, reports categorized as "performances" represented song and poetry, often rich in cultural tradition. Consistent with unsolicited performances observed on a different voice forum (Patel et al., 2010), it may be that the universal unmet need in rural India is the desire to sing! The moderator did not discourage such submissions, as celebration and preservation of tribal culture is fully within the scope of CGNet Swara's goals. Often, these messages also had social overtones.

To gain additional insight, we performed a more detailed coding for two months of reports (December 2010–January 2011; n = 110). During this focus period, 85% of posts were in Hindi, 10% were in Kurukh, and the rest were made in other tribal languages. To the best of our knowledge, this represents the first source of aggregated news in the Kurukh language. Looking forward, the CGNet Swara team aspires to solicit more content in tribal languages.

During the focus period, 69% of contributors were male. Most (90%) of the contributors revealed their name, while the rest claimed to be speaking on behalf of an organization. Around 82% chose to reveal their location. Almost 70% of the content concentrated on localized issues, as compared to issues of significance at a state or national level. Almost 20% of posts pertained to NREGA grievances. A similar number (21%) of the contributors were intervening on behalf of someone else's grievances, and around 45% of the contributors were reporting personal experiences or eye-witnessed events.

2008), the 10% most active contributors are responsible for a large fraction (51%) of the posts. More than 18,000 distinct callers have listened to content; of these, 2,850 are "regular" callers (they have called 10 or more times), while 7,500 people called the system only once. The 10% most active listeners are responsible for 61% of the phone calls. The average phone call is three minutes long, and the server streams approximately 10 hours of audio content per day. The system is growing steadily, with roughly 25 new contributors authoring a post each month, and about 700 new listeners calling in for the first time.

Content of Posts

To characterize the content on CGNet Swara, we informally categorized all the stories published during the first 20 months (n = 1,012). Figure 3 shows the results by content type, while Figure 4 shows the breakdown by subject matter. Apart from news, grievances were the most common type of post, mostly related to a variety of livelihood- and civic-related issues. They constituted 34% of all posts and ranged from complaints over disparity in insurance rates received by farmers to a demand for better wages for laborers. Nonpayment of wages under the National Rural Employment Guarantee Act (NREGA) formed the bulk of grievances. Enacted in 2005, the law guarantees 100 days of manual unskilled labor per year, paid at a rate of Rs.100 (US$2.00) per day, to willing adults.

Anecdotal Impact

There have been several cases in which reports on CGNet Swara have led to a measurable impact on local communities. Usually, this impact originated with actions taken by the CGNet Swara moderator as he lobbied mainstream media and government officials to follow up on a given report. Impact stories are detailed on the CGNet Swara website;[4] we offer just one example here.
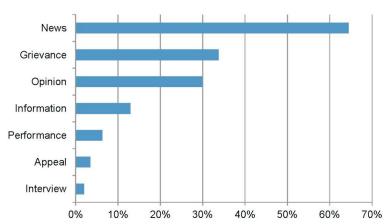

Figure 3. Twenty months of CGNet Swara posts by type. A post may be assigned to more than one type.
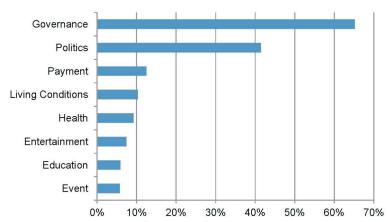

Figure 4. Twenty months of CGNet Swara posts by subject. A post may be assigned to more than one subject.

This impact story relates to overdue NREGA wages, a common theme described previously. A CGNet Swara contributor associated with an NGO in Sarguja, a northern district of Chhattisgarh, used the service to help a man named Pitbasu Bhoi receive the wages due to him. Pitbasu's situation was urgent: He desperately needed money to provide medical care for his son. Pitbasu's case was presented in a series of calls to CGNet Swara. The first call highlighted his struggle to receive payment; the next recording informed listeners of Pitbasu's son's death as he awaited payment for his labor.

The incident, which was brought to light via reports on CGNet Swara, led immediately to a series of reports in two of the most widely circulated newspapers in India (*The Times of India* and

The Hindu), as well as the BBC's Hindi edition. This publicity, in turn, prompted government officials to expedite the payment of Pitbasu's wages, which were delivered within two weeks of the first coverage on CGNet Swara. A subsequent recording on CGNet Swara thanked the system for help securing Pitbasu's wages and urged listeners to record more cases of nonpayment, so that their grievances could receive similar redress.

While a comprehensive impact assessment is beyond the scope of this article, anecdotes such as this one provide a powerful example of CGNet Swara's potential role in garnering attention and effecting change with respect to specific problems. We explore elements of this potential, emergent role in the rest of this article.

Qualitative Methods

Data Collection
The data reported in this study were primarily collected using face-to-face and telephone interviews, as well as field observations. One of our goals for this qualitative research was to understand how users and other stakeholders perceived and used the system, perhaps in ways that differed from the founders' expectations. Hence, we were careful to ensure that the questions posed to respondents avoided terms such as *news, journalism,* and *information.* Instead, respondents were asked questions such as, "How would you describe CGNet Swara to someone?" and "Who do you think listens to you on CGNet Swara? Why?"

Study respondents were recruited through the call logs captured by the CGNet Swara system. Once contact was established with an interviewee, we asked for permission to conduct and record an interview. Participants were free to opt out of either the recording or the interview at any time. Respondents were assured of the privacy of the conversation, and

they were explicitly told that the conversation would not be played back publicly or broadcast on CGNet Swara.

To complement the interviews, we undertook a field visit for two weeks to four districts in Chhattisgarh. Contributors were observed and interviewed in a variety of contexts, such as public meetings organized to protest against wage nonpayment, sites that were experiencing land acquisition threats, and beneficiaries whose grievances were resolved as a consequence of recording on CGNet Swara. The beneficiaries were mostly NREGA workers whose complaints about wage delays were resolved after reporting on Swara and were interviewed during field visits. Taking note of the high number of wage-related (NREGA) grievances, a visit to the complaint office set up by the state government was also undertaken to interact with the government staff working there. In addition, we interviewed mainstream news journalists reporting from the state capital of Raipur, as well as senior bureaucrats of the state.

We conducted 42 interviews, including one with the CGNet Swara founder (who also serves as its moderator). Of these, 17 were content contributors, 14 were listeners, and two were beneficiaries of the service. We also interviewed three bureaucrats and five journalists. Seventeen interviews were conducted via telephone; the other 25 interviews were conducted face-to-face. We conducted 34 interviews in Hindi, while the remaining eight were conducted in English.

Data Analysis

All interviews were transcribed for review and analysis; those interviews conducted in Hindi were translated into English. We performed the analysis for this article by coding the interviews into categories to discern distinctive patterns that informed both the use of the system and the response to it. Through this process of induction, five initial broad categories emerged during mid-fieldwork debriefs and during transcription and coding: 1) broad usage trends of the portal, 2) the significance of using mobile phones to report information, 3) the interaction with and usage of an interactive voice portal, 4) the emergence of grievance reporting as the most impactful use of CGNet Swara, and 5) tensions that surfaced as CGNet Swara established itself as an alternative communication medium.

In the latter stages of our analysis and discussion, we aggregated these five domains into three, which are presented below. We describe, in turn, users' experiences of interacting with the voice interface, the emergent practice of using the platform as a mechanism for grievance reporting, and the complex relationships between CGNet Swara and established media outlets.

Qualitative Analysis

Different Contributors

The system's builders sought to allow anyone in Chhattisgarh to participate in the practice of journalism. Of 31 callers, 22 provided demographic information; the sensitive nature of the context most likely led the others to be careful with their identities, especially during phone interviews. Of the 22 interviewed callers who provided demographic information, all were literate and possessed at least an eighth-grade education. Most (82%) were male. Several respondents worked as social activists, although others worked as laborers, construction workers, journalists, or in other occupations. All of the respondents read the newspaper, while 72% watched TV news. Internet use was scarce; only two interviewees mentioned using the Internet as a news source. Our interviews were neither numerous enough nor randomly selected enough to represent all CGNet users. We would like to note that the users that agreed to be interviewed for this study were guaranteed anonymity and were assured that no identifying information about them would be used. From the data that we analyzed, initial indications were that a savvy subset of residents took advantage of the system. Hindi-speaking activists and NGO workers (though generally non-Internet-using ones), rather than disadvantaged members of the community, interacted most heavily with the system. These individuals also enabled intermediated usage (Sambasivan, Cutrell, Toyama, & Nardi, 2010) by a broader set of people.

The lack of direct, broad-based usage could be just a matter of awareness. An NGO worker offered some suggestions:

Even if I tell 50–100 people about this service in a day, it won't be an effective way to spread the message. This can't be done in a day. You have to give people some time to learn what Swara is. Workshops are a good way to solve this problem.

The journalists were skeptical, suggesting that the problem with engagement went beyond awareness. Even though none of our study respondents attested to having felt any kind of persecutory pressure for having used CGNet Swara, one journalist referred to the "shy nature" of the poor person: "Villages in Chhattisgarh are the kind of places where everybody knows everybody else. You could easily be tracked and found out and there could be repercussions from having complained about someone or something." A senior editor of a regional daily added the following:

> We cannot expect a weak defenseless person to have the courage to speak out on Swara. The service is a good beginning, and it is my hunch that NGOs are the ones who are making the most use of it. Let it run for a while because it is still in its infancy, but it is true that if you are thinking about the tribals whom this should benefit, then you have to remember that that individual firstly does not have the confidence to speak out. Secondly, talking on the mobile phone to someone or something he does not know is a big thing.

Different Affordances, New Contexts

The voice interface is convenient and understood. One respondent put it bluntly, "We just dial and talk." Another regular said, "I can present issues very easily on Swara and can disseminate it easily, too. I like the fact that I can present issues whenever I feel at my convenience." A third emphasized the phone's portability:

> You can listen or record on Swara from anywhere. You don't have to make time for it. I listen to it every morning when I walk to the lake to bathe. Once there, I sometimes also share stories that I find interesting with others on the lake by switching on the speaker phone.

The mobile phone's portability led to the creation of novel spaces for interaction around CGNet Swara. Participants were able to act as broadcasters/infomediaries or journalists, generating or sharing content with others present. One regular contributor to the service dialed in from a moving train to record an interview with a group of fellow passengers when she learned about their wage payment grievances. Another contributor said that he first heard about CGNet Swara when his curiosity was aroused by seeing people listening to stories in the local train compartment during his daily commute. Others described switching on the phone's external speaker to enable small groups to listen to stories at the same time. A contributor who once sent in a recording from a public meeting in a village told his story:

> Most of the complaints were with regard to civic utilities so I just dialed the Swara number, put it on speaker phone, and made them listen to a few stories as a demonstration. We then recorded their own complaints on Swara.

In this framing, we emphasized the capacity of being able to speak and hear, rather than the symbolic or non-instrumental feelings associated with "being heard." We heard some comments to this effect: One respondent reported "feeling very nice after I heard myself on the Swara service." Others said they would take pride in being selected for the site, rallying friends and family to listen, but these responses were not as widespread as those about the simple practicality of the interface as a tool for on-the-fly citizen journalism.

Calling for Grievance Redress

A common (but by no means exclusive) use of CGNet Swara was the pursuit of grievance redress, an individual's complaint that was identified, mediated, described, or amplified by an activist/journalist against an element of the local bureaucracy not doing what it should. In this way, Pitbasu's case is archetypal. Explaining the difficulties that he faced with government officials before resorting to CGNet Swara, the contributor who intervened on his behalf told this story:

> We were trying to get in touch with government officials and I sent a couple of my colleagues to meet the concerned officer. He did not listen. We approached them a second time, they did not listen even then. We met the commissioner and even he directed the officer to pay the wages, but the payment still did not happen. I felt that some action was needed. I was in Raipur at that time and a lot of pressure was needed. So I decided to pick up the phone and call in a last-ditch attempt to see what would happen.

Contributors' responses reveal that CGNet Swara is perceived as a tool that carries complaints forward and helps in their resolution. When we asked one

contributor how she would explain CGNet Swara to someone who knew nothing about it, her response cut right to this role: "I tell them it is a very nice medium where we can speak about any irregularities in government schemes. When you speak, then the government and the administration listen to you and they take steps to address the problem."

We heard similar framings offered by officials on the receiving end of the grievances. Even while expressing reservations about CGNet Swara being representative of "the people" (rather than activists), one administrator conceded the utility of systems such as CGNet Swara to ensure that entitlements due to people are disbursed. He suggested that such a service could be most useful where corruption was rife, because it had the potential to usher in more transparency. Another administrator, a former NREGA official, suggested that, were he still in the same post, he would consider CGNet Swara to be immensely helpful in tracking NREGA grievances.

Even more telling, perhaps, is the actual use of the CGNet Swara archives (via the website) by at least one NREGA staffer to track down grievances. This same staffer would prefer that people call the NREGA state helpline number directly (to reduce "bogus complaints"), but nevertheless, the staffer acknowledged the utility of the CGNet Swara resource.

Incidentally, the state's "official" NREGA helpline number is little-known among Swara contributors, let alone the laborers they often represent. In only one of four districts were contributors aware of the hotline's existence. A caller to CGNet Swara also recorded a message asking people to use the helpline number in a bid to boost awareness about it.

Our analysis suggests a particular, almost symbiotic relationship among the three actors: the complainant, the citizen journalist, and the official. When officials use this system to find and rectify grievances, everyone benefits. An editor of a daily newspaper framed this relationship:

> You will see that in most cases the government acts like a giver, like a benefactor. So it is all about doling things out. That is the attitude of the government, and Swara can succeed here, but as a citizen when you start talking about your rights, that is where the government comes across as weak. Resolving grievances is a different issue than talking about rights.

Another high-level official echoed this view:

> Suppose I come to know [through CGNet Swara] that this village has not received their entitlements, then I can intervene or the government can intervene and see that entitlements are being done. Suppose tomorrow they say that my village is very nice and I need an airport in this village then nothing will happen.

The resolution of discrete, actionable grievances encourages citizens, sustains journalists, and buttresses the credentials and structural power of the officials—although perhaps all this occurs while broader demands for more systematic and widespread reform remain unsatisfied.

Audiences and Actors in the Ecosystem

We asked callers and listeners, "Who do you think is listening?" Some assumed a direct process, with decision makers (such as the NREGA official) listening directly; others perceived links between the voice system and the Internet; still others emphasized the interactions between CGNet Swara contributors and traditional media. Indeed, each held a part of the puzzle.

One caller was firm in his belief that the chief minister of the state was a regular listener, "because he looks at everything. So obviously, he will be listening to Swara, too." Another contributor proclaimed a similar confidence in CGNet Swara's audience: "Everybody. Farmers, 'the big people,' the government administrators. Everybody listens to it." Another contributor added the following:

> With CGNet Swara, whatever we speak directly goes on to the net, and it reaches the concerned officials. We don't need to write any application or spend any money. We just have to give a missed call and we can communicate through that.

But others perceived that CGNet Swara had a role to play in translating or bringing "voices" out to the wider Web. To some, CGNet Swara is simply a means of sending their stories to the outside world. In the absence of computer and Internet infrastructure in the geographies these contributors inhabit, or of the skills required to access them, CGNet Swara is seen as way to overcome these obstacles to accessing the Internet. One contributor addressed the cross-pollination concept directly:

What happens these days is that the stories are also put on Facebook, and a lot of people are reading it. Some people are taking legal action based on the stories, some people are calling up government officers after learning of incidents. So this is creating a pressure. CGNet Swara is spurring action on stories.

In other cases, contributors perceived that Swara was not simply a technical bridge to the Internet, but a conceptual and structural bridge to the people who used the Internet. This is due in no small part to the track record of CGNet, the discussion group. Most of the government administrators who were interviewed for this study spoke about knowing the CGNet Swara founder through his work as a journalist or as a founder of the Internet forum.

Indeed, most external stakeholders of CGNet Swara, such as journalists and bureaucrats, point to the website, the service's emails, its Facebook page, or the Twitter account as more convenient ways to receive content from the service than calling the CGNet Swara number. The occasional NREGA official aside, most decision makers were more likely exposed to translated, textual versions of the "voices" of individuals, which had already been mediated by a citizen journalist and edited/transcribed by Swara staff. Says a mainstream journalist, "Checking CGNet Swara is not a regular part of my routine. I feel that if there is anything important, it will be emailed to me by the founders anyway."

But sometimes, CGNet Swara messages *are* important enough to merit attention from the mainstream media, and this attention represents another factor in the multidimensional interactions among individuals, contributors, moderators (Swara staff), and decision makers. The contributor who helped Pitbasu get his past-due wages using CGNet Swara says that the resulting media coverage of Pitbasu's case caused a huge boost in his morale, leading him to become a regular contributor to CGNet Swara on NREGA issues. Another contributor says that her belief in CGNet Swara as an effective medium for redress stems from the fact that she was paid a visit by a journalist from a leading English daily to report on the village's NREGA status.

CGNet Swara's effectiveness in securing grievance redress is due in large part to the moderator's efforts to liaise with mainstream national news journalists and government officials who can amplify and act on stories reported on the system. Yet these efforts at liaising also form the crux of the system's complicated relationship with journalists. Journalists were critical of the persistence of CGNet Swara's founders in trying to get mainstream, national media coverage for grievances presented on the service. As one journalist questioned, "Is CGNet Swara for the people or for journalists?" The reluctance of the journalists to pay attention to content from CGNet Swara illustrates a difference of opinion between CGNet Swara staff and national editors about what is newsworthy. One journalist added the following perspective:

CGNet Swara and I have the same kind of source network. Why should I be dependent on it as a source for my news? . . . Also the content is well suited to local newspapers of this state than national newspapers. . . . The content on it is generally about NREGA and *gram panchayat*[5] issues. There are too many of that on it. Tell me, do you think my readership, which is urban English-speaking, is going to enjoy NREGA reports every day? . . . My readers and my newspaper is going to tell me that, listen—you are in a state which is the epicenter of a very violent antistate movement. Give us reports about that. . . . There is no NREGA problem peculiar to this region, it can be reported from anywhere.

Another journalist said this:

We are catering to an urban readership, and our focus is naturally going to be on what affects their lives. . . . Tribals become far removed in such a scenario. . . . When I report, I am not reporting for the people in this state, I am reporting for people outside this state about this state.

A newspaper editor pointed to the capital-intensive nature of the news business to emphasize the industry's need to turn a profit:

If you are investing crores[6] of money you obviously want profits for it and profits are not to be found in reporting on tribal issues. The ones who can't buy a newspaper and who don't buy the products advertised in them—why will any newspaper pay attention to them?

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5. Gram panchayats are the primary institution of local self-governance in rural India.
6. A crore is a unit equal to 10 million Indian Rupees. Ten million Indian Rupees is about US$200,000.

While one journalist stated that the content was news although its presentation style was not, another journalist said that it was "definitely information, but not news. There are too many complaints." Yet another journalist agreed that it could be a form of citizen journalism, though it seemed more like a "discussion forum, more like an exchange of ideas and a part of citizen journalism also because more and more people are coming up with own findings and report."

The bureaucrats and administrators have a different perspective of CGNet Swara than journalists. Referring to the limited audience of the service, one bureaucrat said that, unless CGNet Swara achieved critical mass among the people, he would not consider it a serious effort in representation of people. The same administrator also suggested that a service such as this would play a limited role in garnering an audience unless it scaled up to be a part of a bigger entity, such as a community radio system. Concerned with the antecedents of CGNet Swara's formation and cognizant of the region's delicate political climate, a senior bureaucrat of the state's police force expressed concern that the service might be used by people perceived to be "anti-state." Touching on all these issues (scale, content, and perceived political slant), one official summed up his perspective:

> If it [CGNet Swara] has to be taken seriously, it has to come to some visible level and also take up various issues not limited to certain complaints or antigovernment issues. Then people become irritated and they will say that nobody is saying a good thing and only highlighting a bad thing. Nobody will take it seriously if it just becomes a complaint box.

Discussion

Coupled with the usage statistics presented earlier, the three themes we have identified (the experience of users interacting with the voice interface, the emergent practice of using the platform as a mechanism for grievance reporting, and the complex relationship between CGNet Swara and established media outlets) suggest that the addition of a voice portal to the CGNet system has both strengthened and transformed it, although not necessarily in the ways the founders would have expected.

Some of the tension appears to reside particularly

in the nomenclature of citizen journalism (Gillmor, 2006). On the one hand, there are people gathering, submitting, and selecting stories, acting in ways that closely resemble what journalists and editors do. On the other hand, the emergent practice of using the platform as a grievance-reporting mechanism suggests a use that may be unique to this system and this context, something which is not a feature common to citizen journalism platforms.

And yet, too tight a focus on nomenclature and the definition of citizen journalism would detract from the broader lessons about the role of voice in participatory platforms that can be ascertained from the CGNet Swara case study. We frame three of these more generalizable issues as matters of theoretical emphasis, rather than binary assertions.

More Participants, but a Constrained Conversation

While the introduction of the voice interface enabled more people to participate in a "conversation" on CGNet Swara, the structure of that conversation did not necessarily improve relative to the Internet forum. If anything, since threaded two-way conversations were more difficult over the phone, the resulting content may have been 1) more fragmented, and 2) more sensitive to editorial shaping by the moderators than content on the website. While it is beyond the scope of this analysis, we suggest that two fruitful paths for further examination would be to contrast text- and voice-based forum use in resource-constrained settings in terms of 1) conversation/rhetorical analysis (turn-taking, length of statements, references to prior posts, etc.) (Hutchby, 2003); and 2) the structure of the interactions among users (using elements of social network analysis, including centrality, hierarchy, connectedness, etc.) (Wasserman & Faust, 2004).

Text and Voice, not Text or Voice

Although our focus has been on users of the voice system, it is clear from the interviews that the system is a multiplatform endeavor; the whole remains, perhaps more now than ever, greater than the sum of its parts. That voice messages were transcribed, translated, and made available on the website was a critical part of CGNet Swara's power to influence officials both directly (as readers) and indirectly (via journalists working for the mainstream press). We would thus suggest that, in some cases, voice might be a necessary but not completely sufficient

affordance for the deployment of a participatory system in low-literacy, resource-constrained settings. Theoretical frames that account for mixed, hybrid, or complementary media may be more useful than those that stress successive waves of media and technologies. It is worth noting that, in CGNet Swara, the transferability generally flows in one direction, from voice to text. In the future, it would be interesting to consider a text-to-voice functionality, whereby Web visitors could leave text comments that could be played in voice format to callers.

The Influence of Human Mediators and Editors

Finally, as is the case with many ICT4D initiatives, we risk paying too much attention to the technology and not enough to the people and organizations that use the technology. In this case, the tremendous capability, commitment, and connections of the founder-moderator were absolutely critical for setting a receptive scene for GGNet Swara in the community; for conducting training workshops and media interviews; and for fulfilling the day-to-day role of selecting content, screening posts, translating audio to text, and championing the posts with journalists and government officials to effect further publicity and follow-up action. It is also true that the system would have made little headway without the citizen journalists being willing to use it, and without the mainstream journalists being willing to cite it. To switch to current ICT4D parlance, there are at least two layers of intervention (Sambasivan, Cutrell, Toyama, & Nardi, 2010) between the individual with the grievance and the official who can fix it. There is both the citizen journalist (an infomediary who works with information and technology on behalf of someone else) generating the content, and the CGNet Swara staff (who act as moderators and gatekeepers) selecting some stories for inclusion on the website and portal.

We think these three, sometimes overlapping threads have value in the conversations about how voice is integrated into a variety of current areas of exploration around mediated social change: citizen journalism, mentioned throughout this paper, which is reacting to (and celebrating) the role of the mobile phone as first-line witness in everything from tsunamis (Gordon, 2007) to revolutions (Comninos, 2011); the field of community informatics (Gurstein,

2000) which, having explored the challenges of technology, inclusion, participation, and social change for over a decade, is now embracing and innovating around the mobile phone (Bar et al., 2009; Parker, Wills, & Wills, 2008); and e-governance/transparency, which has seen the mobile phone emerge as a way to increase the richness and range of the interactions between a state and its citizens (Avila et al., 2010; Grönlund, Heacock, Sasaki, Hellström, & Al-Saqaf, 2010).

Each thread, at times, seeks to alter the "top-down" status quo, bringing more actors into complex social, political, and economic decision processes. Each is a close cousin to ICT4D, and the approaches of each, stressing inclusion and participation, are increasingly merging into a redefinition of how to approach ICTs in the development process (Heeks, 2010). Our integrative themes, then, might be to move up a level from each of the threads, addressing instead their common concerns with participation as linked to issues of power (Castells, 2009) or influence in a public sphere (Habermas, 1989).

At this level, CGNet Swara's contributions are mixed. It is evident in our case study that the simple inclusion of voice affordances helped to increase the reach and richness of an ongoing effort to reconfigure the public sphere in Chhattisgarh. Grievances were made salient and acted upon. To summarize the five hallmarks of the project, other ICT4D projects can learn from how a carefully structured voice-plus-text system staffed by passionate and skilled people, working with existing actors in the conventional media, both was more inclusive than the system that came before it and had a greater impact for its users and constituencies.

And yet, it is less certain that anything more fundamental has changed (yet) because of either the practical inclusion of voice functionality or the symbolic power of "voice." This may partially be due to all the interdependencies between the new voice system and the existing stakeholders. Whether the "voices" were "heard" differently by "the powerful" is perhaps a broader topic for another paper, but we suggest the work of Pettit, Salazar, and Dagron (2009) and Tacchi (2008) as starting points for the difficulties of untangling the symbolic and the mundane.

Nor can a case study assess whether this same

approach would work in other settings. Would a more literate, technically savvy, Internet-connected population also elect to work with a voice platform? If not, the particular instance and promise of voice as a means to increase a participatory project's inclusiveness may be restricted to low-literacy/resource-constrained settings.

Conclusion

This case study has described a participatory "citizen journalism" system established for a place and a people that were previously locked out of the mainstream news media. The system's users, often (but not always) acting as citizen journalists, share information with each other, as well as with the broader community of economic and political actors in their state. As a system, CGNet Swara faces a constant struggle to insert itself into the existing sociopolitical structures of the state of Chhattisgarh. The embeddedness allows the system to demonstrate impact when officials "pay attention" to the issues amplified by the system and occasionally take action. It is complicated, and perhaps not quite what its founders had intended. That the system works (at all) in an environment as remote and challenging as Chhattisgarh makes it a worthy case study for ICT4D. And it "works" because of voice.

We describe the emerging practices around CGNet Swara against the background of an explosion of new, related practical and theoretical work in ICT4D, participatory development, community informatics, and citizen journalism. Despite a crowded space, this article contributes to ICT4D theory and practice by explicating how voice functionality can alter and enhance interactions among users, champions, and traditional media—as well as those who are most important, from the perspective of grievance redress—institutional actors in the manifestation of "impact" and the renegotiation of power.

To the extent that CGNet Swara opened new avenues to participation (mixing the inclusivity of the phone/voice with the preexisting interactivity of Web 2.0) in a digital public sphere, and also to the extent that this participation has led to different and better outcomes, CGNet Swara has already had impact worthy of discussion and replication in ICT4D circles. ∎

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