TIMELY RELATIONS IN RURAL AFRICA

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Abstract: Time is a key aspect of cross-cultural ICT4D research and practice, but rarely the focus of discussion. In this paper we, a group of researchers with diverse backgrounds and residences, aim to open up a dialogue about how different conceptualizations of time affect cross-cultural ICT4D research. We do this by reflecting on our long-term participatory research, design and deployment with inhabitants of Mankosi, in South Africa's rural Eastern Cape. We start by considering different concepts of time from a critical anthropological perspective and propose that ICTs embed and propagate 'modern' values in relation to time. We then claim, by using concrete examples from engaging with Mankosi's inhabitants in ICT4D projects that time contributes to dilemmas and paradoxes. This leads us to advocate a deeper sensitivity to the values associated with, and practices that implicate, time in method(ology) and resulting artifacts can significantly enhance studies in ICT4D.

Keywords: Rural Africa, Time, Synchronous, Asynchronous, Synchronic, Diachronic, Monchronic, Polychronic, Rhythms

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1. INTRODUCTION

Little is time-less – not the places we inhabit nor the languages we speak, neither the technologies we use nor the relationships we forge. Yet, while common to all of life, and all of us, time is not a neutral medium (Hörning *et al.*, 1999). We experience, conceptualize, and manage time variously. We became acutely aware of this diversity in our ongoing studies in South Africa's impoverished, rural Eastern Cape. Our long-term participatory research and deployment of asynchronous and synchronous communication systems revealed that approaches to time have critical implications for studies in developing regions but that these are rarely discussed in ICT4D. In this paper we seek to illustrate consequences and opportunities yielded by diverse perspectives on time. We start by considering different constructs about time and propose that ICTs embed and propagate modernist values in relation to time. Next we outline our engagements in Eastern Cape that informed a dialogue to explore ideas and perceptions about time. Then we relate the theoretical concerns, introduced in the first half of the paper, to concrete interface, technical and organizational examples in our work. This leads us to claim that deeper reflection on the practices that implicate time in method(ology) and resulting artifacts can significantly enhance research and theory in ICT4D.

2. BACKGROUND

To build our argument we illustrate attempts to define different qualities of time, which we then interrogate, through a critical anthropological lens. We claim that such definitions embed 'modernist' worldviews and that differences between cultures and locales are more nuanced. Then we suggest that ICT processes and artifacts, including our own, embody modernist attitudes towards time, and this can lead to dilemmas and paradoxes in cross-cultural research.

2.1 Constructing Time

Orlikowski and Yates (2002) argue that everyday actions reproduce different temporal structures that shape the rhythm and form of practices. Societies establish and reinforce temporal structures, and express these in various quantitative or qualitative ways – such as '8am', 'dawn', 'rush-hour' – and with reference to different objects (e.g. clocks, the sun, tides). However, all temporal structures, around both clocks and events, are shaped by action as much as they shape action. Many approaches in cross-cultural ICT4D refer to dimensions along which societies differ and some refer to different priorities in actions that shape time. Hall's (1959) taxonomy, for instance, distinguishes monochronic (e.g. North America, Northern Europe) and polychromic societies (e.g. Latin America, Africa). Monochronic actions prioritize schedules and divide time into discrete, quantifiable blocks. People use time to plan, establish and maintain schedules, expect personal time, regardless of social ties; and, to do one thing at a time without interruption. In contrast, Hall considers that actions in polychronic societies construct time as inseparable from human relationships. People use time more fluidly – they expect interruption, switch between various activities and do not expect punctuality or for personal time to be subordinate to personal ties.

Considering constructs and practices of time through a critical anthropological lens leads to questioning some of the assumptions embedded in cultural taxonomies such as Hall's. Tim Ingold, for instance, has explored differences in attitudes towards work and time between 'pre-

industrial' and 'modern' or 'industrial' societies. He considers pervasive dichotomies that affect everyday life in modern societies, such as between freedom and necessity; leisure and work; and free-time and clock-time. Ingold's analysis challenges and, largely dissolves, differences constructed in "the opposition between the 'West' and the 'Other' " (2000, p.337). Ingold explains that in modernist dichotomies "the time inherent in personal experience and social life is *disembedded* from the time of work or production". The time of work/production, or clock time, "appears objective and impersonal, *extrinsic* to social relations, and governed by laws of mechanical functioning that have no regard for human feeling" (Ingold, 2000, p.328). A basic incongruence seems to arise in the time determined by clocks and time in undertaking tasks or embodied, skillful activities. Within task-orientation "there can be no real distinction between work and social life", as "time is the movement or flow that inheres equally in both" (Ingold, 2000, p.325). 'Pre-modern', pre-industrial societies are often characterized as task-, rather than clock-, oriented. However, task-orientation also persists in industrialized societies, particularly in the places where people feel 'at home' (Ingold, 2000, p.330) and members can notice its incongruence with the clock-orientation of work; such as when professional obligations, schedules, and deadlines overrun other aspects of life. People in these 'modern' societies have also learnt to cope with dissonance between clocks and tasks and honed ways to co-ordinate their "movements with the passage of time as measured by the clock" (Ingold, 2000, p. 332-3). This is a new type of embodied, socially embedded skill that people apply alongside many other tasks throughout any day. So if task-oriented attitudes differ between so-called modern and 'developing' societies then, probably, the difference exists within modern lives. This demands asking how do modernist concepts about time embedded in the work of research in ICT4D affect practice?

2.2 Concepts of Time Embedded in ICTs

A paradox arises in introducing ICTs that accelerate the pace of life in 'developing' regions when elsewhere, in 'developed' regions, we recognize that time prosperity and time pressure affect well-being (Sengers, 2011). Recently post-colonial scholars have drawn attention to the ways that meanings embedded in ICTs can compromise their sustainability, have ethical consequences in local appropriation and/or have long-term effects in a society. Learning from African author and philosopher, Ngũgĩ wa Thiong'o (2005, p.153), Merritt and Bardzell (2011) consider the inseparability of communication and culture in the context of ICT4D and the meanings imposed through the languages that run through design processes and artifacts. Semiotics of media cannot be separated from practices and values. Meanings and syntax embedded in a technology introduce new culture components that may discord with a person's everyday experience and familiar environment (Merrit & Bradzell, 2011).

We contend tensions can arise because technologies to support communication and information sharing privilege modernist concepts over the numerous alternative ontologies about time (Green, 2012). Monotemporal, standardized, invariable, context-free representations are necessary for converging social and mobile technology (Urry, 2007) but can detach us from local settings. Our work elsewhere in rural Africa shows how our own ways of thinking about time can obscure important local relations. For instance, we did not notice at first how movements shaped rural Namibian's use of spatio-temporal references. Rural participants in our studies conceptualize both time and location as a continuum, have good recall of chronology, and construct time relative to others – yet the very abstractions we used in the ICTs we deployed disrupted these temporal relations (Bidwell & Winschiers-Theophilus, 2012).

Research reported in the Anglophone literature tends to interpret relationships between ICTs and time using constructs of *efficiency* and *productivity* and values associated with "busyness"

(Leshed & Sengers, 2011). From this perspective ubiquitous computing can enable multitasking, flexible scheduling, new ways to use 'gaps', reduce the work involved in co-ordination and dissolve work-home borders. For instance, collaborators distributed in the US, Europe, China and Japan were positive about tools that enabled them to synchronously meet, despite global time zone differences, often beyond the normal workday (Tang *et al.*, 2011). Yet, ubiquitous computing can also contribute to a sense of conflict and loss of control (Leshed & Sengers, 2011).

The same constructs of efficiency – activity per unit of time – are implicitly applied in ICT4D. Like many authors studying ICT use in developing countries, Wyche *et al.*, (2010) base insights on relationships between ICT and transnational workers' daily rhythms in Nairobi on data that they gathered in several one-off encounters during an intense, short-term study rather than as phenomena that develop *with* time. The organization of such studies yield *synchronic* data, manifest an economic approach to time and, further, reveal this priority to participants in studies. Thus, the data inherently inspires design ideas that privilege the authors' perspective on time, such as their sense of the 'time-transformative effects' of ICTs, rather than local priorities or everyday rhythms in practices. For instance, "differences in social norms around email responsiveness created tensions" between coworkers so Wyche *et al.* (2010) suggest displaying the status of Kenyan workers' Internet connectivity to those in more connected settings. However, they do not consider the social power asymmetries that usually force weaker groups to synchronize their temporal rhythms to the stronger ones and can lead to resentment and dysfunction (Sarker & Sahay, 2004). This might result, say, in Kenyans feigning dis-connectivity to subvert power relations between themselves and those overseas. Indeed it appears that many researchers are unaware of the ways their own practices exert power relations. For instance, Wyche *et al.* (2010) write that some participants did not want to adopt a work culture of fast-paced email exchanges, rather than co-present communication, but that investigating conflicts between Western and Kenyan's values was "outside the scope of [their] research". To the contrary, we claim that these very incongruences are precisely those that warrant investigation.

3. METHODS

We did not intend to explore and analyse the implications of concepts about time in our studies in Eastern Cape. Rather we aimed to design and deploy different low-cost, asynchronous and synchronous systems to support communication in Mankosi. However, many experiences over 3 years revealed how perspectives on time are 'located' (Suchman, 2002) and can have consequences for cross-cultural ICT4D research and practice. Thus, we draw on insights that emerged in designing and deploying media-sharing software prototypes, running on tablets powered by solar-powered Stations (Bidwell *et al.* 2013, Bidwell *et al.* 2011) and, a solar powered wireless mesh intranet to support low-cost synchronous telephony services (Rey-Moreno *et al.* 2013). We begin by summarizing the setting and how we deployed technologies and gathered data. Then we outline our approach to integrating diverse perspectives in considering issues involving time - we use our first names to indicate the different backgrounds we bring (Table 1).

3.1 Setting

Our endevours in Mankosi, , along Eastern Cape's Wild Coast, were provoked by insights that we and our collaborators gained in nearby districts (e.g. Bidwell, 2009; Bidwell & Reitmaier *et al.*, 2010; Vuza & Tucker, 2004). Mankosi, rural Nyandeni municipality, comprises 580

households in 12 villages that are spread across 30km^2 of very hilly land. Families of up to five adults and seven children live in homesteads: clusters of thatched, mud-brick rondavals, an occasional tin-roofed 2-room dwelling, an animal corral and a garden for subsistence crops. Homesteads connect by foot-trodden paths to communal pasture, forest, taps and dams – where people graze animals, make mud-bricks, tend plots, and collect grasses for thatch, fire-wood and water. People have extensive kin across villages and many can trace their local ancestry over 5 generations. Most people walk, a few occasionally ride horses or donkeys. Households survive on $200 per month, from government grants and payments from family members who temporarily migrate for work. Like 36% of South Africa's population, inhabitants are governed by a Tribal Authority, which in Mankosi consists of the Headman, 12 Subheadmen and messengers. The Headman and Subheadmen's homesteads are sites for local administration. Headmen inherit their role patrilineally, and relate by clan to chiefs, but they can replace Subheadmen and women can take on Tribal Authority roles. The government pays the Headman a small stipend but, like the vast majority of local people, he cannot afford a car or to connect to mains electricity.

3.2 Deployments

In April 2011 we deployed two Charging Stations and two Android tablets (Figure 1 and 2) in two villages chosen by inhabitants. We also introduced the first media-sharing prototype, which mixes asynchronous and synchronous communication, and was developed by overseas collaborators (Bidwell *et al.*, 2013). We hoped people would use the media-sharer when they came to charge their phones but in the ensuing year few used it, although over 700 people charged phones at the Stations, many regularly. Thus, in January 2012 we launched an Audio Repository (Figure 1: AR) developed in South Africa (Reitmaier *et al.*, 2012). The Audio Repository shares voice recordings only and does not support synchronous communication but inhabitants continue to use it.

In April 2012 we discussed with the Tribal Authority different services that a wireless mesh network could provide and their potential compatibility with local communication. Two months later we started to create an intranet to support synchronous telephony (Figure 1: RT) (Rey-Moreno *et al.*, 2012). Since then, inhabitants have installed solar-powered public phones in homesteads in 10 villages (Rey-Moreno *et al.*, 2013) to enable calling all other public phones for free using VoIP services. In February 2013 we introduced a revised version of the Audio Repository ("Our Voices") to enable distributing audio recorded on the tablets over the network.
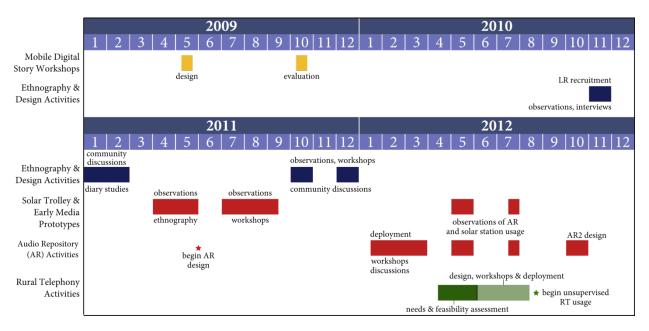
Figure 1. Timeline of previous (yellow) and current technology projects (red & green) and ethnographic and design activities (blue).

3.3 Inhabitant Research, Design & Regulation

We use Ethnographic Action Research (EAR) (Taachi et. al., 2003) to detect, articulate and solve communication problems within Mankosi in different ways. Firstly, some of us are part of a team of Local Researchers (LRs) who have lived in Mankosi since birth (Table 1). LRs gather data, translate linguistically and culturally between local and non-local meanings, advise in design and also set-up technical systems. Few local people speak English, so together we refocus interpretations as meanings evolve in studies, dialogue and events. Like most isiXhosa-speaking people locally, LRs have had little paid work before and some, including the youngest, head households. LRs tend to have had more formal education than most local people and most are literate. For the Charging Stations and media-sharing prototypes nine different LRs contributed to different tasks at different times. Two of these people continued for the Telephony intranet, and we also asked the Tribal Authority to recommend others. Despite initial enthusiasm, two new LRs did not continue because they did not feel confident in their abilities or were often away from Mankosi, such as to search for work as a qualified mechanic. So we recruited one woman, who later also got a job in a town nearby, leaving two experienced and one new LR (two men and one women) to finish the work. Secondly, some of us are isiXhosa speaking people from rural areas, close to Mankosi (e.g. Bongiwe) or a few hours drive (e.g. Zukile). Thirdly, some of us have lived in Mankosi for long periods (e.g. Nic), which means that, like LRs, we observe practices though participation and our accountability in this tight-knit community affects our lives.

Fourthly, we consider our work to be a partnership with Mankosi's governing structure as LRs insisted we consult the Tribal Authority from the start. We began by seeking approval to experiment with new systems that might benefit Mankosi and similar communities. Subsequently, we met with the Headman, at his or our request, by phone, and discussed plans, problems or ideas with him and any Elders with him. Then he held a wider discussion with the community, sometimes as part of his weekly meetings. Often 70 people (55% male, 45% female, and 60% older than 30 years) attended meetings and many more participated if we provided food (e.g. when we launched the Stations). Between November 2010 and February 2013 we met the Headman over 40 times to discuss issues related to designing, trialing, maintaining and extending the communication systems. Mostly, in meetings we (Nic, Carlos)

spoke in English, others spoke in isiXhosa and LRs translated, but sometimes we recorded meetings for later translation.

Author	Age	Male Female	Gender	Lived in Mankosi or nearby	Lived in urban areas (% of life)	Professional Perspective	Technology Focus
Nic	40s	Female	Australian-British	Most of 2.5 years	50%	Post-PhD researcher, in ethnographically informed HCI and design	Audio Repository
Thomas	Late 20s	Male	German-American	1 week	95%	PhD researcher, socioculturally inclined HCI and design	Audio Repository (Telephony)
Carlos	Late 20s	Male	Spanish	3 months	66%	PhD researcher, in rural community owned wireless networks	Telephony
Zukile	Mid 20s	Male	South African, Xhosa-African	3 months	70%	Masters researcher, in Computer Science	Telephony
Masbulele	Late 20s	Male	South African, Xhosa-African	Life-time	0%	LR, education manager and first year distance-learning undergraduate in Education	Audio Repository and Telephony
Bongiwe	Mid 20s	Female	South African, Xhosa-African	Most of life	20%	LR and Masters researcher in African Linguistics and	Audio Repository

Table 1: Varied experiences and expertise of the authors participating in the Audio Repository and Telephony Intranet studies

3.4 Workshops & Training

We ran various workshops for LRs and the wider community, which began when we trained LRs and potential operators to use the tablet and Charging Stations. Over the next nine months we undertook 14 workshops of 2-hrs to 5-hrs, with 24 people on using the first Media Sharer and with 50 people using the Audio Repository (Figure 2). We expected inhabitants to master the skills needed to independently install and maintain the Telephony intranet. Thus, we intensely trained LRs for 40 hours a week over 6 weeks, while we also experimented with ways to set up the sites and network. The experience inhabitants gained in media-prototyping studies enabled them, supervised by Carlos and Zukile, to drive the real deployment of the network. This included installing solar-panels into the homesteads selected by the Tribal Authority, constructing wooden fittings and configuring mesh nodes (Figure 2). People attended training voluntarily: a group of 4 men (aged between 23 and 60) attended more than 80% of the training; three others (2 women and a man) at least 10% of the sessions, especially those related to carpentry and solar installation. We also trained members of the homesteads that housed the Telephony systems on electricity.

3.5 Gathering Data on Communication & Information Sharing

Our perspectives on time emerged not only within design and deployment processes and associated meetings and workshops but, also, from gathering data to understand how to enable inhabitants to communicate and share information within and between villages. Between November 2010 and January 2013 we conducted over 500 interviews, individually and in groups, on communication practices, use of phones and specific phone services and issues related to cost. We began by interviewing 141 people about phone ownership and use followed by interviews with another 16 specifically about the use of free Callback services (Bidwell *et al.*, 2011). Our insights about relationships between time and communicating were enriched by gathering data on how people managed mixtures of communication in their daily routines across periods of 4 to 10 days. These diary studies involved individual or group interviews at the beginning and end and over 70 short interviews in between that reviewed phone-use since the preceding interviews. We included 12 male and female older and often illiterate owners of low-end phones, and ten younger literate owners, some of whom we interviewed by using a text-based, chat service. As part of deploying media-sharing prototypes we conducted extensive interviews with people aged 22 to 69 years including 10 women and men living near one Charging Station and shorter interviews with 40 people while they dropped off or collected phones. We also learnt about relationships between time and communicating when we explored with six male soccer players how the tablet and phones might support Mankosi's league. To monitor the impact of the Telephony intranet we surveyed a stratified sample of households from each village in 238 interviews, and are presently analyzing the results.

We used various ethnographic and auto-ethnographic methods and automatically logged use of media-sharing prototypes, wrote daily logs about Charging Station use and monitored the use of the mesh network (Bidwell *et al.*, 2013). We made ad-hoc observations of Charging Stations and prototypes use for a year and also focused observations at each Charging Station site for over 80-hrs on different days of the week and at different times of day and different times in the year. Later we walked between the Stations and homesteads of 40 people using the Station, logging our steps as we walked (Bidwell *et. al*, 2013). LRs and other people, aged 14 to 80 years, also recorded more than 50 audio or video items featuring over 60 people, which LRs translated into English later and gave insights into local values, priorities and communication styles.

Figure 2. We trained participants to use solar cellphone Charging Stations (1) and Audio Repository (2) in workshops (upper) and to build and install wooden fixtures for the phone and charging apparatus (3) and for roof-top solar panels (4). The panels charge car batteries (in 3) to power the mesh nodes (5)

3.6 Dialogical Approach to Time

Our understandings about time emerged through focused *synchronic*, one-off encounters (e.g. in interviews, workshops, meetings); and, also, more *diachronically* as phenomena developed as we went along in our research (Bidwell, 2012). To these experiences, however, we also bring perspectives located in diverse locales, disciplinary orientations (Table 1) and personal habits. Thus, we pursue a dialogue, or a method of communication that does not aim to convince other participants of the rightness of an opinion but involves respecting all involved and suspending judgment (Bohm, 2007). Our dialogue is itself composed of different time scales, accounts and tasks but for the purposes of this paper we aimed towards a consensus to integrate perspectives.

4. TEMPORAL RYHTHMS IN DESIGN & DEPLOYMENT

In this section we relate some temporal structures in Mankosi to concrete issues in design and deployment in order to consider the theoretical concerns that we outlined in the introduction.

4.1 Constructing Time in Mankosi

The temporal structures that shape, and are shaped by, inhabitants' actions interconnect with their physical environment. Time in Mankosi is mostly task-oriented and many tasks are outdoors, such as herding animals, tending gardens, and collecting water from communal taps or firewood from forests. There is no stringent 'work/clock time' for most inhabitants who participate along with nature; for instance, without electricity the day is as long as it is light and many tasks relate to the seasons (Bidwell *et al.*, 2013). Local isiXhosa language reveals how the activities of animals and seasonal cycles of plants are markers of time (Table 2). Indeed, the naming of time in isiXhosa is an act that claims social and political space and serves to define an identity (Neethling, 1996).

isiXhosa	Type	Direct translation	Figurative translation	Source
Ngenja ixukuxa	Idiom	when the dog is brushing teeth	very early in the morning	Bongiwe
Emin'emaqanda	Idiom	time when chicken lay eggs/time of eggs	mid-day 12pm	Bongiwe
xa lithi ndithenge	Idiom	when sun says 'buy me'	when sunset	Bongiwe
Ngorhatya lwemivundla	Idiom	time for rabbits to go out	early evening	Bongiwe
ixesha lixhatshwe yinja	Idiom	time is eaten by dog	it's late	Bongiwe
Unyaka onesiqhuma	Idiom	Year and a half	long time	Bongiwe
Xa kumpondo zankomo ie	Idiom	when the horns of the cattle are visible against the horizon	Dawn	Neethling (1996:58)
Eyomqungu	Name	the month of tall grass.	January	Neethling (1996:58)
EyomDumba	Name	the month of swelling	February	Neethling (1996:58)

Table 2: Examples of Xhosa Time Terms

Inhabitants do not just attend to but, also, tune their movements to the *rhythms* of the non-human environment, such as the winds; the tides; the needs of animals; the seasons and weather. So along with indexing time to the environment, inhabitants also fall in with local physical rhythms and these entwine with social life since tasks and sociability overlap. In the absence of local transport walking considerably structures time; when inhabitants wore pedometers we found that they walk at least three times as many steps of an average American each day, to meet or to gather communal resources (Bidwell *et al.*, 2013). Inhabitants often walk together and adjust their gaits to each, and more generally attend to one another as they carry out their tasks, and we noticed that they walk more slowly than external researchers. Indeed, cross-national studies show that walking pace relates to factors including social-psychological and community traits; for instance, faster paces accompany more individualistic cultures and people who move swiftly have less time for social responsibilities (Levine & Norenzanyan, 1999). In fact, actions that structure time despite of, or against, natural events and rhythms can reveal important priorities. For instance inhabitants walk outside much less on rainy days and never at night, to undertake subsistence tasks, but many always attend ceremonies and/or church services even in the rain or darkness.

4.2 Engaging with Temporal Rhythms in Interface and Interaction Design

The value of engaging with local temporal rhythms to design became apparent to us in various ways, as illustrated by the next two examples. Initially, when Thomas designed the sharing interface of the Audio Repository (Figure 3) in Cape Town, without having visited Mankosi, he experimented with standard User Interfaces (UIs). After consulting with Nicola on the phone and Masbulele in person, on his first trip to Cape Town, we realised standard UIs were incongruent with rhythms and patterns in speaking and embed 'Western' values of speed and efficiency (Winshiers *et al.*, 2007). Thus, we implemented a sharing interaction based on temporal gestures to drag-and-drop (Reitmaier et. al, 2012). Our early analysis of video of users suggests that this deliberate, slower interaction style resonates with inhabitants' actions in using and sharing the tablet and, thus, may manifest local values in communicating.
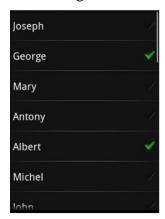

Figure 3. (Left) Initial, 'efficient' sharing interface implemention based on checklists. (Right) Redesigned sharing interaction: users share recordings by dragging and dropping them on people's profile pictures.

Inhabitants charged between 5 and 20 phones every day during the year of trialing the Charging Stations (Bidwell *et al*, 2013). However, in the past six months, the Headman started to use the solar equipment installed with the Telephony system to charge the tablet, for the Audio Repository, and reserved the original Station to charge other inhabitants' phones. We have recently introduced Our Voices, the next version of the Audio Repository, so that people can listen to recordings, created and shared on different tablets within range of mesh nodes. However, to conserve battery the Headman switches the tablet on only to record or listen to files, so we are exploring strategies to create sufficient overlap between tablets to synchronize them when they are switched on and connected to the Telephony network. Operators need to switch devices on at appropriate times to create this overlap but thus cannot be dictated by the clock, as no one wears watches and batteries of phones that provide a clock may be uncharged. Thus, we are currently exploring temporal rhythms of daily activities or events that could offer pulses for tablets to be switched on to synchronize, such as when sun movements or when cows leave corrals.

4.3 Affects in Synchronics & Diachronics of Planning and Decision Making

Community owned initiatives can take considerable time to negotiate and resolve issues since issues that might seem small within other socio-technical systems can be much larger for people whose wellness and security depend on 'working together' (Bidwell *et al.*, 2013). Meetings need to be called and people walk long distances to attend. Indeed, it often took days and

repeated attempts to confirm research activities because the phones of people involved were off/uncharged.

Our own research and deployment tasks (e.g. Nic, Masbulele) often adapted to local temporal rhythms (Bidwell, 2012; Bidwell *et al.*, 2013) but sometimes involved conflicts. We tried to avoid imposing an external timeframe for local appropriation and for deployment activities to happen at a local pace. For instance, we wanted inhabitants to handle every aspect of the Telephony network so Carlos and Zukile allowed, what they considered to be, long durations for LRs to acquire the skills to set up and maintain the network. Our overarching diachronic attitude contrasts with synchronic approaches of most ICT4D studies, but none-the-less tensions did arise. For instance, we had to accelerate some meetings about the Telephony intranet due to time that Carlos and Zukile could 'afford to' spend in Mankosi. Consequentially, men were more able than women to align with our schedule. Some men mentioned their participation created tensions at home, whereas women were not always able to participate because their identity and expected roles were constrained by other expectations about tasks. Carlos and Zukile also had to set up some meetings with the Tribal Authority before we left Mankosi and this was not always convenient to more inclusive participation. It is too early to analyse the effects of this on the realization of decisions made during these hurried meetings and their implications for the Telephony network.

ICT4D research contains deadlines for academic reports, conferences and budgets. Those of us (e.g. Nic) familiar with balancing the time practices of monochronic societies while inhabiting a society with a different priorities appreciate the opportunity for stress. Given the diverse and complex nature of the tasks involved in the Telephony network we avoided further constraining time-scales after we (Carlos, Zukile) left. However, to deploy Our Voices prototype within our funding constraints we needed to finish the network. The latter, research time constraint coincided with greater demands on LR's time; for instance, Masbulele had an increased management workload and had recently commenced his undergraduate studies. Thus, five months after Carlos and Zukile left Thomas undertook tasks on the network. Externally located researchers (Carlos, Zukile) found it difficult to interpret the effect of training and deployment time-scales on LRs, such as the balance Masbulele had to strike between the constraints imposed by funding Our Voices, his studies, his existing tasks and local social relations and a complex interweaving of many concurrent rhythmic cycles (Ingold, 2000) that shaped the activities of others involved in Telephony intranet.

5. CONCLUSION: Time to Talk in Africa

ICTs and ICT4D studies embed meanings about time. In this paper we have used examples of interface, technical and organizational issues to illustrate potential discord with local practices. Most ICT4D studies sequence events in a standardized and quantitative timeframe for limited durations, they plan temporally-referenced milestones and schedule activities according to certain external temporal structures, such as funding or academic periods that adopt an economic approach to time. These structures can compromise the time available to gain potential inspiration for UI and interaction design. Ingold's use of the terms rhythms and resonances helped to orient our discussion about the temporalities of task-oriented social life and their potential to tune ICT design and studies. We advocate increased sensitivity to the consequences for diverse constructs about time on those collaborating in, or affected by, ICT4D studies.

To engage and understand the 'pluritemporalism' (Orlikowski & Yates, 2002) that inevitably emerges within cross-cultural work we suggest gaining insight by dialogue across time. Our

interactions and opinions about time live in sets of relationships between 'them', 'us' and contexts (McCarthy and Wright, 2005). We create contexts together and we create them across time. Dialogue is also always temporal, so we hope that the provisional perspective we present will inspire further reflection about time and help researchers to continually adapt methods in response to local values and practices; and perhaps engage more deeply with "African Time".

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