

Advancement through Interactive Radio



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Overview

Advancement through Interactive Radio (AIR):

- A research project that aims to enable rural women to “talk out” about their needs, experiences and opinions on community radio.
- A technology system designed for women to meet their requirements.
- An effort to understand how information and communication technologies (ICT) can enable women’s advancement.
- A study of gender, voice, and empowerment in the context of Community Radio

Rationale

AIR operates at the intersection of women, technology and participatory development.

- Radio as dominant mass medium -- “Africa’s Internet”
- Enables women’s voices and knowledge to be publicized, recognized in a culturally appropriate venue, without encountering the barriers to ICT access that are unique to women
- *Voice* as empowerment: what are the community discourses around empowerment?

Background

- Women's advancement is a critical component for sustainable community development
- Advancement requires access to information
- Women often have limited access to, and use of, ICTs.
- Community's development is limited to the extent that women's access to information exchange is limited
- Billions are spent on technologies for development that generally fail to take gender-specific barriers to ICT access and use into consideration.
- Cycle of poverty cannot be broken without addressing women's access to information, and their power to act upon it
- Women continue to experience diminished resources, rights and voice

Key Questions

- (1) Does providing a limited incremental increase in interactivity in community radio have a positive effect on the empowerment and status of women in the community?**
- (2) Will creating an interactive virtual “radio space” provide a venue to discuss issues that otherwise may be considered marginal or sensitive – often the very issues that thwart community advancement?**

What is Community Radio?

- Small, not-for-profit, low-powered stations
- Broadcasting at 1 - 50 kilowatts
- Range: 5km to 75km
- Typically run by a volunteer staff from the community
- Growing in popularity– favorable media conditions
- Alternative to government and commercial media
- “Trusted”
- Stepping-stone to other ICTs

The essential purpose of community radio is to reflect the development priorities and information needs of the local community, which in return is responsible for managing and financing the effort (AMARC, 1998)

Why Community Radio?

Radio networks reach over 75% sub-Saharan Africa

- Kenya: 92% of the population is within radio coverage, 80% live in rural communities
- Number of CR stations in sub-Saharan Africa has grown from 10 to more than 800 in the past 2 decades

Nearly ubiquitous appeal

- 91% (USAID 2005 study)
- Local language
- Batteries can be as high a priority as food
- Shared and mobile radios
- Women mostly absent from station mgmt and involvement

Gender Theory

Gender and development (GAD)

- Create gender equity through sustainable social change
- Recognizes that women are disadvantaged due to complex and long-standing social structures
- Requires examination and transformation of social and power relations by both women and men.
- Recognizes women's unique contributions to development
- Replaces WID and Gender Mainstreaming approaches
- Strategic and practical needs
- *Huyer, Hakfin, Rathgeber, Primo, Momsen, Radloff*

Gender Theory

Feminist Poststructuralism

- Relationship between gender, language, and power
- Construction of meaning and identity through language
- No universal subject, but individual focus
- Voice is the site of resistance and change (AIR)
- Bringing marginalized and myriad voices forward:
“multi-voice, multi-center discourse”
- *Parpart, Weedon, Abu-Lughod, Gal, hooks, Lather*

Gender Theory

Linking GAD and Feminist Poststructuralism

- Two complimentary approaches
- Change/political agenda
- Policy approach and academic theory together
- Address macro- and micro-level issues of women's underdevelopment
 - GAD: holistic approach to societal change
 - FPS: focuses on the experiences of the individual
- Supports AIR project deployment, which operates at mwethia (use) and personal level (content)

Geog/Spatial Theory

Private vs. Public spaces

- Women's communication = private space/feminine
- Radio = public space/masculine
- CR: challenge dominant/marginal, male/female binaries by airing otherwise hidden voices and topics.

Development "Geographies"

- Geometries of power: shifts of power within the local/global
- Radio as a "place" for development – air space
- Bottom-up information and knowledge: "Globalisation from below"
- Information exchange, rather than dissemination
- Women's voices heard in mainstream

Importance of Voice

Push vs. Pull:

“We want women's voices to be heard, we are telling our stories directly and we are giving a voice to the voiceless. We found we were always downloading and never uploading... There is so much knowledge in rural communities, and we have to let people know about what happening.”

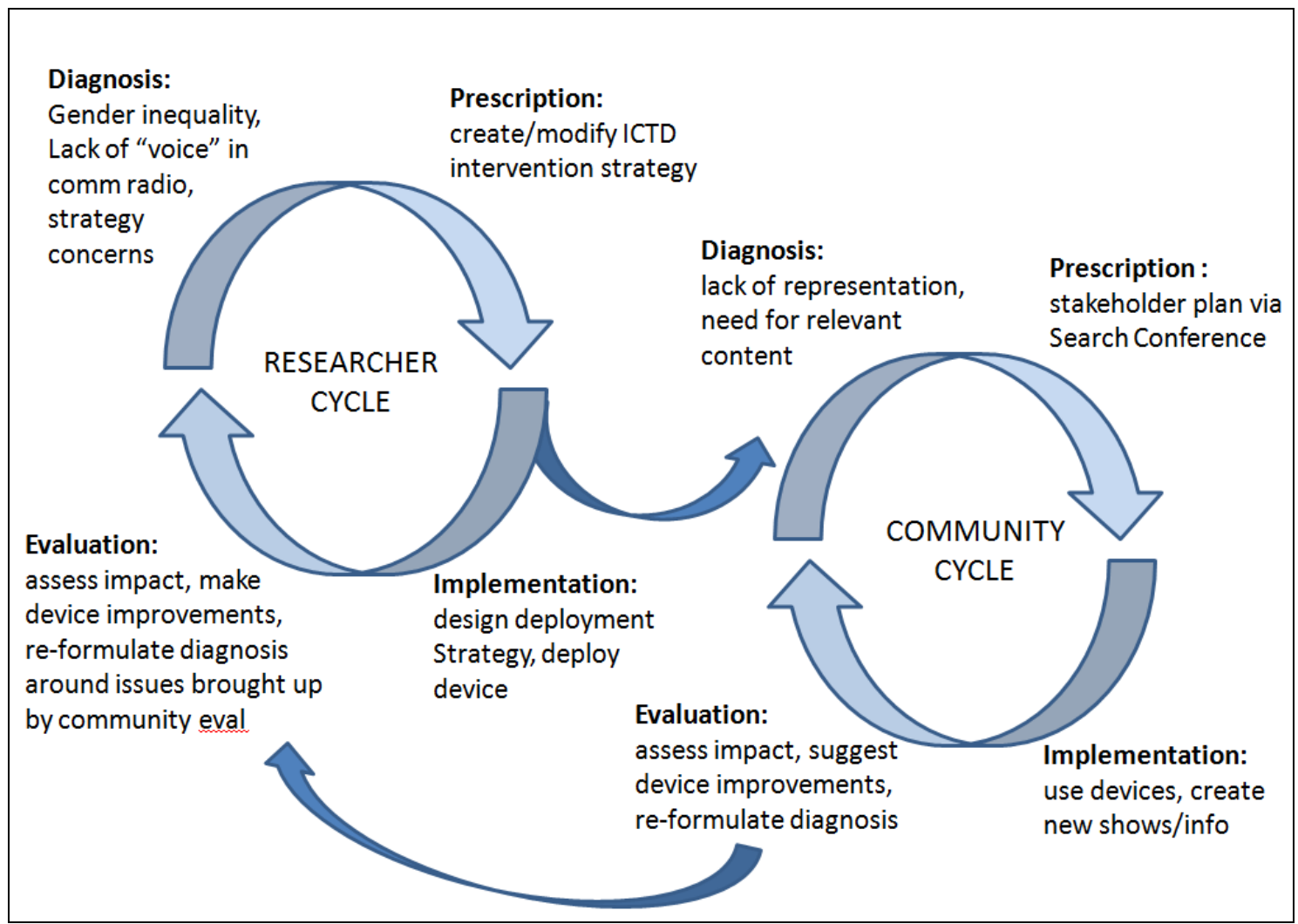
(Sibanda 2005)

Participatory Action Research

- Theory and methodology
- Iterative research stages: diagnosis, prescription, implementation, evaluation
- Political/change agenda
- Community participation must be integrated into all aspects of the research – readiness to evaluation
- *Chambers, Stoecker, Greenwood, Levin, Park, Whyte*

One of the primary goals of PAR is to create new spaces for discussion, new knowledge, and to bring marginalized voices to center stage – complementary with feminist perspectives and AIR operation

Action Cycles



Research Methods

Qualitative

- Search Conference (PAR)
- Transcripts of recordings and radio shows
- Ethnographic methods including coded field notes, personal narratives, semi-structured interviews, surveys, observations
- Descriptive: community and individual definitions of empowerment and development

Quantitative

- Frequency of calls/SMS to station →
- Cell phone ownership patterns
- Boolean/Binary data methods to create quantitative views on qualitative data

June incoming:

	<i>Total</i>	<i>Male</i>	<i>Female</i>
<i>SMS</i>	305	249	56
<i>CALL</i>	184	137	47
<i>BOTH</i>	498	386	103

Site Selection

- Feasibility studies in East Africa – 8 CR stations
- EcoNews Africa – NGO partner
- Radio Mang’etele in SE Kenya (“Akambani”)
 - 33 “mwethia”: community development, work crews, started Radio Mang’etele
 - 3 main communities: Nthongoni, Masongaleni, Ivingoni (500K over 40 km range)
 - Community Issues: poverty, drought/agriculture, resettlement, VAW, HIV/AIDS, witchcraft
 - Station: paucity of reporters + female participation



Nthongoni



Implementation

- *Mwethia* creating content for broadcast
- Inter-group interviews, radio dramas, group-led conversations, debate show
 - Interest between young and old women
- Transcript analysis: content, themes, sharing
 - AIDS → “Disease of love”
 - Political parties → animals
 - Using slang of local language
- Post-recording “perception” interviews with participants, others in community

Outcomes: Research

- Research Hypotheses and key questions supported by program transcripts and post-recording interviews
- 28 programs from Jan 08 to Sept 08;
 - 65 unique speakers (62 women, 3 men)
 - 86% interviewed about experience on air
- Women used the term “development” in English
 - A location to achieve
 - The “developed woman”
- Mwethia membership increase
- Second program added: “Cake Share”

Outcomes: Transcripts

- Common topics: mwethia accomplishments, gender roles, church, HIV/AIDS, women's rights, education, culture
- Discourses of empowerment uncovered:
 - Group unity, economic, political, social, familial, education, religion, personal, and psychosocial
 - Power structures more evident/interventions
- Contentious/private topics discussed in Cake Share
- Men – recognized for wives' efforts, praised
- New knowledge put forward (PAR)
- Voice gives power and presence to a group (GAD), male responses mostly positive
- Voice = a priori empowerment (FPS)

Outcomes: Interviews

“This will make the men understand that the women also have a voice.”

“For instance when I hear my names mentioned at the end of a programme being credited for my contribution, it makes me feel important in the society.”

“The time has come for us to be heard”

“People can recognize women and know why women’s voice should be respected.”



Mwethia using AIR

Outcomes: Air Space

Interviews with men: radio “legitimizes” women’s speak and issues -- women are important in radio space

“They should speak for themselves because men are very oppressive that they do not give the women a chance to express themselves. In this programme they express their problems and also reach out to the others who are oppressed by their husbands to show up and express themselves too.”

“They should be allowed to (participate) because many times a women may not be free to express her needs to her husband the way she would be if she was telling other women.”

“It's good for them to be given that chance because some cannot speak direct to their husbands because either they are drunk but when they speak through this programme they can say everything they want their husbands to hear.”

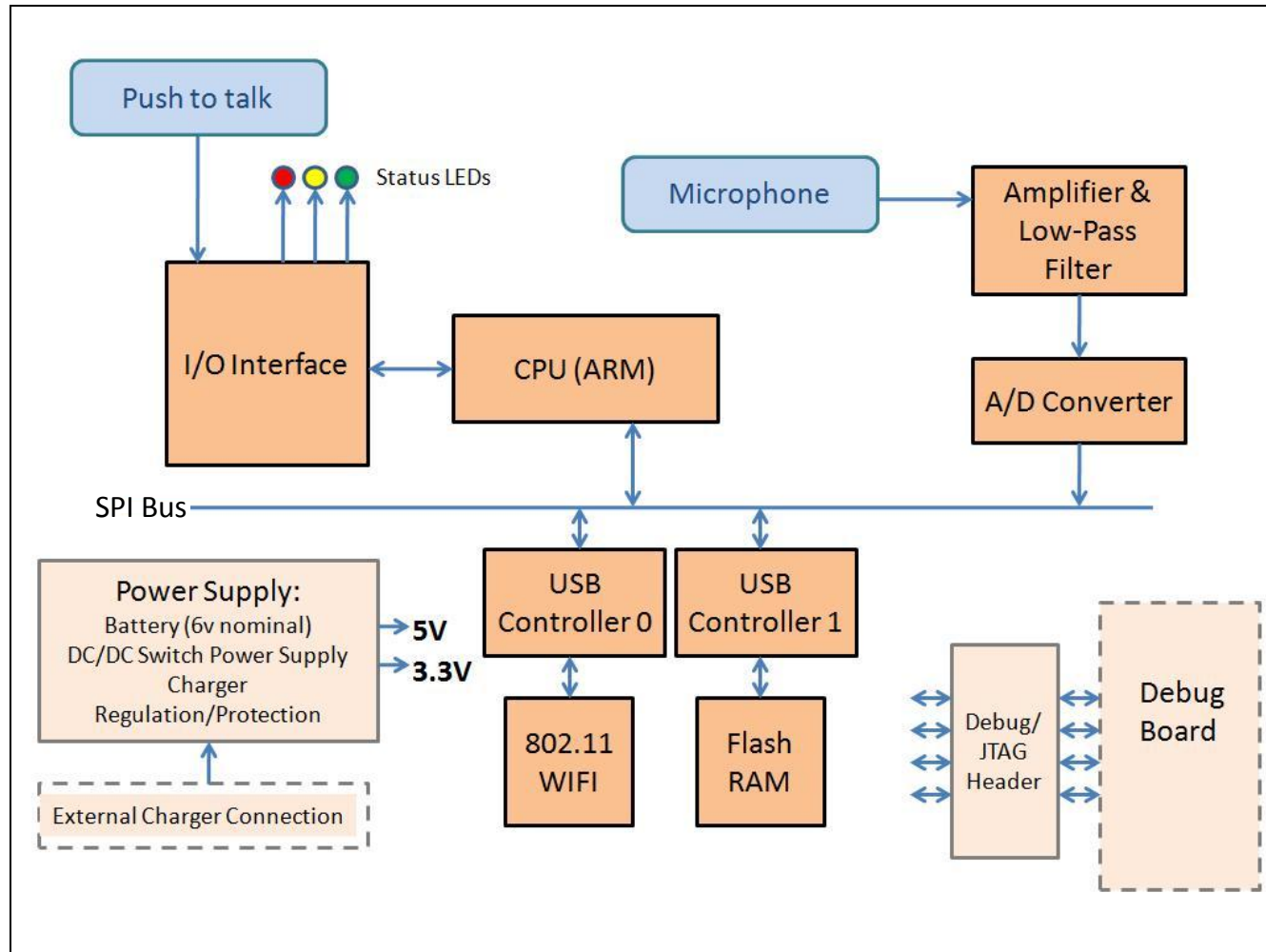
Technology



Technology: AIR Handset

- Simple push-to-talk operation – button and microphone
- Durable, rugged, and lightweight (under 2 lbs)
- Very low power design based on ARM processor – 7 day operation
- Free RTOS and EFSL handles low-level functionality
- Commodity 802.11 and Flash RAM USB devices
 - Swappable: easy to increase storage device capacity
- Speech is amplified + passed through a bandpass filter before A/D conversion
 - Uses Speex Codec; reduces memory usage for voice storage
- LEDs provide device and transmission status information
- PC-based post-production
- External board facilitates debugging and software development
- External Solar Panel/car battery recharge

Handset Block Diagram



Technology: Network

- Store-and-forward model
 - Each voice message has associated metadata
 - When devices come within range of each other, they exchange metadata to determine transmission status
 - Attempt to use minimum number of redundant transmissions
 - Messages are transmitted based upon probabilistic adaptive algorithm that considers:
 - # of other devices to which the message has been successfully transmitted
 - A record of devices most often in-range/most mobile
 - Available power of transmitting device
 - The number of devices in range
 - The state of these devices in range
- Reverse path for transmission delivery status (added requirement)
- Device range of 50-300 meters pending device state, interference and geography (and technology)
- Increase range with fixed antenna at radio station

Technology: Backhaul Options

- **INTEL Rural Connectivity Platform**
 - TDMA: multiple connections on one frequency channel
 - Line of sight (100km); paired towers for added distance

- **Fidelity Comtech Phocus Array™**
 - Steerable phased array 802.11 antenna on station transmission tower
 - Dynamically reshape antenna pattern to point the beam when a device is detected to increase signal range and network reliability
 - Manual delivery for outlying communities



Evaluation

- **Hypotheses supported by research**
 - Positively impacted empowerment and status of women by increasing the interactivity of community radio
 - Provide a virtual space in which to discuss and address issues that may otherwise limit community advancement.
 - Develop and evaluate new hardware platform that enhances an existing, popular, and low-tech ICT; one that enables information exchange, rather than unidirectional push
- **Findings**
 - ICT that takes women's needs into account and enjoy community support can enjoy uptake and "creative surprises."
 - Low-tech can equal high utility
 - ICT can create spaces for empowerment while serving as a vehicle for critical content (physical, cognitive, psychosocial); another contribution is to understand/locate these spaces

Conclusion

4+ years in operation – has moved from research to just a station function.

Cell phones and electricity are coming to area – AIR not as necessary, but use for financial reasons. Moving to wifi phone/asterisk server.

“The opportunity to have one’s voice heard can be an imposing experience of self-worth”

Pavarala & Malik, 2007

‘Other Voices’ - The Struggle for Community Radio in India