

Familiarity and Concern in the Radio Voice of a Networked Diaspora Community

Carla Gomez-Monroy

Schlumberger SEED
Cambridge, MA
cgomez-monroy@slb.com

Stephen Schultze

Public Radio Exchange
Cambridge, MA
steve@prx.org

Walter Bender

MIT Media Laboratory
Cambridge, MA
walter@media.mit.edu

ABSTRACT

eRadio¹ proposes to increase interaction and reduce alienation in diaspora communities. We report on our holistic approach to interactive radio production (including audio production, Internet exchange, and radio broadcasting) intended to foster participatory community self-discovery, identification, and assimilation in a community dispersed between the USA and Mexico. Our hypothesis is that speaking with familiarity and concern to a dispersed audience of hometown people and their descendants can strengthen a community's oral culture and identity.

INTRODUCTION

The goal of our research into communication technologies, as expressed by Jerome Wiesner in the early 1980s, is the support of “learning and expression by people and machines.” The past two decades have seen engineers invent much of the technology that enables the vision of “being digital” [Negroponte 1995]. As these technologies migrate from our laboratories to our lives—technology *in vivo*—we are able to focus on their application to the problems facing people: how they inform, entertain, and express themselves.

Contemporaneous with these advances in communication, we have seen social and economic shifts, with corresponding shifts in population. The Mexican migration to the north—described in the next section—is typical of a trend seen globally: people are leaving their rural communities to pursue the opportunities they associate with cities. This migration has its benefits—remittance from migrant workers in the US accounts for a significant portion

of the rural-Mexican economy, and their situation accounts for an overall gain to the US economy—and its disadvantages—exploitation, discrimination, alienation, separation of families, and degradation of cultural identity. Remediating some aspects of the problems associated with diaspora communities is the primary focus of the eRadio project.

Our hypothesis is that by providing a rich medium for the continuous oral exchange of stories between emigrants and those they left behind, a community's identity and culture will be better preserved. Our means of testing the hypothesis is eRadio, a holistic approach to community radio production and distribution. We chose the medium of radio for two reasons: (1) radio is ubiquitous and familiar, affording a ready point of entrée into digital storytelling; and (2) radio is oral—in earlier experiments [Monroy 2002], we found a strong preference for oral story telling, not because of concerns about literacy, but because people like to talk and because of an emotional attachment to local language, dialect, tone and texture of voice, etc.

The remainder of this paper is organized around six sections. We begin with a discussion of the Tulcingan exodus. We then describe our goals and approach. We detail the radio production process and the eRadio implementation. We point out how it can help increase interaction and reduce alienation and then proceed to the discussion of our observations and to our conclusions about the project.

The Tulcingan Exodus

Little by little, over several decades, a considerable number of Tulcingans voluntarily emigrated from their hometown of Tulcingo in the state of Puebla, Mexico to the United States. Most of them headed to New York City, establishing themselves mainly in The Bronx, Queens, and Brooklyn. No one knows for sure, but according to Levine [2001], by the year 2000 close to ten-thousand Tulcingans were living in

¹ eRadio refers to the research project, *eRadio: Empowerment through Community Web Radio*, MS thesis, 2004, Carla Gomez-Monroy, Massachusetts Institute of Technology. Text and audio are available at <http://eradio.media.mit.edu/thesis.html>.

New York City. The emigration most likely began around 1950; the exodus continues today.

Presently, “crossing over” (illegally) to the United States, notions of what life is like in New York, and everyday talk about emigration are deeply rooted in the Tulcingans’ sense of historical past, growth, and of being what they are; these are part of their cultural identity.

Kids are raised with the idea that one-day—soon—they will depart to New York. It’s not a matter of going to the United States, but to “New York.” Before finishing secondary school, some of them decide to risk their lives and borrow thousands of dollars to be taken over to the United States. [Tulcingo Talks 2004]

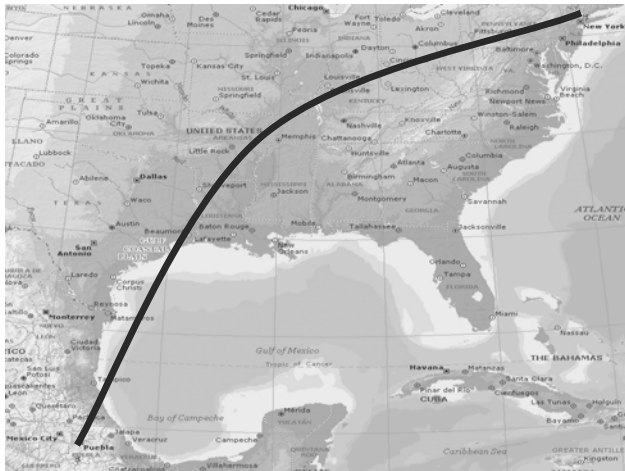


Figure 1. Distance between Tulcingo, Puebla, Mexico and New York City, New York, USA (approximately 350 000 kilometers) [source: Encarta]

Diaspora Community

The Tulcingo Community exhibits several characteristics of a diaspora community: the community is now divided into two main populations. Both groups of people were born in Tulcingo but are now geographically separated (see Figure 1); both groups of people are native speakers of Spanish and use it. The Mexico group, the Tulcingo Tulcingans, lives in its small hometown, Tulcingo, and is a relatively closely-knit society; those residing in New York City, the New York Tulcingans, emigrated from Tulcingo and maintain considerable intra-group relationships, but constitute a loosely-knit network [Milroy 1987]. At a small scale, individuals and families have kept in contact and helped each other across the international

border; on a large scale, the Tulcingo Tulcingans as a whole and the New York Tulcingans as a whole have kept in contact, cooperated, and helped each other across international borders. Nevertheless, there is little socio-cultural interaction between these two groups that live in different countries; yet, in many ways, they constitute a single community, the Tulcingans.

A Ripe Community

The Tulcingo community stood out as a good candidate for the pilot implementation of the eRadio project because of: (1) their diaspora situation; (2) the contact they strive to maintain; (3) the infrastructure we could count on both in New York and in Tulcingo; (4) their enthusiasm with the idea of constructing a bridge for participative and interactive communication between both populations; and (5) above all, another kind of infrastructure, intangible and indispensable: their willingness to try out this particular project, which relied as much on community participation and involvement as on technology.

AIM, APPROACH, AND PROCESS

Aim

The aim of the eRadio project is to empower participants to voice their concerns and views as well as to express aesthetic and cultural ways of rejoicing. The project sought to develop a community-specific, ongoing, long-term cyclic process of self-discovery, identification, assimilation, and empowerment. It proposes to do this by bringing together electronic tools, applications, procedures, and persons and making use of inquiry, discovery, and ethnomethodological strategies and techniques to get the community to produce content—a voice—and to web-cast it in order to multiply participation, generate feedback, and further the iterative process.

Approach

The eRadio project uses a holistic approach to participatory and interactive web radio-production, with specially designed methodology drawn from a variety of disciplines and specially designed electronic tools. Educationally, the project adheres mainly to the “constructionist” approach [Papert 1993] and to “inquiry” and “discovery” approaches [Dewey 1916, Postman and Weingartner 1969]. Strategically, it adheres to “ethnomethodological” techniques [Garfinkel, *et al.* 1983].

Process

The eRadio, process involves iteration and adaptation, as multiple interactive processes take place. In this paper we concentrate mostly on the processes related to conception and generation, and the implications of the audio pieces. Because process is the backbone of all media projects [Cotter 2001], we will devote considerable attention to it.

In eRadio, the process, the software, and workshop are structured the same way: the four stages of *gathering, producing, publishing, and listening*. Despite these defined sequential stages, the process is flexible enough to let communicators learn by themselves and to contribute to improving the process. This is important because “the critical content of any learning experience is the method or *process* through which the learning occurs” [Postman and Weingartner 1969, p. 19].

Interactive Process: Engagement Across Distance

Over the course of the process, a selected group of voluntary participants become communicators and learn to handle the electronic tools. They carry out production, creation, and elocution tasks and obtain anecdotes, interviews, music, news, fun talk, and other relevant content from community members as they audio-record them. They creatively edit and transmit the finished audio pieces via the web and, if local conditions permit it, they broadcast it on the radio. Both groups, local and remote, listen to each other’s programs, initiating an interactive process that could lead to community engagement and empowerment in spite of geographic and cultural separation.

Participants are also expected to increase their skill with the tools and to improve their communication skills, passing on this know-how to others in the future. One community can directly or indirectly motivate other communities to initiate their own process of self-discovery and empowerment as well as to participate in an inter-community process of learning from and supporting each other [Smith, *et al.* 2000]. Communicators are expected to learn from observing and listening with “intent concentration and initiative, and their collaborative participation is expected when they are ready” to propagate the knowledge and skills they learned to others through apprenticeship or following the same method as was used with them [Rogoff, *et al.* 2003, p. 176].

Storytelling on the Radio

Herman and Chomsky observe that for the most part:

The “societal purpose” of the media is to inculcate and defend the economic, social, [cultural] and political agenda of privileged groups that dominate the domestic society and the state. The media serve this purpose in many ways: through selection of topics, distribution of concerns, framing of issues, filtering of information, emphasis and tone, and by keeping debate within the bounds of acceptable premises. [Herman and Chomsky 2002, p. 298]

The eRadio project achieves its own “societal purpose” by encouraging diaspora communities to have a social voice. It does this by focusing on several key factors: the content (the story); form (storytelling); style (artistic features, background sounds), process (making it); media (radio); context (among a diaspora community) and function (purpose) of the audio pieces.

The eRadio project takes into account that, “Not only do community members influence what goes on the air, they can go on the air themselves” [Cotter 2001, p. 429], with the added effect that community-oriented content strengthens community identities and has implications for social movements [Castells 2004]. The familiarity of their voice in this case helps the audience feel that the transmission is specifically made for them.

The radio *production process* is concerned with the procedural aspects that take place during the creation of an audio piece. The main process consists of the four stages: gather, produce, publish and listen. In the Gather stage, communicators imagine their final product, and gather content in the form of an audio recording, that is, interviews, voices, events, and live effects. In the Produce stage, they make decisions regarding structure, sequence, tone, style, and background audio of their piece. They also reorder and reshape the elements, transforming a field audio-recording into a unified audio piece. The Publish stage involves sharing the produced audio piece with others via radio broadcast or the Internet. Finally, the Listen stage involves paying attention to what was transmitted and to provide the producers with useful critique or feedback [Rogoff, *et al.* 2003, pp. 177–179]. Ideally, listeners will close this proposed radio production

cycle by becoming producers. The cycle starts again when the creators of the audio pieces and the listeners switch roles, creating a two-way radio *storytelling dialogue*—both groups record relevant content, edit it, and transmit it to each other in an attempt to bridge the socio-cultural interaction gap.

As the eRadio project cycle is completed, transmission becomes interactive. The parties involved (two or more segments of the dispersed community) do radio production, transmission, and reception and the Listen stage becomes a bi-directional process. As Chafe puts it, “People are both speakers and hearers of language. As speakers they convert meaning into sound, but as hearers they convert sound into meaning” in a “wholly symmetric way.” [Chafe 1970, p. 57] In fact, an active listener plays different roles, such as, “speaker, addressee, auditor, overhearer, and eavesdropper” [Cotter 2001, p. 421], as well as promoter, and interpreter. In many cases the intended purpose or message of the communicator is not interpreted exactly so by the listener.

Cotter emphasizes that when creating an audio piece, one must keep in mind its content, form, media, context, and function in order to make the piece as meaningful and familiar as possible to the target audience [Cotter 2001, p. 428]. The communicators seek to express a particular experience or message to the listener and must carefully balance appropriate language, voice and environmental sound. For example, in one of Odilia’s audio pieces, we hear her say: “the people at the counter recommended a man who was in the kitchen” and we may also notice background restaurant sounds, in this case clashing of dishes [eRadio Audio Piece: Odilia's "It's a matter of adapting" 2004 (original in Spanish)].

INTERACTIVE RADIO PRODUCTION: PROCESS AND TOOLS

As with most communities of its kind, Tulcingans share a rich oral history and are also accustomed to listening to the radio. eRadio takes advantage of existing storytelling traditions and the ubiquity of radio. Radio remains the medium with the highest penetration, and is a low-cost and easy-to-use information and communication technology that does not require literacy or visual attention [Eltzroth 2003]. Our goal was to make the production process interactive, not only in the sense that participants would interact with production tools themselves, but

also because they would interact with each other through shared stories. “Radio is not only a mighty awakener of archaic memories, forces, and animosities, but a decentralizing, pluralistic force.” [McLuhan 1994, p. 306]

There are, or have been, projects with one or more features of the eRadio project; we will mention some of them. The “captains” methodology of Shaw’s MUSIC project; an immersive community bulletin-board that used impoverished urban communities [Bender, *et al.* 1996] is similar to our use of propagating knowledge from the communicators we train to other community members. Public radio producer Joe Richman gives participants portable recording tools in order to record their own “Radio Diaries” and then produces these into pieces which air on National Public Radio’s *All Things Considered* [Radio Diaries]. The “StoryCorps” project involves taking mobile recording booths to towns around the country, where participants interview with their personal style their loved ones [StoryCorps]. “Community radio” in its various forms worldwide gives ethnic and rural communities a social voice by informing their members [Strömberg 2002] and enables citizen participation in the production process [Price-Davies 2001]. Organizations such as “New California Media” and “Radio Arte,” as well as low-power FM stations across the country, serve varied communities and often extend their reach through the Internet.

The combination of radio broadcasting and Internet connectivity affords several advantages, including: (1) the generation of pieces in a different geographical location from where they will be transmitted, (2) the access to pieces by different radio stations, at any time, and (3) the creation of bridges between distant communities to “voice their concerns and share information” [The World Bank Institute, 2002].

According to Hart, developing communities can benefit from experiencing the entire broadcasting process, but he noted the need for production tools:

Ideally, there may also be a studio to allow different parts to be mixed, music or sound effects to be added, short excerpts placed together in a rapid montage to make a broadcast flow more quickly, and fades to enable a smoother link between sections. [Hart 1997]

The studio required for this type of production is taken for granted in a typical radio-station environment. Yet, in recent years, digital recording and editing tools have become less expensive, making them more accessible to independent producers and others; some of the software is even free and Open Source. We chose to adapt some of these components into an inexpensive portable studio for use in Tulcingo and New York. Participants needed to produce and exchange their pieces directly; therefore, they needed a richer and integrated set of tools, yet user-friendly enough for a community-focused process.

Tool Functionality

We developed our hardware and software tools to directly parallel the four stages of the workshops. They were designed to complement the participatory, learning-focused methodology of the project through iterative hands-on production. The four-stage process aimed at helping the participants discover their individual and community identity, articulate it by producing pieces, and continue interaction and exchange through reciprocal storytelling. In each case, we incorporated existing technologies and often simplified them to include only the essential elements.

Our tools consisted of a portable digital audio recorder called an iRiver iHP-120 and a small computer loaded with our customized audio software, which we call the “VoxPopBox” (or “box”). The box hardware was based on a “mini-ITX” motherboard housed in a small portable case. The handheld iRiver recorder can store several hours of audio on its internal hard drive and plugs directly into the box for automatic audio file transfer via USB. The software on the box provides four task areas, one for each stage of the storytelling process. The user can switch between these gather, produce, publish and listen screens via a graphical navigation bar at any time. For more specific software and hardware implementation details, refer to Gomez-Monroy [2004].

Gather

In the gather stage, participants took the recorder and microphone into the field and conducted interviews, recorded themselves, and captured other sound for the piece. We simplified the recorder by physically removing extraneous interface elements so that the only remaining buttons are “start

recording,” “stop recording,” and “replay the last clip.” The recorder adjusts recording input levels automatically. When participants were ready to begin choosing between recorded audio clips they returned to the box and plugged the recorder into the front. The box then displayed the two-paned “gather” task area where the user could listen to any of the clips on the recorder, create new-piece project files, and drag and drop any clip onto their project.

Produce

Participants would first log their recorded audio on paper and choose which elements to incorporate into the piece. Next, they would open the piece project file by clicking on it. Any clips that they had dragged onto the project were represented as visual waveforms that could be selected, rearranged, and edited in similar fashion to most modern digital audio workstations. This more simplified interface was provided by a modified version of the Open Source software program, “Audacity.” At any time, users could click on the graphical navigation bar to switch to the Gather stage and drag more clips onto the project.

Publish

The publish interface was implemented only in limited fashion for the workshops. It was a simple list of all projects owned by the current user, with a “publish” button next to each one. A user could click the “publish” button, which would make the piece available to other users of the local box, would send it over the network to the other box, and would make it available on the Web. This would make the files available for broadcast in New York and Tulcingo and for streaming online. Due to network limitations in Tulcingo and technical difficulties on the boxes, the publish interface was not directly used. Instead, publishing was performed as manual transfers of completed pieces between Tulcingo and New York.

Listen

The listen interface was also not directly used in the project, but was designed to be a web interface for browsing all pieces that had been published from either location. Anyone could listen to these pieces from the Internet-connected box or via the Web. Although some pieces could not be published publicly due to rights issues, others were posted on the Public Radio Exchange web site for streaming. The files were used for the coordinated broadcasts in

both locations. In Tulcingo, the sound output of the box was routed into a Veronica 1-watt FM radio transmitter coupled to a 5/8 Wave Colinear Vertical Antenna (CFM-95SL).

Ultimately, parts of the eRadio software proved too rough an engineering prototype for extended use. Future work could include re-engineering these tools and taking measures to mitigate problems due to network intermittency in rural locales. Despite these challenges, the portable digital recorder was an intuitive tool that enabled participants to gather sound of their everyday lives and easily transfer the files upon returning from the field. This helped place listeners in the storyteller's environment and give a stronger sense of place and connectedness. The fundamental process of gathering, producing, publishing, and listening provided a consistent framework that guided participants through self-discovery and storytelling to the community.

eRadio IMPLEMENTATION

...we each leaped and fell now on the United States's side.
...all of us running, crouching all the time
...finally when we reached San Isidro they stuck us in a garbage container
...and later two cars arrived and they stuck us in the trunks...
...We got there, and all quiet, we knocked and it turned out that my sister didn't live there anymore...
[eRadio Audio Piece: Carmelo's "Maceda. Voyage from Tulcingo to NY" 2004 (original in Spanish)]

This section describes the eRadio project implementation carried out in Tulcingo and New York: the process of production and the resulting audio pieces. A constructionist approach for the production of the audio pieces that places process over end product was employed.

The pilot implementation took place from March 20 to 28, 2004 in Tulcingo, Puebla, Mexico and from April 17 to 25, 2004 at *Casa Puebla* in New York City. In Tulcingo, there were five participants (Elsa, Mary, David, Israel, and Salomon). In New York there was one participant (Odilia), who completed all the audio production steps. Many other community members contributed in other ways or completed only some steps. The

implementation consisted of a 9-day hands-on workshop in each location. Participants were introduced to the methodology, which required that they play an active role through the whole process, including transmitting the produced audio pieces to their diaspora community counterparts.

Project leader Carla Gomez-Monroy introduced the Tulcingo group to the basics of radio production. She gave them explanations of relevant concepts and showed them how to use the recorders to make an audio piece. They learned how to handle the recorder and gained skill in its use throughout the week. They also learned how to edit, although Carla was the operator of the editing tool. They were reluctant to make total use of the VoxPopBox right away. They wanted more time to learn by observing Carla operating them as they told her what edits they wanted.

Participants had to plan and design their audio piece, decide on the topic, characters, background sounds, format, questions, scripts, and other elements involved in the creation of an audio piece. In Tulcingo, Mary and Elsa structured an interview by planning their questions in advance. The way they posed the questions helped make the responses sound like vivid recollections, which contributed to the direct storytelling aura of the audio piece as opposed to an interview. It was encouraging to discover that interviewing was intuitive and simple. Elsa had been considered by her workshop-mates to be a shy person with no abilities to perform an interview, but after listening to her interview, they discovered that she had conducted it smoothly, her voice was clear, she sounded confident, her questions were concrete, and she asked them naturally. She was direct but always polite and respectful, and she managed it as if "grandpa" were telling a story, which gave the piece life.

In New York, Odilia was not confident about going through the eRadio process by herself. However, she never thought that she was not capable; on the contrary, she worked hard to evolve by herself and confront each of her weaknesses. Carla accompanied Odilia on her gathering tour and showed her step by step how to edit her first piece.

Odilia readily learned how to handle the recorder as Carla explained its functions. During the day she would skillfully use the recorder and the microphone to get her content. In the evenings, she did the logging of the clips at home, using the

remote control of the recorder to stop and rewind the clips. Logging everyday after recording was useful to Odilia because she was able to detect the noise picked up by the mishandling of the microphone or by having placed it too far from the speaker. This way she avoided the same mistakes the following day.

Odilia immediately caught on to the technique of editing and she started looking for patterns in the visual audio waves to find what she needed. She used the sound effects and tracks to make her pieces more interesting.

At first, the idea of turning an hour-long interview into a less-than-ten minute piece may sound like an easy undertaking; but after hours of structuring, extracting, and putting things together, participants realize that it can be time consuming. Little by little they get used to it, and it develops into a more intuitive process.

Odilia's first piece is the only one in which the duration of the raw material (6.09 minutes) is almost the same length as the finished piece (5.56 minutes). After her initial success, she had many ideas for other stories and became more critical during the editing process. Her second piece was a dialog, and from then on she started playing more confidently with the sequences, adding a creative touch here and there. Her last piece was a montage. For this piece, she structured the order of edits in her mind by recalling her notes, and then checked the log only to see which part of each clip was to come first and to decide how to connect the clips. She recorded the introduction for each segment in the subway, without even listening to how the piece was coming out. She was confident, and in her imagination she was probably listening to the finished piece. The sound quality of her recordings greatly improved over time.

Regarding the Rogoff framework mentioned earlier, communicators made "keen observations" when they watched someone else operating the electronic tools and adopted their behaviors and attitudes. Instances of "listening-in" occurred when communicators were given an explanation of a concept, were provided direct or indirect feedback, or were shown oral extra-linguistic behaviors such as changing voice tones while narrating. Communicators practiced the "production process" as they operated the recorders, before or during real events—and in Odilia's case, the VoxPopBox—thus

becoming better at applying the practical knowledge they acquired. Regarding the inquiry and discovery approach mentioned earlier, instances of inquiry took place when questions, curiosity, or uncertainty triggered exploratory behaviors and instances of discovery occurred when communicators were critical about their own work and explored different ways of obtaining better results.

Three audio pieces were made in Tulcingo by the five communicators. Six pieces were made in New York by one communicator; six other participants provided the voice and content for four additional pieces. All the audio pieces had relevant content, were of audio broadcast quality, and were enthusiastically welcomed by the audience in both locations.

After two nine-day workshops, a two-way transmission was coordinated, first from Tulcingo to New York—March 28, 2004—and six weeks later—May 8, 2004—in the other direction. For both transmissions, the audio pieces first had been posted on the eRadio website, and were then aired over FM radio in Tulcingo and simultaneously downloaded and played through loudspeakers to an audience at *Casa Puebla* New York. The second transmission was also streamed on Internet. Because of the cooperation with an online radio station, the transmission could accommodate people from New York talking (with a one-second delay) in real time into the Tulcingo FM-radio transmitter that Carla took along for that purpose and that people of the community installed.

The New York transmission was much longer than the transmission in Tulcingo. Jesús Perez gave an introduction on behalf of the Tulcingans living in New York, ten pieces were played, and a closing provided, for a total of approximately 50 minutes. At the end, greetings and congratulations were sent by request to relatives and others involved in the project. The whole transmission lasted about two hours because people would not stop calling in.

In Tulcingo, communicators, collaborators, friends, and relatives gathered in the house from which we transmitted the program. The communicators promoted the FM radio transmission by calling their friends and asking taxi drivers, business owners, and friends to have them tune in and play the program as loud as possible. The transmission could be heard many blocks away from the transmitter. It was on the air—which was evident

when the Tulcingo town treasurer heard someone he knew from New York on the radio and excitedly went over to the transmission site to congratulate those involved.

People in Tulcingo were excited to hear their relatives and other community members from New York on the radio. As a result, the Tulcingo community is interested in a long-term eRadio implementation. If this is done, Tulcingo could be an eRadio seed community from which other communities may bloom.

MORE INTERACTION AND LESS ALIENATION: BELONGING

There are several parallels between the role of eRadio in increasing interaction and reducing alienation among the Tulcingan diaspora community and the benefits of a “community of practice” as defined by Wenger [1998]. The community of practice model ties the strength of community membership to the everyday interactions and practices of its members. It also provides a framework for understanding three modes of community belonging, each of which indicates complementary types of “work of belonging.” Through the modes of *engagement*, *imagination* and *alignment*, members maintain collective identity and take part in rich social practices that sustain shared meaning. If these modes of belonging are present in Tulcingans’ practice of audio storytelling, we contend that they will be able to identify more closely with their transnational community.

As Tulcingans become more culturally and geographically divided, they face increasing barriers to participating in everyday community practices. Indeed, activities like “going round” the town square are not only culturally passé, but physically impossible. Nevertheless, in a community of practice, participation “refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the *practices* of social communities and constructing *identities* in relation to these communities” [Wenger 1998, p. 4]. Furthermore, the familiar language in the stories conveys community identity because “we know who we *are* by what is familiar and what we can negotiate and make use of, and we know who we are *not* by what is unfamiliar, unwieldy and out of our purview” [Wenger 1998, p. 164]. The more familiar

we feel with a community, the more strongly we feel that we belong.

Tulcingans make up a community in the sense that they share history, language and lineage. Historically they have also shared many everyday activities, which constituted overlapping communities of practice. However, as the community has become fragmented between Tulcingo and New York many of these practices have become difficult or impossible. Audio storytelling, on the other hand, has the potential to transcend their physical boundaries and extend an already rich tradition of oral history. The presence of *engagement*, *imagination*, and *alignment* provides the opportunity for a flexible community of practice because each mode supports social learning and identity in different ways.

Mutual Engagement

Wenger defines engagement as “active involvement in mutual processes of negotiation of meaning.” Engagement is intrinsically practice-oriented because it occurs between community members as they seek to understand each other in the course of performing everyday activities. Participation here takes place as members relate to each other and is reified in the use of “symbols, tools, language, documents, and the like” [Wenger 1998, p. 184]. This is bound by time and space because we simply cannot engage with everyone at all times. When community members engage, they are compelled to mutual activity and they build shared histories, understandings, and relationships.

Tulcingans struggle with engagement between New York and Mexico because they have few opportunities and obligations to take part in everyday activities. When it comes to the audio stories, however, Odilia in New York is a strong example of cross-community engagement. She was moved by the audio stories already sent from home and she chose to share everyday, “true-to-life,” moral stories about Mexicans living in New York because she felt bound to the transnational community. She knew that local and remote community members of all ages would hear her story, but speaks directly to Tulcingo-based teenagers and young adults. She engages the listeners through a well-known story genre that appeals to all ages in order to extend a dialogue between New York and Mexico. Both the Tulcingo

pieces and hers are heavily imbued with familiar discourse, establishing a locus for future engagement.

Imagination

To engage across physical or cultural boundaries, a community member must also be able to imagine herself in another's shoes—a *disengagement* of sorts. This mode of belonging can take the form of “maps, visualization, stories, simulations—tools to see patterns in time and space that are not perceivable through local engagement” [Wenger 1998, p. 186]. Stories are especially good at sparking imagination, and this type of belonging is well-suited for bringing together fragmented communities. Through imagination, the alien can be made understandable and incorporated into one's own world.

Odilia commented at the New York transmission that thanks to Mary and Elsa's piece, she heard about and connected to that aspect of her heritage. Through their story, Mary and Elsa encourage members of the divided community to imagine themselves sitting with or even in the place of the grandfather or grandmother. They help the listener envision or recall the customs of their hometown. Likewise, the stories from New York Tulcingans that describe the dangers of border crossings and the difficulties of a new life in the United States allow those back home to imagine life on the other side and “think twice.” In these cases, the practice of storytelling reaches across distance and into the past.

Alignment

Alignment is the mode of belonging in which a community coordinates their efforts to accomplish collective goals. When community members are able to imagine the needs of the others and they identify with them through engagement, they may become motivated by a common purpose. Alignment “bridges time and space to form broader enterprises so that participants become connected through the coordination of their energies, actions, and practices” [Wenger 1998, p. 178]. This mode of belonging is powerful in unifying a fragmented community, and “requires participation in the form of boundary practices and of people with multi-membership who can straddle boundaries and do the work of translation” [Wenger 1998, p. 187]. Shared artifacts like stories help coordinate activities and perform the work of translation.

David bridges from Tulcingo to New York by gathering the comments of parents and teachers in his piece and by advocating the creation of a center for handicapped children. He seeks to bring them together by saying:

To wrap up, I invite all parents to, together, support us all, for the benefit of our handicapped children, with work and with financial resources, to achieve, as soon as possible, this CAM. [eRadio Audio Piece: David's “Creating CAM (Multiple Assistance Center) to assist handicapped kids” 2004 (original in Spanish)]

Success of the CAM project relies on furthering both the alignment of goals identified in Tulcingo and the participation of New York community members. David provides the audio piece as a boundary object between the two places, and rekindles cooperation with New York-based multi-members like Carmelo Maceda. The stories also complemented and encouraged existing cross-community practices—such as long distance phone calls and sending money to Mexico—by which members share the experience and burden of their everyday difficulties. David's piece generated substantial interest in New York and Tulcingo, and community members stepped up work on its implementation.

Participants in the project exhibited all three of these modes of belonging through the practice of audio storytelling—doing the work of engagement, imagination and alignment in different situations. To be sure, Tulcingans already maintain community via long-distance phone calls, visits, migrant newcomers, letters, and word of mouth. The stories in particular increased community belonging not just by voicing shared heritage, but also by facilitating active, meaningful practice. Tulcingans identified themselves as part of a more connected community that extends across physical boundary and shares common goals. This does not mean that they necessarily developed a fully flourishing community of practice in the limited space of the project, but it is a sign that audio storytelling exchanges are well-suited to increase interaction and reduce alienation in a fragmented community.

DISCUSSION

The eRadio project produced two Tulcingo diaspora community-radio transmissions, one from Tulcingo to New York and the other from New York to

Tulcingo. The two transmissions are the outcome of two “very long” nine-day workshops. The two transmissions constitute only part of the product, which is composed of the raw audio corpus (20:52:32 hours), the 13 composed audio pieces (1:08:05 hour), the approximately 2:30-hour total transmission time, which included live talk, and the observable reactions of the audience, which prolonged the transmission by participating via telephone, e-mail, and word of mouth relaying, as well as post-event reactions, such as telephoning to ask for the eRadio follow through. (The MIT Media Lab has agreed to donate the equipment to the Tulcingo community.) Part of the product are the affective bonds that were born or grew through the project, both among community members themselves and with us, more specifically with Carla, who headed the project, did the fieldwork, got them involved, and socialized with them. Steve also developed rapport with the New York bunch when he assisted them the day of the New York-Tulcingo transmission while Carla was at the Tulcingo side, assisting with the reception.

In short, we have used an approach where, as we have attempted to demonstrate, the product is the process itself. And if that sounds too dreamy, then let’s just say that our focus has been on the process, not on product.

The very specific pilot implementation of eRadio was not sufficient for any strong claims or assertions. Given this caveat, we are willing to make a cautious claim: through a diaspora community speaking with familiarity and concern, we observed participatory community self-discovery, identification, and assimilation.

The characteristics of the Tulcingo community and the eRadio participants were determinant of the positive results obtained from the implementation of the project. Variables inherent to the volunteer community could not be fully controlled, and probably should not. Adaptations had to be done during the workshops. However those changes occurred on dependent key variables—the eRadio project—rather than on the independent ones—the Tulcingo community. This was the purpose of the adaptive nature of enriching the patterns to be considered in order to generalize eRadio.

To some extent, the eRadio production process awoke the communicators to actively participate in their community, as Freire would call it, educating

for social change [Freire 1970] giving rise to a radio community of practice [Cotter 2001]. They become proactive at identifying common problems and seeking solutions. The eRadio project gave them a powerful medium to voice their concerns and to become better organized transnationally and empowered to turn things to their advantage so as to grow and benefit from their diaspora situation. It is true that relatively few communicators play a key role in the radio- production process, but there are many ways to participate and levels of involvement, which together constitute community participation.

The audio pieces are samples of participative generation of content within a community. Communicators made use of discovery and inquiry approaches as they learned how to use the equipment and as they planned and carried out content gathering. The communicators also adopted an ethnomethodological approach by creating the right ambience, as recommended by many researchers [Milroy and Gordon 2003, 68–72], to get their interlocutors to open up and to provide the relevant content in appropriate ways (e.g., details, tone of voice).

The audio pieces—targeted to the youth and adults—raised awareness of existing problems and of past experiences and traditions. Communicators used a formal and informative format to raise social, educational and political issues that have to be taken into consideration by the community. For rescuing from oblivion past experiences and traditions, communicators used informal narrative formats in longer and more artistic audio pieces, as well as for creating greater effect or impact when covering some socio-cultural and socio-economic issues.

What were observable in the short term are the intensity of the audio pieces in terms of socio-cultural relevance and the reactions of the audiences to the broadcast and web-cast program. An observable longer-term indicator is the interest expressed by the community in implementing the project on a permanent basis, to which we have responded in the affirmative.

The pilot implementation encouraged multi-task communicators but the longer-term implementation will most likely derive into more specialized communicators, as well as more complex networks. Figure 2 shows the two-way production and transmission features of the pilot implementation and the *n*-way of the longer-term implementation, in

which every VoxPopBox can be a node from where to produce and web-cast, and from where to receive, listen, and broadcast.

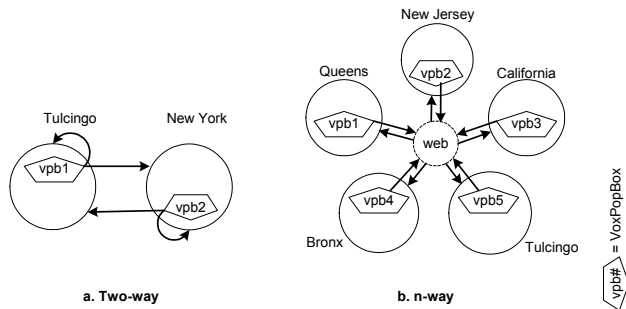


Figure 2 Two-way and *n*-way production and transmission features

Model

From the results of the implementation and given the existence of many dispersed communities, the project has potential in different planes: (1) applicability; (2) replicability; and (3) networking. Those three planes require three features that we think are needed to generalize an electronic solution to empower different communities, which are cooperation, generalization, and dissemination through a ripple effect.

To adequately integrate the digital environment into a certain community’s reality, interdisciplinary work is needed, as well as the cooperation of different entities. In the described eRadio implementation these stages were well developed. In addition, eRadio has to develop the network infrastructure to have all the VoxPopBox nodes connected among them. That means having all the individual and institutional relationships established and the technological infrastructures set up to manage full communication and cooperation across the transnational network.

From the facts described throughout this paper, eRadio can be implemented in communities with different characteristics but shared interests. If implemented for longer-term periods and by communities with different characteristics, patterns may emerge that could be used as models for generalization. As a result, eRadio would undergo continuous improvement in its methodology and electronic tools.

If things are done right, a beneficial ripple effect should be triggered; that is, a community’s successful eDevelopment moves should directly

or indirectly be of use to other communities. It is expected that the communities with the applied solution will try to share with others their new acquisition by convincing them of the obtained benefits. On the other hand, other communities, noticing the increased development of a community may want the same opportunities. Good concepts and actions can be contagious, in easy, rapid, and far reaching manners. [Gomez-Monroy, 2002].

CONCLUSION

We have described the plight of the Tulcingo community that is a diaspora community dispersed between New York City and its hometown by the same name in the state of Puebla, Mexico. We have mentioned significant yet insufficient attempts to maintain contact, help each other, and preserve their grassroots identity because distance and the hardships of New York City life have taken their toll.

Through the description of the pilot implementation of the eRadio project we have presented the process of community participatory audio production and two-way interactive transmission and reception between the town of Tulcingo and New York City. We have illustrated and discussed various aspects of the process that led to the involvement of the participants, to their decisions, based on true concern for their peers, regarding relevant topics for the community, and to handling those topics with the familiarity used to address loved ones when the purposes are to inform, raise awareness, entertain, increase interaction, and reduce alienation. We provided facts, descriptions, impressions, and arguments to demonstrate that, in spite of its shortcomings, the short term eRadio implementation was a success and that a long term implementation is desirable and feasible although the VoxPopBox requires further development. The project as a whole brought about positive reactions by the community, who has repeatedly requested to have the eRadio project implemented on a permanent basis, so that the process they went through be furthered.

ACKNOWLEDGEMENTS

Thanks to the members of the Tulcingo communities in Puebla and New York for making the pilot implementation of the eRadio a reality. Thanks also to Kow Atta-Mensah, who contributed to the

hardware implementation of eRadio. This work was supported in part by Telmex and the Digital Life consortium at the MIT Media Lab.

REFERENCES

- Bender, Walter, Pascal Chesnais, Sarah Elo, Alan Shaw, Michele Shaw. (1996) "Enriching communities: Harbingers of news in the future." *IBM Systems Journal* 35, Nos. 3&4, 369–80.
- Castells, Manuel. (2004) *The Power of Identity*. 2nd Ed. Oxford, and Malden, MA: Blackwell Publishers.
- Chafe, Wallace L. (1970) *Meaning and the Structure of Language*. Chicago: University of Chicago Press.
- Cotter, Colleen. (2001) "Discourse and Media," in *The Handbook of Discourse Analysis*, edited by Deborah Schiffrin, Deborah Tannen, and Heidi E. Hamilton. Malden, Mass.: Blackwell Publishers.
- Dewey, John. (1916) *Democracy and Education: an Introduction to the Philosophy of Education*. New York: Macmillan.
- Eltzroth, Carter and Charles Kenn. (2003) "Broadcasting and development: options for the World Bank." Washington, D.C.: The World Bank.
- Encarta online Encyclopedia (2003) [<http://encarta.msn.com>].
- eRadio Audio Pieces. (2004) [<http://eradio.media.mit.edu>]
- Freire, Paulo. (1970) *Pedagogy of the Oppressed*. Myra Bergman Ramos (Trans.) New York: Herder and Herder.
- Hart, Roger. (1997) *Children's participation: the theory and practice of involving young citizens in community development and environmental care*. London: Earthscan.
- Herman, Edward S. and Noam Chomsky. (2002) *Manufacturing Consent: the Political Economy of the Mass Media*. New York: Pantheon Books.
- Garfinkel (Harold), M. Lynch, and E. Livingstone. (1983) "Temporal order in laboratory work." In K. Knorr-Cetina and M. Mulkay: *Science Observed*. London: Sage Publications.
- Gomez-Monroy, Carla. (2004) *eRadio Empowerment through Community Web Radio*. M.S. thesis, Massachusetts Institute of Technology. Cambridge, MA, USA.
- Gomez-Monroy, Carla. (2002). "The Pool Effect: More Access, Sharing, & Resources." *Proceedings of Development by Design Conference*. Bangalore, India.
- Levine, Joanne. (2001) "New Frontier: The Deserted Village: Mexican Village Left Barren by Men Searching for Jobs in New York." ABC NEWS.com. June 6, 2001. [http://abcnews.go.com/sections/wnt/WorldNewsTonight/wnt010606_emigrants_feature.html]
- McLuhan, Marshall. (1994) *Understanding Media: the Extensions of Man*. Cambridge, Mass.: MIT Press.
- Milroy, L. (1987) *Language and Social Networks* (2nd edn.). Oxford: Blackwell.
- Milroy, Lesley and Matthew Gordon. (2003) *Sociolinguistics: Method and Interpretation*. Oxford, England: Blackwell Publishing Ltd.
- Monroy Fonseca, Marco Antonio. (2002) *Developing a Framework for a Minority Language-based Utility*. Thesis Media Arts and Science, S.M.
- Negroponce, Nicholas. (1995) *Being Digital*. New York: Knopf.
- Papert, Seymour. (1993) *Mindstorms: Children, Computers, and Powerful Ideas*. New York: Basic Books.
- Postman, Neil and Charles Weingartner. (1969) *Teaching as a Subversive Activity*. New York: Delacorte Press.
- Price-Davies, Eryl and Jo Tacchi. (2001) "Community radio in a global context: a comparative analysis." *Community Media Association*. September, 2001.
- Radio Diaries site. [<http://www.radiodiaries.org/>]
- Rogoff, B., Paradise, R., Mejia Arauz, R., Correa-Chávez, M., and Angelillo, C. (2003). "Firsthand learning through Intent participation" In *Annual Review Psychology*. February, 2003. 54:175–203.
- Smith, B.K, W. Bender, I. Endter, J. Driscoll, M. Turpeinen, and D. Quan. (2000) "Silver Stringers and Junior Journalists: Active information producers," *IBM Systems Journal* 39(3&4) 730–48.
- Story Corps site. [<http://Storycorps.Net/About/>]
- Strömberg, David. (2002) "Radio's impact on public spending." *Quarterly Journal of Economics*. World Bank. [http://www.worldbank.org/Wbi/B-Span/Radio_Impact/Sub_Radio_Impact_Index.Htm]
- The World Bank Institute. (2002) "The right to tell: the role of mass media in economic development." Washington, DC.: The World Bank Institute. November, 2002.
- Tulcingo Talks. (2004) Is a general label used to indicate non-literal citations of comments or compilations of comments made by different people of whose identities Carla is not positively sure. Carla is certain that they were Tulcingans, either living in Tulcingo or in New York City. March–May, 2004.
- Wenger, Etienne. (1998) *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press