Experiencing Interactive Voice Response (IVR) as a Participatory Medium: The Case of CGNet Swara in India

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100 character statement

How does an IVR transform into a vibrant hub for the production and dissemination of information within a population that often finds no news media to represent its concerns?

Abstract

With the widespread use of mobile phones in the developing world, interactive voice response (IVR) systems are increasingly accessible to people with low literacy and/or limited financial resources. Interest in using IVR systems as a means to increase citizen participation in society has increased. Yet, research exploring the potential of IVRs—with particular affordances, constraints, and norms—to facilitate citizen participation in society remains limited. Drawing on field data gathered as part of a study of CGNet Swara, an IVR-based citizen journalism platform in rural India, we introduce the concept of a "participatory IVR" and undertake a phenomenological inquiry to account for user interactions with the system.

Keywords: Interactive Voice Response; Participation; Development; ICT4D; Mobile; India.

Introduction[i]

Interactive voice response (IVR) systems have been used for decades to support chat lines, company messaging voice mail, and electronic commerce (Katz, Aspden, & Reich, 1997). Yet, recent innovations in text-to-speech, speech-to-text and even speech-to-speech language processing are reinvigorating an exploration of "voice" as a mode of human-computer interaction, particularly via mobile devices. IVRs blur the lines between a traditional person-to-person voice call and human-machine interaction. They can be understood both as an *interface*—a means to navigate an information system—and as a *medium* to create, store, share, and consume information.

Although their uses vary widely, IVR systems might prove particularly valuable in the developing world, facilitating mediated interaction with systems by people who may have little access to the traditionally PC-based internet, may speak languages with relatively little textual content in their native tongues on the Internet, and/or may lack textual literacy to interact via a keyboard or keypad. This paper uses the case of CGNet Swara, an IVR-based citizen journalism platform in India, to develop the idea of the "Participatory IVR" as a medium with specific affordances, constraints, and norms that may support integration between individuals and civil society. A phenomenological lens lends itself to concerns about how users interpret and reflexively situate a media form in the larger meaning making system of their lives (Traudt, Anderson, & Meyer, 1987). Thus, we trace the process through which the abstraction of software as well as programming codes that make up an IVR have been transformed into a vibrant hub for the production and dissemination of information within a population that often finds no news media outlet to represent their concerns.

What comprises the experience of "participating" in an IVR via a mobile phone if ones utterances are stored, processed, and selected by a faraway editor who transforms voice into text and makes the data meaningful for national and local stakeholders? How does this contrast with community information systems where the mediation is more closely intertwined with other social processes? These are the research questions underlying this research. The intention is not to identify the strengths or weaknesses of IVR or computer mediated system *per se* but to understand the experiences of participating in/on an IVR, its relation to other local information systems, and the implication of what can be considered common properties of computer mediated communication (Walther, 1996) particularly for mobile technologies (Katz, 2007).

Materializing Practice in a Participatory Technology

In an earlier paper, we described the deployment, effect, and emergent normative practices of CGNet Swara, illustrating how the functionality of voice media contributes to a renegotiation of power between the disenfranchised poor and established institutional actors, leading to grievance redress (Mudliar, Donner, & Thies, 2013). In this paper, we draw on the

same 42 in-depth interviews and site visits that informed our earlier paper to focus and extend the analysis of users' experience with CGNet Swara and to reflect on IVRs as a participatory medium.

Swara began operations in February 2010, and we collected the data for this paper between January and April 2011. As a system that had been in operation for a year, both the awareness and use of Swara was in its infancy without a stable set of practices that could foreshadow or cue users' actions. We draw upon this innocence in user knowledge and practice as an opportunity to observe how users experience a novel technology while the technology itself is still developing.

The use and appropriation of a space (even a digital one) becomes significantly more complicated when participants are dispersed and not fully familiar with each other, relying only on their mobile phones to access an IVR. How do we begin to understand what constitutes participation in such a space? Following boyd (2006) on blogs, we argue that IVRs can and should be understood as a media with their own sets of affordances and constraints. Our approach adds value to the existing literature on materiality and mobile mediated participation because while CGNet Swara was a novel technical approach at the time of its launch in 2010, other voice-based/IVR participatory systems are likely to follow. These current and future systems cannot be explained or understood strictly through the existing literatures on text-based Information and Communication Technologies (ICTs) wanting to create participatory spaces..

Conspicuous displays of participation on Swara can be located in the act of placing a call to record a message or to listen to content. Although these acts can be easily recorded and quantified through phone logs to convey a measure of participation, they will tell us little about users' experiences with the IVR or their processes and rationales for or understanding of enacting participation via their mobile handsets. We turn to a phenomenological approach to describe the way Swara became a recognizable artefact that could herald change in the lives of its users. As pointed by Traudt, Anderson, and Meyer (Traudt et al., 1987), this allows us to foreground user experience as a conscious activity encompassing intentionality and reflexivity.

ICTs, Participation, and Development

In the words of Sherry Arnstein,

> *Citizen participation is a categorical term for citizen power. It is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. It is the strategy by which the have-nots join in determining how information is shared, goals and policies are set, tax resources are allocated, programs are operated, and benefits like contracts and patronage are parceled out. In short, it is the means by which they can induce significant*

social reform which enables them to share in the benefits of the affluent society (Arnstein, 1969, p. 216).

These (re)negotiations of power, inclusion, and benefits are as varied as societies in which they take place, and we take the general idea of citizen participation as an established, albeit multifaceted and dynamic property of human organization. Along the way, momentum and enthusiasm have grown around about the roles that ICTs play in facilitating and strengthening citizen participation. We also accept the general frame that ICTs can serve as an "architecture of participation" (O'Reilly, 2004) that enables, influences, and structures citizen participation, albeit in multifaceted and dynamic ways. Indeed, our inquiry sits at the intersection of three current discussions around these lines, *citizen journalism*, *mediated social movements,* and *participatory socioeconomic development*.

Under the banner of 'citizen journalism,' ICTs have been praised as a way to reconfigure the traditional roles of editor as reporter and reader and to allow more people to be involved with the gathering, processing, and sharing of 'news' that are relevant to them (Allan & Thorsen, 2009; Domingo et al., 2008). Citizen journalism extended beyond traditional mass media outlets, using new digital forms that include blogs and video hosting (Figueiredo, Camara, Prado, Albuquerque, & Câmara, 2009).

An overlapping theme of mediated participation infuses the role of ICTs in reconfiguring and amplifying social movements (Castells, 2013). For example, the use of social media tools in the Arab Spring invited the analysis and ongoing debate concerning the networked and collaborative nature of digital media in facilitated organized participation (Allagui & Kuebler, 2011; Hussain & Howard, 2013; Meraz & Papacharissi, 2013; Zuckerman, 2010).

Finally, a a third strain of research and practice often falls under the general banner of Information and Communication Technologies for Development (ICT4D). Within ICT4D, many conversations revolve around the use of ICTs to allow more citizen/stakeholders' *input* into the processes underpinning social and economic development, particularly in the Global South,. The catch-phrases of 'participatory development' and 'ICT4D 2.0' (Heeks, 2008) illustrate how "bottom up" purports to have replaced "top down" and how ICTs are seen as a way to extend (if not mirror) consultative process at the village and community levels (for reviews, see Bailur, 2007; Pettit, Salazar, & Dagron, 2009).

Increasingly, ICTs are making possible alternative infrastructures for communication that are harnessed by 'grassroots tech groups', as described by Hintz and Milan (2010). These grassroots tech groups aim to counteract information and media hegemony by making available mobile and Internet-based communication platforms that vary from email groups and IVR platforms. The affordances of the ICTs help circumvent the dependency on mainstream media groups and enable social activists to engage in direct action to make their voices heard, allowing them to articulate their agendas and become participants in their own quest for development.

Figurative, not literal voice

These threads of theory and practice concerning ICTs for participation are illustrative of general domains in which the roles of 'voices' are contested and important. However, our own inquiry does not take for granted the idea that these myriad architectures, deployed against different challenges in different contexts, are facilitating or interacting with the idea of "voice" in the same manner. Even as ICTs enable the production and sharing of plurality of voices, they also raise questions about the 'politics of listening' (Dreher, 2009, 2010) which cautions that an ability to speak up does not always carry with it an assurance of being heard. The challenges that participatory 'voices' face in being heard and recognized are an integral obstacle in raising a participatory media's profile. The case of the IVR, then, allows reflection on the use of actual voices (IVR as its own medium) and on the figurative use of the term in broader conversations about ICTs and participation.

Amidst the research and rhetoric exploring or promoting these processes, in many instances, the concept of voice is invoked and captured only figuratively. For example Lim (2012, p. 243) notes, "Social media, especially Twitter, and global media allowed a world-wide audience to listen to the voice of the Egyptian opposition rather than to the state's point of view". Hassid (2012, p. 226) also used the term "radical voices" to refer to dissenting Chinese bloggers in the context of the fully text-based media of blogs. These blogs illustrate the evocative power of voices from around the world called *"Global Voices* (Zuckerman, 2007) and a crowdsourcing platform powering text messages for citizen action called *Ushahidi* (testimony) (Okolloh, 2009). Audio-based systems, like the well-established community radio movement (Madamombe, 2005); digital experiments, like interactive radio (via a handheld recorder) Sterling, O'Brien, & Bennett, 2009); and vignettes shared via multimedia message MMS (Bar et al., 2009) are only a subset of the systems claiming symbolic connection with "voice". Instead, text format including SMS, tweets, blog posts, and letters to the editor remain at the core of searchable, reproducible, and mediated public discourse (Boyd & Ellison, 2007).

While recognizing that giving voice to people is central to any system that claims to be participatory, the systems mentioned above remain symbolic and figurative in their employment of the physiological properties of 'voice'. The investigation of voice as an active literal medium for participation remains underexplored. As a system that harnesses voice literally to allow non-literate as well as non-Internet connected populations to enter public discourse, CGNet Swara affords an opportunity to extend the participatory potential of ICTs to a system that actively integrates the medium of voice as its primary platform.

IVRs as a participatory medium

Our analysis of Swara ("voice" in Hindi) suggests that in IVR, voice is both the *substance* of the participation and central to its *symbolic interpretation*.

IVR systems integrate telephone service and a computer; they facilitate communication through pre-recorded voice prompts that users respond to by inputting numeric choices from their telephone keypad. Some IVR systems also record or interpret the user's voice. IVRs appeared in the early 1990s, deployed by organizations to save labor costs on staffing the telephone. From booking cinema tickets to checking bank balances to posting voice personals, a myriad of somewhat-unsatisfying IVR experiences became woven into the lives of telephone users (Katz et al., 1997). For something so widespread, IVRs and voicemail have received relatively little attention in research as media on their own. Exceptions to this paucity tend to be domain- or application-specific, identifying ways in which IVRs may influence various outcomes, ranging from persuasion to organizational effectiveness (e.g., Bauer, Truxillo, Paronto, Weekley, & Campion, 2004; Duthler, 2006; Naylor, Keefe, Brigidi, Naud, & Helzer, 2008).

Recent efforts of the ICT4D community have turned to IVRs to make databases more accessible to low-literacy, low-resource users. Examples include audio wikis (Ford & Botha, 2007; Kotkar, Thies, & Amarasinghe, 2008), spoken-web browsing (Kumar, Agarwal, & Manwani, 2010), knowledge platforms for agriculture (Patel et al., 2012; Plauché & Nallasamy, 2007), a mobile phone-based group messaging system (Odero, Omwenga, Masita-Mwangi, Githinji, & Ledlie, 2010), and health (Sherwani et al., 2007). In these systems, the IVR may offer a superior interface relative to alternatives, like text keyboards or mice, and raise interesting implications for digital inclusion, but they are not the focus of this paper. We suggest that a subset of IVR deployments can be labeled as "participatory IVRs", that is, systems in which the technology has been selected specifically to allow for greater *two-way interaction between individuals and civil society*. Participatory IVRs can be self-contained, as in the case of low-cost group messaging platforms for rural areas (Odero et al., 2010), or they may focus on linkages between IVRs and other media, such as radio (Koradia & Seth, 2012). These deployments may run on the same software as applications in commerce or entertainment, but both the intention of these systems and the inherent complicated symbolic invocations of voice and inclusion set them apart and complicate their assessment as a medium. We suggest that given the conceptual and symbolic complexity surrounding participatory IVRs, it is not sufficient to assess interface effectiveness or even development outcomes. Participatory IVRs also need to be understood in ways that account for users' experiences and beliefs about the system as received and appropriated (Tacchi, 2012), and the alignment of expectations between system architects and users.

Background on CGNet Swara: From Internet to IVR

As we detailed in Mudliar, Donner, and Thies (2013), CGNet Swara evolved from CGNet, an Internet mailing list that was generated in 2004 to facilitate dialog between people interested in the state of Chhattisgarh, India. Chhattisgarh has a particularly sensitive political

context, with a large population of indigenous citizens and episodes of violent insurgency between rebel forces called Naxalites and Indian security forces. These challenges are emblematic of a sense of marginalization that the state feels from mainstream India, arising from the feelings of economic and social inequality. With Swara (which means 'voice' in Hindi), which began operations in February 2010, CGNet was able to include people who had no access to the conventional Internet but who could access a low-end mobile phone. Using an open-source IVR server, Swara allows people to record and listen to messages. A trained journalist who plays an editorial role moderates their messages, checking the content for factuality and other errors before releasing it for consumption (Mudliar, Donner, & Thies, 2013). Further, audio posts selected for release are posted on the Swara website with a text summary in English.

Methods

The analysis in this paper is drawn from 42 interviews conducted with Swara contributors, listeners, beneficiaries, potential listeners, journalists, and bureaucrats. Our interviewee base was diverse, to reflect the different stakeholder groups with which Swara interacts in the normal course of its functioning. The Swara ecosystem comprises a range of different actors representing interests of various users (Mudliar, Donner, & Thies, 2013). Accordingly, we conducted the interviews with users, journalists, and government administrators who have interacted with Swara in the course of their professional duties.

Most interviews were conducted during a two-week-long field visit to Raipur, the capital city of Chhattisgarh state, and four other districts in the state, Jashpur, Sarguja, Raigarh located in the northern and north-eastern part of Chhattisgarh and Rajnandgaon, in west Chhattisgarh approximately 49 miles from the capital Raipur, which is in central Chhattisgarh. These districts were specifically visited owing to contacts established with users during preliminary phone interviews. Some Swara users were recruited by calling phone numbers that were publicly announced on the portal; others were contacted through the phone numbers that had been logged by the Swara server. The interviews were conducted with the explicit verbal consent of the interviewees and care has been taken to anonymize all names and identifying features of the interviewees while reporting the analysis. Travel to all the sites was undertaken by a combination of trains and public and private bus transport systems that were commonly used for everyday commuting in the state. The settings that informed the context of the interviews included protest meetings (on issues such as non-payment of wages and land acquisition by mining corporations), interviews with state bureaucrats, as well as mainstream media journalists. Traveling in commonly available means of public transport to visit participants and the settings native to them were part of our broader methodological design that strived to experience firsthand the settings in which Swara was being used in order to better conduct a phenomenological inquiry of the Swara

experience. When possible, we conducted interviews in participant's homes and visited with them the places and people whom they had reported on, on Swara in order to locate more appropriately the context of their experience and use of the IVR platform.

Analysis

The User

We begin with a scrutiny of the users themselves in order to identify their use of IVR systems based on the circumstances of their life in Chhattisgarh. As Fischer (2011) noted, one of the challenges that systems looking to foster a culture of participation face is that individuals are motivated in different ways to do different things, which results in varying levels of participation. Typically, systems supporting participation have few members in the beginning and very little content to attract newer members.

As of December 2012, Swara received contributions from close to 715 distinct callers, and more than 18,000 distinct callers have logged in as listeners. Overall, 10% of callers generate about half the total content by volume, while 10% of the most active listeners are responsible for close to 61% of the calls (Mudliar, Donner, & Thies, 2013). These figures are consistent with the experience of most systems that host user generated content as well as with the literature on socio-technical systems of participation, which notes that most participants begin as consumers, with only a small number taking on the roles of contributors (Ochoa & Duval, 2008; Preece & Shneiderman, 2009).

However, the call log statistics raise the following questions. To whom are the Swara users listening and what content are they generating on the IVR? How do their contexts inform and constitute their experience of IVR participation? When we asked about the participatory potential of Swara, one prominent senior editor of a local newspaper pointed out that expecting the weak defenseless tribal population to speak over a mobile phone on a newly launched system that they knew nothing about would not happen overnight, especially given the political situation in the state (Mudliar, Donner, & Thies, 2013).

When I listen to the reports, I know these are not tribals who are speaking. These are not *adivasis* from Bastar (a tribal dominated area in south Chhattisgarh) who are picking up the phone and talking. These are what I call civil society actors because they have the confidence and the capability to indulge in the kind of work that makes participation on Swara possible.

Indeed these 'civil society actors' formed the bulk of Swara contributors. Their education coupled with their social activism afforded them the ability to use their agency to transcend caste and tribal identities in their professional work.

Introduction to Swara

Apart from an initial kick-off training session involving a few dozen activists and journalists, Swara depended on word-of-mouth generated by this workshop to create awareness about the system. The founder and moderator, who grew up in Chhattisgarh but is now based in Delhi, relied on his own social network of local journalists and activists in the state to spread the word about Swara.

Although India's cell tariffs are among the lowest in the world, the cost of a phone call can still be a burden. Since most people in India pay-as-they go for calls, 'airtime' is tracked carefully (Zainudeen, Samarajiva, & Abeysuriya, 2005). Hence, Swara subsidizes the cost of the call, allowing users to place a 'missed call' to the server, which then calls the user back. The 'missed call' feature appeals to users who are familiar with its norms of mutually-negotiated cost redistribution (Donner, 2007). According to Jaya, a frequent Swara caller, this part is the easiest: "When I talk about Swara, I tell people that all they have to do is give a missed call. Everything else starts from there."

When a call is first connected, users hear the moderator's voice in Hindi, "Comrades, CGNet Swara's services are free for some time. So, please end the call and wait for us to call you back." The wait generally lasts between 4-5 seconds. Once the user receives a call back from the server, the following message is played, "Welcome to CGNet Swara. To record your message, press 1. To listen to a message, press 2." The missed call and the recorded voice are the first dimensions of Swara that the user encounters, providing the first outlines of the system even before they interact with the IVR to generate or access content. Although the greetings remain anonymous, they establish a number of essentials: 1) Swara is a free service; 2) It is supervised by a male voice who, although absent for the moment, appears to have a real presence; 3) He welcomes callers as 'comrades'; and 4) He conveys directions about actions as soon as the call connects. Thus, the moderator's voice serves as an important, early sense-making trigger to users (Griffith, 1999). One listener, unfamiliar with the organizational composition of Swara stated, "I really don't know who is running this system. I think it must be some intellectual person from what I understand, based on the voice and the content."

Though Swara's recorded message reveals certain facets about its mission, it still appears insufficient to get callers to immediately record messages. Swara does not state its agenda or declare its mission in the welcome message in any way. Not surprisingly, almost no user recorded a message the first time around and most users admitted listening for a while to understand the system. Sandesh, a health worker, explained:

> *The first time I dialed, I heard this voice telling me to press 1 or 2. I pressed the button to listen because I did not want to talk without knowing. I dialed a couple of more times later and thought it was a good idea. After that, I started recording myself.*

While some users choose to record spontaneously, consciousness about being heard in public led others to write the content of their message first. Veer, who dreamt about being employed by a professional news organization someday, used Swara to practice and display his abilities. He stated, "I write down roughly what I plan to say. I then run it over in my head or read it out. After that, I dial and record my message."

These experiences from some of the earliest users of Swara demonstrate how the process of enacting participation on Swara first began. As these experiences slowly began making their way amongst locals active in community work, Swara gathered a small group of members who began to create a practice of recurrent use of the system. Being a new system, awareness about Swara was only slowly beginning to take root, which resulted in a sample skewed towards people who though seldom economically prosperous possessed a degree of social awareness and education that they were employing even before their introduction to Swara to mediate with government officials and journalists on behalf of disadvantaged people in their communities. The nature of their off line work is directly reflected in the content of Swara.

Since its launch, CGNet Swara has published over 2,000 reports and received over 130,000 phone calls. Most of the content recorded on Swara takes the form of news stories and grievances that range from wage payment delays to lack of civic amenities. Some callers also recorded songs and poetry, although they are few in number (Mudliar, Donner, & Thies, 2013).

Given the kind of content that contributors were recording, we asked them whether they had encountered any pushback from the government or rebel forces in their work and use of Swara. The most common response that we received was that, "I have nothing to fear. I am speaking in favor of the people and their grievances." Notably, none of the content on the portal directly addressed the rebels in any way; instead, contributors would 'speak' to the government and ask for redressal on their grievances and other civic issues. While no contributor reported experiencing any overt threat from either the government or the rebels due to their use of Swara, some contributors, like Jeet, a 43-year-old freelance radio journalist, dramatically whispered when being interviewed about his experience of using Swara, "The government is scared of Swara. I have heard that it has put its secret service on duty to track its content and it thinks that the moderator is linked to the rebels."

The moderator on his part said that he is very aware of the perils of trying to experiment with an initiative like Swara, given the situation in Chhattisgarh. Like so many other 'news' platforms, whether traditional or citizen-sourced, the editor/moderator plays a strong role in shaping the tone and essence of the content portrayed. According to the moderator, messages have to be fact-checked, which can be tricky in a conflict-ridden state like Chhattisgarh. However, he did not report any threats from the government or the rebels that criticized his work with Swara.

Recurrent Experience

We were also interested in how frequent users experience Swara. What makes them return to the IVR repeatedly? Suresh, a volunteer activist fighting against wage delays in the National Rural Employment Guarantee Act (NREGA) spoke about how he continued to use Swara over his old practice of directly meeting officials and journalists to present the cases of delayed wages. "I can speak to officials directly about wage delays, but I am going to continue with Swara because it is an accessible platform that can be used for wider dissemination without depending on journalists." Suresh also reported that ever since he had begun using Swara, government officials who were earlier lax in their responses were now requesting him to refrain from posting on the portal and promised prompt action if he approached them directly instead.

Suresh's practice of using Swara illustrates the interaction between the technology and the user and demonstrates the process of intentionality and reflexivity that dictates the way users incorporated the Swara experience in their lives. For Suresh, Swara did not constitute or generate a participatory act on its own. As a volunteer activist, Suresh was already practicing participation and engaging with the government to resolve issues that were independent of and pre-existed before his use of Swara. However, following his introduction to the IVR system, he modified his practice after recognizing that the IVR had forced a change in the norms that had earlier governed his relationship with government officials and journalists in his favor. Though he personally knew the government officials and was even assured of action by them on his grievances, Suresh decided to forego his regular face-to-face interaction with the government in favor of enacting his participation on a voice portal because it publicized grievances and brought them into the public domain, putting pressure on the officials to aim for a quicker resolution.

Swara also led Suresh to change the ways in which he communicated with his junior activist colleagues. While earlier, his colleagues would be required to keep him informed about cases and developments every couple of days through their mobile phones, Suresh, as their team leader, now directed them to phone in reports directly on Swara. Said Suresh,

> *"When I began using Swara regularly, I told them to contribute to Swara instead of phoning me every day. Now I just dial the number every day and listen to all the reports there. It simplified the time we spent appraising each other about new developments, while also contributing content to Swara. I feel that a system like this should be supported, so we decided to generate content."*

Suresh's recognition of Swara as a system needing support and encouragement is a salient point for understanding how early users experienced Swara and why they began to participate in the IVR. Recognizing the support that an alternative form of media could serve in his activism, Suresh was concerned with generating content for the system to encourage its existence. Drawing upon the affordances of Swara that allowed users to contribute content

knowing that it could be retrieved and listened to later, he and his colleagues also appropriated Swara into serving their specific needs emerging from their own requirements of streamlining communication amongst themselves. Suresh was not alone in re-fashioning Swara for his own requirements.

Yet, another way in which the users experienced Swara concerned its utility as a medium for broadening and maintaining the social network of its uses while also serving as a surveillance tool. Jaya, a 42-year-old woman social activist who was contributing content on various local issues, ranging from bad roads to discrepancy in farmers' compensation, stated that Swara became a way to know more about the work of other women activists whom she would meet at conferences. As her new colleagues began to report cases on Swara, Jaya found herself using Swara to scrutinize and infer the kind of work they were doing in their districts. She said,

> *"I was introduced to Swara because the moderator is a friend of our community leader. I got the number from him and began using it. I was selected to go to a women's conference in our state a few months ago, and I distributed the number to many other activists whom I met there. Some of them began using Swara to report on cases from their districts, and I sometimes call them up to discuss cases that I want to know more about. I can also monitor the kind of work and who is doing it when it gets reported on Swara."*

The initial experiences of Swara that both Suresh and Jaya recounted not only fueled acts of contribution and listening that were the most visible forms of participation on the IVR, but also extended the ostensible aim of social inclusion reflecting Swara's agenda to include enactments, such as making internal communication amongst a group and offline work contexts more visible to peers as in the case of Jaya. These practices emerge, as Orlikowski (2000) noted, from repeated engagements with the technology artifact to give rise to a technology-in-practice that is personalized and "edited" according to each user's needs.

Summary: Framing CGNet Swara

Orlikowski and Gash (1994) employed the notion of technological frames to examine the understanding and specific of the technology. In the absence of concrete understanding of how Swara operates beyond the placement of a call and the recording/listening of a message, the larger picture of Swara is colored by strokes of the users' imaginations. Swara illustrates the perceptual shape that participatory media takes in the minds of a low-literacy population that finds itself performing the roles of both the 'productive consumer' and 'dispersed citizens' (Couldry, 2004) who may or may not know one another.

As a form of participatory media, Swara represents an alternative to the mainstream to build its own ecosystem of imagination, use, experience, expectations, results, and action. Most of the content contributors who agreed to be interviewed were found to share a common interest in social activism. These users form a part of an interpretive community that uses Swara as a part

of the larger shared realities reflecting their communities and interest (Lindlof, 1988; Rauch, 2007).

As a voice medium, Swara's value becomes significant only if a 'voice' is also 'heard.' It is perhaps the reason why Tacchi (2011) recommended that incorporating voice as a feature of participatory development should be done while considering not only access to produce content, but also the kind of relationship that the technology facilitates between speakers and listeners.

As an experiment in participatory media that is barely 2 years old, the reviews of Swara's influence are insufficient to draw conclusive evidence about the quality of the relationship that exists between users and their audience. However, the analysis of the data suggests that content contributors and listeners imaginatively construct both speakers and their audience who—although known to a certain extent—remain largely unseen and unknown. At this stage in their familiarity and usage of Swara, our participants remained largely convinced that their voice was heard.

Users add their own interpretations regarding the disembodied voices that they encounter on the IVR. For example, having heard about the properties of the Internet but lacking access to it, some users believed that their voice was transmitted directly onto the Internet to an international network of audiences. Thus, for Shirish, a daily wage laborer, talking on Swara is equal to a computer. "This computer will put my voice on the Internet and take my voice to the outer world," he says, convinced that once on the Internet, his appeal for a wage increase will be heard and acted upon.

The imagination of the contributors is twofold. Not only does the technology represented by the features of the IVR convince them that they *are* being heard, but their conviction also extends to *who* they think is listening to them. Some of the quotes in reaction to the questions about imagined audiences range from "people in the cities listen to me when I speak" and "I tell them that people globally will hear them if they speak" to more pragmatic expressions of "I know the social activists are listening because I am the one who gave them this number."

Who the imagined audience is, can also be gleaned from whom the contributor chooses to address while recording messages. The addresses vary from general listeners of Swara to specific people, such as the NREGA commissioner, the chief minister, or certain social activists. In his frequent appeals to better the lot of the daily wage laborers, Farukh directly addressed the government. He said, "I know that the chief minister and the president of India listen to Swara. They are supposed to know about everything, so I am sure they are aware of my demands too."

To determine who is speaking and who is listening to Swara, both listeners and contributors draw their cues from various sources. These range from details revealed by callers, such as names, profession, location, and kind of stories reported, to the frequency of callers' contribution. According to Umesh, only the educated listeners and speakers contribute regularly to Swara. He said, "I can make out through their names. Their stories tell me that they are educated and have made some progress, so they feel like doing something to improve the

society." Others invoke the economics of mainstream news media production that denies "people like us" a place in the news. Prem, who was involved in protests against land grabbing, stated, "I feel that today, money is required for everything. Thus, if you want to make your voice heard, you need to have money or know a journalist. The ones that don't have the money turn to Swara."

Not all Swara users are longtime activists. Some like Veer, view Swara as a place where they transform into social activists—an act that has spilled over into their everyday interactions with people. Describing what he thinks of Swara, Veer said, "It is the place where people who work for social welfare give suggestions to improve society. Like them, I too want to bring peace to the country." Veer, a farmer, uses Swara in aspirational ways to perform a role that is far removed from his "offline" identities. From the deep jungles of the state, Veer reported stories that catch the eye of journalists in mainstream news outlets and he enjoys the attention it brings him.

> *I feel that after I record on Swara, publications, like the Times of India and Tehelka, pick my stories and publish it. Journalists keep in touch with me over the phone and ask for me when they visit. I, too, would like to be a journalist like them some day.*

Veer reported that his activities on Swara have made him notorious amongst the local police and that he is often called for questioning. "I feel that I should be doing something for my community. There is a lot of injustice. Of course, I experience all kinds of pressure but I don't think that I am doing anything wrong."

Like Veer, Yadav, a daily wage laborer in Raipur, the capital city of Chhattisgarh, was also recently introduced to Swara. Yadav's recordings border on the poetic, with calls for a mass revolution. Yadav first heard about Swara when his co-passengers on a train were placing calls to Swara and discussing the stories. Yadav joined them in their discussion and became a regular contributor, thus earning a reputation as an activist amongst his friends. He stated:

> *I not only post on Swara, but I also make people listen to it. I feel that everyone has something to say, so I try and help them say it. It is not sufficient that I record. I also have to get others to record and listen.*

Conclusion – IVR as a Participatory Medium

The comments from Veer, Yadav, and other users help illustrate how the contours of IVR practice flex and take shape when participation is no longer practiced under the conditions of co-presence (as in a community meeting), but rather through remote, virtual, and asynchronous interactions where listeners and speakers recognized each other only by the sound of their voices

and little else. In these contours lie three elements underpinning the generalized notion of the "participatory IVR" as a medium:

First, like any computer-mediated communication medium, participatory IVRs have specific rules, actors, norms, and affordances. Some of these are inherent to all IVR systems in terms of the linearity of spoken speech, the lack of facial or visual cues, and the asynchronicity of contributing versus consuming content. However, other affordances and constraints may vary by the particular instance of a participatory IVR: the role of the moderator, the length of the message, and the emergent cues about what kinds of messages are appropriate are likely to be set according to a structurational (Orlikowski, 2000) process of negotiation and happenstance. In the case of Swara, these cues encouraged telling stories and sharing grievances that would fascinate journalists and influence government officials. Researchers and practitioners looking at other systems should pay close attention to the emergence of the norms on participatory IVRs and evaluate critically whether they are shared among all stakeholders in the system.

Second, the Swara case leaves us enthusiastic about the potential of participatory IVRs to bring new perspectives and participants into civil society, particularly those for whom text-based participation is impossible and PC-based participation is unaffordable. Thus far, the reliance on literacy for ICTs to translate people's sentiment into 'revolutions' and 'uprisings' has been overwhelming. The Filipino middle class was galvanized by text messages on their mobile phones to publicly protest against President Estrada (Rafael, 2003); and more recently, Meraz and Papacharissi (2013) acknowledged that common citizens in Egypt were elevated to prominent gatekeeping roles on Twitter alongside social elites. Both instances demanded digital and conventional literacies to be a 'participant.' In contrast, participatory IVRs demand little in terms of textual or technical literacies from users.

Finally, and somewhat conversely, the matter of differentiated and specialized roles has to be considered. The role of a participatory IVR in shaping civil society discourse may not be completely egalitarian (Mudliar, Donner, & Thies, 2013). The moderator has played an important role in Swara as both gatekeeper and champion. Perhaps particularly important here is the way in which literal voice (in the local language of Chhattisgarh) is transmuted into text (in Hindi or English) on the Swara website before it is consumed or understood by people outside of Chhattisgarth who access it via the website or through newspaper reports via mainstream media outlets.

It is not by accident that we have avoided theorization or discussion of the "role of the mobile phone" in civil society by focusing closely on a particular function (not just the IVR but also the participatory IVR). This allowed us to assess the interaction among digital systems, human moderators, and content contributors with more specificity than would have been possible if we were simply discussing the mobile phone, in general.

That said, more work should be done to study other participatory IVRs in settings beyond Chhattisgarh. These systems will certainly proliferate; thus, it will become necessary to

understand their contributions and constraints relative to other forms of participatory media and to elucidate a growing set of options for mediated civic participation now available to billions of people via their mobile phone.

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