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## Where Information Society and Community Voice Intersect

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PERSPECTIVE

# Where Information Society and Community Voice Intersect

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**Information and communication technology (ICT) development initiatives have begun to acknowledge the power and importance of cultural and community-focused belief systems. Yet the vast majority of such initiatives tend to preidentify developmental goals that communities hold. Paulo Freire's writings have influenced development initiatives by introducing the possibility of working with communities to orient projects. While these "participatory" initiatives have involved soliciting community feedback relative to a research project whose goals were formulated in the university or development institution, they do not go far enough to harness actual visions held by communities. It is important to conceptualize a model and methodology of engaging communities to develop and articulate their own goals of information access and ultimately, an indigenous approach toward cultural, political, and economic aspects of development. This approach holds promise to sustain communities within a return on the investment and efforts of the researcher or institution. This article closes by describing a current initiative in Southern India that reflects the described methodology.**

## PEDAGOGY AND THE COMMUNITY VOICE

Paulo Freire's theory reveals the potential of engaging in informatioln and communication technology (ICT) development efforts that release the authorship and classificatory abilities of communities in praxis with researchers (Freire, 1968/2002). This enables the development of information systems and initiatives that remove the dichotomies of "oppressor–oppressed" to allow a constructive dialogue wherein shared visions and aspirations emerge.

Freire argues that education is always a political act, used to maintain the status quo or generate social, political, cultural, or economic change. A dialectical relationship characterizes the relationship between a teacher, the oppressor, and the student, the oppressed. It is dialectical in that the actions and thoughts of each are expressed relative to the acknowledgement of the other. He was critical of the "banking education," wherein learners are asked to file and silently absorb the deposits that they are imparted from the oppressor. The oppressor denies the legitimacy of the oppressed's voice by assuming that learning, development, and progress are only achievable via the intervention of the oppressor. This is a relationship that identifies the individual being acted on as an "object" and the lecturing teacher as the "subject." The lecture is a pedagogical process that requires the oppressed to suppress their voices and reactions. Learning rewards those who are best at emulating the paradigm introduced dogmatically. This is a great injustice because Freire believes that the great trait all human beings are born with is vocation, the ability to verbalize and articulate their own beliefs and reflections. This great potential held by all beings is described as *conscientizao*, the acknowledgment and action against oppressive elements of reality.

> The teacher issues communiques and makes deposits which the students patiently receive, memorize, and repeat. This is the "banking" concept of education, in which the scope of action allowed to the students extends only as far as receiving, filing, and storing the deposits. They do, it is true, have the opportunity to become collectors or cataloguers of the things they store. But in the last analysis, it is the people themselves who are filed away through the lack of creativity, transformation, and knowledge in this (at best) misguided system. For apart from inquiry apart from the praxis, individuals cannot be truly human. Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing,

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hopeful inquiry human beings pursue in the world, with the world, and with each other. (Freire, 1968/2002, p. 72)

The pedagogy of the oppressed consists of two stages. These are "(1) the oppressed unveil the world of oppression and through the praxis commit themselves to its transformation, and (2) In the second stage, in which the reality of oppression has already been transformed, this pedagogy ceases to belong to the oppressed and becomes a pedagogy of all people in the process of permanent liberation" (Freire, 1968/2002, p. 36). Therefore, freedom from the oppression, defined as the restriction of the voice of the oppressed, is overcome via praxis, the act of reflection that dilutes the hierarchical and predefined student–teacher relationship into one of coproducer. As the extent of oppression is realized, the oppressed may begin to articulate their own voices and participate in the pedagogical process. Freedom entails rejecting the image of the oppressor and instead embracing the autonomy and collective responsibility common to all human beings. The dialectical relationship is enhanced as only the oppressed can free their oppressor and vice versa. The oppressor is freed from the power struggle of dehumanization, which limits meanings, and from a materialistic belief that *to be is to have*. Symmetrically, the oppressor can help free the oppressed from the trauma of hegemony, and the self-degradation that accompanies it.

The banking model is described as information transfer, and parallels international information development initiatives that presume that access to externally authored information is the only means by which the global progress of the "information society" may be achieved (Webster, 2003). In Freire's model, the problematic here is not one of information transfer, but the directionality of it, and the means by which this information is constructed and imparted. He argues: "Liberating education consists in acts of cognition, not transferals of information. It is a learning situation in which the cognizable object intermediates the cognitive actors-teacher on the one hand and students on the other" (Freire, 1968, p. 79).

According to Leeman (2004), banking education ensures the continuation of an oppressive society by:

- Mythologizing reality—"something to which people, as mere spectators, must adapt."
- Resisting dialogue.
- Treating students as objects of assistance.
- Inhibiting creativity.
- Failing to acknowledge humans as historical beings.

Freire therefore advocates a system of liberating education that treats oppressors and oppressed as equals within the learning process. "Through dialogue, the teacher of the students and student of the teacher cease to exist and a new term emerges: teacher-student and student-teacher. The teacher is . . . one who is himself taught in dialogue with the students, who in turn while being taught also teach" (Freire, 1968/2002, p. 80).

"Problem-posed education" is a partnership between teacher and student that democratizes content, how it is produced and valued, and focuses the education and learning around the here and now. In other words, instead of subscribing to an alien and historical formality, education is grounded in knowledge of the environments, peoples, epoch, and so on. In this sense, any of the participants may be more educated based on their own individual experiences, and the pedagogical process does not carry with it a historical model of power that suppresses the indigenous voice. Freire's model of thematic education extends this by conceiving of students as co-investigators with the teacher, and that together cross-cutting teams of students and teachers lead thematic investigations that they can present to the entire community. This process is reflexive, as throughout all must reexamine their roles, motivations, and principles, and therefore authentically commit themselves to the people. This commitment is the essence of the moral and emotional fabric that Freire concludes is consistent with his approach, and treats "people" as "us" rather than "other."

## REACTIONS TO FREIRE—APPROACHING ICTs AND DEVELOPMENT

Several effective critiques emerge that can work to augment this largely inspiring model. I wish to lay these out so as to further clarify the application of the model to the ICT development scenario.

First is the polarity between the oppressor and oppressed, to which Freire fails to add much texture. His concepts fall into the traditional Hegelian dialectic that lacks investigation into the multiple layers of meaning that generate the communities of oppressors and oppressed. Issues of gender, race, and cultural epistemology within each certainly would play a role in the actions taken and assumptions embedded within the pedagogical process. The universalization of the oppressed and oppressor does not interrogate the nature of the interconnections between the two categories and the mobility that may exist within these two categories. In different cultural scenarios, the oppressor and oppressed classes have been reversed at various times, through such processes as reverse discrimination. For example, previously repressed classes may revolt, take power, and then oppress the former oppressors. Access and power are different across gender roles in all societies, and the means by which the oppressor–oppressed relationship model plays out is likely radically different across different ethnicities and geographies.

Second, Freire speaks very little about agency and resistance that may exist prior to the process of dual transformation that involves collapse of hierarchy and embrace of praxis. He acknowledges that full-scale revolutions led

by the oppressed transfer the title of oppressor from one group to another. Yet oppressed peoples even without a full revolt still maintain agency that enables tacit and constructive types of resistance. In the ICT domain alone, a number of examples exist that reveal the presence of marginalized peoples via the Web (Mitra, 1997) and use of the internet to catalyze grass-roots activism around an indigenous cause (Cleaver, 1998). There is ample evidence that local peoples theorize in their communities as part of their community life, and articulate and interpret these experiences through various modes that may not be familiar or commonplace among the oppressors (Dei, 1988). Even the labeling of oppressor on the nonindigenous is a victimizing process that fails to recognize the multiplicity of means by which pedagogy has proceeded and motivations that may not be overtly or tacitly malicious.

Third, Freire's concept of information is much too simplistic, and assumes information transfer as inextricably linked to oppression, rather than a recentering of traditional central–peripheral power dynamics (Castells, 1997). Freire's approach can be bolstered through initiatives that recognize communities and researchers collectively as information producers and cocreators. This understands that information and media can be created and adopted by communities themselves (Miller & Slater, 2000; Nelson, 1996; Appadurai, 1998), and that knowledge can be situated within the localized cultural scenarios in which the development project is based. It can further be bolstered through information projects that engage communities to serve as the classifiers and categorizers of the databases of their information systems, allowing knowledge to be presented and represented around local, culturally specific discourses and priorities.

These critiques aside, Freire's approach is extremely valuable in conceiving ICT development projects built around community visions. This approach, by focusing on different cultural belief systems, supplements the traditional discourse around networks and power that Castells (1997), for example, has popularized. Visvanathan has argued that accompanying the structural shifts in Castells's analysis of the diffusion of information must be a sociology and theory of knowledge (Visvanathan, 2002). This is the recognition that the network impacts not only the diffusion of information and power, but also the diffusion of multiple epistemologies that emerge from different local, cultural perspectives that are distinct from traditional Western assumptions behind science and technology (Boast et al., 2006). It raises the importance of engaging alternative voices and epistemologies to impact and influence ICT initiatives.

Freire reveals that ICT development projects must directly engage the voices, categorical notions and discourses directly from communities themselves and bridge stratifications between the community and the organiza-

tion, government, or researcher. Existing research has recognized community voices and established participatory dialogues, but has yet to use this process to define the ultimate goals and methodologies for ICT development projects.

Freire's conceptual approach reorients the perspective to focus ICT development projects around dialogue, praxis, and coproduction. This article extends the approach without overtly embracing many of the polarizing motivations, labels, and dichotomies that are justifiably criticized within *Pedagogy of the Oppressed*. It is important to conceptualize a model and methodology of engaging communities to develop and articulate their own visions and goals of information access and, ultimately, an indigenous approach toward cultural, political, and economic aspects of development. This approach holds promise to sustain within communities the returns on the investment and efforts of the researcher or institution.

This article elucidates such an approach by (1) introducing challenges and paradigms within current ICT development research, (2) reframing the discourse and introducing further examples that can be evaluated relative to Freire's ideas, and (3) describing an approach that can more deeply embody the ideas of Freire while providing an overview of a current initiative in Southern India that reflects the approach of this article.

## ICT DEVELOPMENT: CHALLENGES AND PARADIGMS

A strong thrust in ICT development research is focused on bridging the "digital divide" of technology access. As this divide is considered to reify and augment existing global economic stratifications, the goal has been to stimulate development by providing equal information access. However, little has been said regarding the perspectives and authorship that lie behind this information. We need to keep in mind that development requires the generation of community capacities toward self-sustaining economy. It encompasses material and immaterial understandings (Menou, 1985, 1993; Sen, 1999), and recognizes the role of information as an ability to harness community knowledge and activity (Boulding, 1996).

Scholars celebrate the potential laden in ICT initiatives to engage and revitalize national infrastructures within the developing world:

> No single collection, user interface, or set of system capabilities will serve young and old, novice and expert, artist and physicist .... Yet people of varying backgrounds and skills, speaking different languages, have similar information needs .... The prospect of a global digital library presents several opportunities. One is to make information resources accessible to particular user communities while at the same time making those same resources accessible to a broader,

ill-defined and perhaps unknown audience. (Borgman, 2000, p. 208)

However, when shifting from the unit of the nation or university to a particular village or community, information access initiatives encounter problems and fail for a variety of reasons (Heeks, 1999). Many researchers have not directly considered culture as a factor that mediates the acceptance of the technology or the ability to absorb it within locally identified visions and developmental goals (Eres, 1981, p. 1). It has been argued that these have been pushed forward with Western paradigms and, at worst, are imperialist and generate dependency on the technology providers (Escobar, 1995; Ferguson, 1990). These events have underscored the realities of technology transfer being not merely an exchange that is political or economic, but a profoundly cultural process.

In reaction to these dominantly top-down ICT initiatives, other researchers have adopted participatory positions that attempt to steer initiatives by receiving community input. They have recognized that ICT researchers have an important role in giving voice to the poor and enabling them to empower themselves as active information providers rather than passive information recipients (Heeks, 1999). Locally contextualized and authored information, therefore, can be comprehended, adopted, and acted on more than information accessed from an alien context. This approach can enable communities to trust the information they receive, act on it, and have the confidence and security to believe that the project serves their own indigenous and collective needs (Heeks, 1999).

For example, Puri and Sahay (2003) describe how the approach of communicative action (Habermas, 1984) can allow geographical information system (GIS) technology to be applied in locally relevant manners. Villagers in Anantapur (Andhra Pradesh, India) were encouraged to codevelop a strategy with researchers to resolve land degradation issues within the region. The process involved interviews, discussions and meetings, and the sharing of community-created maps that demonstrate local approaches toward land care. The goals were to engage in a participatory process to elicit the community's own systems of knowledge and apply these to the land degradation research.

> There exists the need to develop design strategies that can foster mutual sharing of different forms of knowledge and practices, and create conditions in which effective communication can take place.... Information systems development approaches have generally been based on perspectives of purposive-rational action within an ontology of technical knowledge.... These researchers further argue that the nature and scope of such participation fails to consider the practical knowledge of users, and also does not afford the opportunity for "open and informed debate" between development groups and users. (Puri & Sahay, 2003, pp. 183–84)

Therefore, the theory of communicative action for information systems, articulated by Hirschheim and Klein (1999), values open communication between community members and researchers. It is based around four major paraphrased principles:

1. Equal opportunity to all participants to raise issues, points, and counterpoints to other views in discussion.
2. All participants are on an equal footing with respect to power positions.
3. All participants can question the clarity, veracity, sincerity, and social responsibility of the actions proposed.
4. All participants can have an equal opportunity to articulate feelings or doubts or concerns.

Kanungo's studies (2004) of villager-owned and operated knowledge centres (kiosks) within Pondicherry, Tamil Nadu (India), complement the Anantapur example. Kanungo points out that historically ICT initiatives have historically been framed within institutional, governmental, and laboratory environments. Therefore, these strategies lack the adaptability to succeed within the field. An emancipatory information system, in contrast, can sustain community because it considers the community as an integral part of a network (with other villages, researchers, nongovernmental orgaziations [NGOs], etc.) that achieves the development goal.

> As of now, the principal catalyst is the [research foundation] with the villagers being aware that they own, and are responsible for, the KC.... Sustainability emerges as the critical factor that will influence how information and information technology resources are managed in the post-experimental phase. The information village is need-based and community owned.... Emergent behaviors and roles of participants in the information villages project point to the development of a collective mind that is focused on the willful improvement of life. (Kanungo, 2004, pp. 416–417)

NGOs have to balance similar complexities to effectively receive funding yet empower local communities (Lewis & Madon, 2002; Hulme & Edwards, 1995). This "upward and downward accountability" presents a dilemma that is critical for all development initiatives—justifying results to receive financial support and institutional approval while still doing justice to the needs of the community. NGOs have emerged as the popular agent of development initiatives and often are at the mercy of donor agendas (Hulme & Edwards, 1997). To survive, as with all development initiatives, it is clear that NGOs must adopt convergent solutions that respect the voices of both community members and donors.

Lewis and Madon (2004) point out that NGOs and information systems are embedded within larger social systems that include technologies, organizations, environments, politics, and so on. Therefore, simply presuming that a technology would drive social change is naive. Instead, it is the interplay between the technology and human sociocultural action and interpretation that is important (Avgerou, 2002; Williams & Edge, 1999; Giddens, 1984). Researchers therefore argue that NGOs also have much to gain via more effective uses of information systems (Edwards & Hulme, 1992) that are stronger at "analyzing the various layers of context to the societies in which they work" (Lewis & Madon, 2004, p. 121).

With the preceding ICT development examples, the paradigm of participatory development is invoked. Participatory rural appraisal (PRA) is a widely adopted method of engaging the poor to articulate and express their own needs that can in turn inform policy and practice. Advocates argue that this approach embodies the ideas of Freire, in its understanding that values, goals, and visions are different across culture and environment. By engaging the community to describe its own vision, the development professional can intervene in areas that hold direct and indigenous cultural resonance (Chambers, 1994; Kramsjo & Wood, 1992).

> The differences between top-down reductionist definitions and objectives, and poor people's realities (are striking) . . . . The challenges are paradigmatic: to reverse the normal view, to upend perspectives, to see things the other way round, to soften and flatten hierarchy, to adopt downward accountability, to change behavior, attitudes and beliefs, and to identify and implement a new agenda. (Chambers, 1997, p. 196)

An issue PRA researchers face is the criticism of homogenizing the term community, without addressing the differences and dynamics within this construct (Gujit & Shah, 1998). The mythical notion of community cohesion ignores how power is adopted and manifested within the community (Cooke & Kothari, 2001), formulaically assumes the realities of "community life" (Cleaver, 2001), and equates participation with salvation (Francis, 2001). Clearly, the definition and approach toward community is a complex issue that warrants further research.

Where do the presented methods and theories stand relative to Freire's vision? I believe that while they are admirable in their advocacy of community cooperation, they do not go far enough. Missing within the Anantapur and Pondicherry cases is the discussion of whether the basic framework emerges from the community's point of view. Including the community to resolve a problem that is externally identified and framed may not fully satisfy Freire's vision of praxis. It presents the goal of developing ICT ini-

tiatives that approach the community without prejudging what its development needs are. Therefore, rather than positioning community input within a predefined technology or development goal, I advocate a process of praxis with community members that generates visions, technologies, and methodologies while recognizing and working across the structures of power and difference that exist within the community (Srinivasan, 2006). Simply assuming that the community will provide open, free feedback on an initiative that is already formulated by the NGO or researcher is unrealistic, and does not fully adhere to the depth of Freire's ideas. Instead, engaging communities themselves to create their own information and media, and to share these in a constructive dialogue, can be the step that allows the discovery of visions and methodologies for ICT development.

Therefore, several key issues emerge with respect to ICT initiatives. These include:

1. Access to what? : Providing a simple "black-box" Internet access solution is not inherently connected to a community's vision or needs.
2. Preadjudication of access topics, technologies, or development goals: In some cases, researchers have presumed that certain types of access are appropriate for a specific community. This is dangerous as it does not derive from a process where the community is itself making decisions regarding what it wishes to access.
3. Externalization and ritualism (Loegelin, 1992; Appadurai, 2004): Scholars have found that many ritualized, oral communities are missing the capacity to directly aspire to visions (Ong, 1988; Goody & Watt, 1968) that may be different than a ritualized history. However, some promise lies in approaches that engage communities to create and document information about their lives and collectively reflect on this (Srinivasan & Huang, 2005; Donald, 1993). This approach may engage communities to externalize notions that remained buried and laden within a collective habitus (Bourdieu, 1990).

## ICT-INITIATIVE EXAMPLES

In this section, I present three ICT development initatives that have influenced this paper and the initiative described at its conclusion. Each connects to the introduced theories and methodologies in their consideration of the community, its belief systems, and its broader context. But do they truly embody the position Freire has introduced of developing visions and goals from the community's own voice and objectives?

## Indigenous Video and Television

Terrence Turner's work with the Kayapo people of central Brazil is a benchmark in this research (Turner, 1992). The purposes of his work were to stimulate a video-creating process to articulate and advance various political and cultural agendas held by the community. Introducing the technology of the video camera to the Kayapo translated into an involvement and documentation of the negative effects of governmental hydroelectric dam schemes. The video documentation was brought back to the community by the appointed video creators and informed the different tribes of the impending danger. Moreover, the Kayapo had found that using their video cameras allowed them to interview and question Brazilian bureaucrats and politicians with a level of legitimacy that the government official would have to answer. Ultimately, this work translated into an international exposure for these peoples, as they were able to demonstrate their land rights issues on an international stage that could supersede even the Brazilian national government.

The work of Eric Michaels and the Warlpiri Aborigines of Western Central Australia also merits mention. A technological solution involved the creation of a low-frequency, low-power community transmitter that would allow community members to select from a variety of locally produced programs. This process generated an expansion of topics covered through these video programs and, correspondingly, shifts within social organizations of the community to accommodate the television feed. Fascinatingly, the dominantly oral cultures of these aboriginal communities smoothly transition into the electronic systems of video infrastructure.

> There is no necessary translation from orality to electronics; we are instead seeing an experimental phase involving the insertion of the camera into the social organization of events. (Michaels et al., 1994, p. 65)

The examples of the Kayapo and Warlpiri reveal the potential of indigenous created media and information. They reveal the potential by which local populations can create, circulate, and benefit from indigenous information and media. Applying these initiatives to Freire's approach, however, reveals that neither directly places the community's voice at the forefront. Turner's intervention is largely described as a response to a situation of land loss, and the instruction of video making was at least initially based around these needs. And with the Warlpiri, the creation of an indigenous television station is powerful as an infrastructure but does not necessarily entail the release of community voice and the dilution of oppressor/oppressed polarities. Both projects, however, reveal constructive paths that enable the release of community-created information, and, as such, stand somewhere in between the stark dichotomy of oppressor/oppressed laid out by Freire.

## Ngo Mediation—The Case of Jana Sahayog

In a Bangalore (India) urban slum region, Madon and Sahay write of Jana Sahayog, an NGO that has tactically taken a community information-focused approach to mediate the relationship between governmental initiatives and the realities faced by slum dwellers (Madon & Sahay, 2002). The interventions employ a variety of informational tactics, including (1) using audio in folk formats to alert slum dwellers of their rights, (2) creating a community newspaper that can allow community members to respond to conditions in which they feel themselves wrapped while being kept abreast of goings-on outside of the settlement, and (3) presenting documented measurements of slum conditions relative to governmental guidelines.

> Prior to the establishment of Jana Sahayog, basic information about the slums was produced by the government and was neither shared with other organizations nor made available to slum dwellers in a way that they could understand or respond to.... Since Jana Sahayog came into existence, information flow has gradually increased in the direction of the slum dwellers. (Madon & Sahay, 2002, p. 18).

Thus through such informational initiatives, Madon and Sahay invoke Castells's model of networks and power (Castells, 1997) to argue that NGOs can alter structures of power so that information flows toward and from the periphery, rather than solely residing at and circulating within the central node of the government.

## Community-Modeled Ontology Projects (Village Voice and Tribal Peace)

The previous two examples focus specifically on the development of a collection of community-generated information/media pieces that are disseminated within the community. The Village Voice and Tribal Peace projects complement these efforts by focusing not simply on indigenous authorship, but also on classification, categorization, description, and representation of these pieces and how they are shared. Different cultures manifest distinctly through the means by which they conceive of and categorize knowledge, whether it be in terms of the environment, health, geography, or other topics (Levi-Strauss, 1962; Turnbull, 2004; Watson & Chambers, 1989). Standards and classifications are emblematic of a social process, and exact great power over the cognition and understandings of inclusion and exclusion (Star, 1989; Bowker & Star, 1999). Moreover, the potential of working with different categorical discourses recognizes communities as multiple and differentiated, rather than as a universalized "oppressed" people. Each community naturally maintains its own

epistemologies and priorities, and acknowledging these differences adds depth to Freire's argument.

Information systems via their use of databases potentially enable classifications and discourses to be represented by communities through an approach described in previous research as "fluid ontologies" (Srinivasan & Huang, 2005), or the representation of information system content according to fluid, elicited descriptions articulated by community. This process engages communities to not only create their own media and information, but also to iteratively design the architecture by which these voices are represented and disseminated. This design emerges through the shared reflection around community-created information and media, building on the work in "activity theory" of Cole and Engestrom (1993) and Engestrom (1999), who have explained the means by which collaborative activity can reconcile a diversity of interests and create representations that are inclusive, dynamic, and fluid.

Both these projects were focused on engaging disenfranchised communities (Somali refugees in the Boston area and 19 Native reservations in San Diego County) to create self-reflective media related to community issues in whatever manner the author chose. With both communities, an easily developed fluency with video literacy and creation enabled a collection of local narratives. As content was aggregated in both projects, a clear structure and range of topics and concepts began to emerge. This arose as community members began to view content created by one another (over the Web, in collective meetings, and on local cable access television channels) and discuss topics and possibilities that had never been vocalized according to the participants.

> During these discussions, the community would come to a consensus on whether an issue that had come up should be included in the ontology. For example, one story was set at a Somali youth party. It showed teenage men and women dancing together dancing to hip hop music. The idea of a youth dance party without Somali music was disagreeable to some of the participants because of its disrespect to the Islamic taboo of pre-marital relationships, while most of the youth at the meeting argued that one could have a pre-marital relationship without being disrespectful to Muslim culture. During this discussion, the participants decided that issues of religious tradition, sexuality, and generational differences were relevant to the ontology. (Srinivasan, 2004, p. 104)

Ontology was understood in this research as the community's identification of a structure of collective priorities that emerges from the reflective process of viewing community-created content. As members watched videos, listened to recordings, and viewed collective content, this ontology was elicited and formed the basis of both the Tribal Peace (www.tribalpeace.org) and Village Voice systems. It continues to be reformed as new information and media enter the system and the community's priorities and

representations change accordingly. This research is discussed in great detail across several other published works (Srinivasan, 2004; Srinivasan & Huang, 2005), but points to the possibility of engaging communities to externalize issues through information authorship and representation.

The diagram in Figure 1 was therefore created across initial sets of community meetings (with open invitation for any to participate). These meetings were led by community leaders, with the researcher only present as an observer (Srinivasan, 2004). Participants were instructed to view, reflect, and derive a structural relationship of all relevant themes, topics, and their interrelations. This initial ontology was encoded into the development of the initial Village Voice ICT system, where community members could submit and annotate information (relative to this ontology) and browse the information of others by selecting topics of their choice from this community ontology. It was found in research that placing the community in control of its own ontology and system architecture resulted in greater participation and system usage relative to the standard indexing technique of keywords (Srinivasan, 2004).

## Relating These Examples to Freire

Each of these projects speaks to Freire's vision of praxis and the collaborative construction of knowledge. However, Jana Sahayog, Turner's work with the Kayapo, and the Village Voice/Tribal Peace engage community voice tactically, rather than instrumentally. Similar to the Anantapur and Pondicherry examples, objectives of land reclamation, government initiative responses, and so on had been predecided in these projects, and were not the emergent praxis that Freire describes.

## RECONCILING COMMUNITY VOICE WITH INFORMATION ACCESS

Given these issues, I reintroduce my hypothesis that ICT development initiatives driven by community-created content may allow community members themselves to identify and pursue information access indicators that serve collective community needs. This identification may be accomplished by considering the idea of ontology introduced in the Tribal Peace and Village Voice projects, because the aspirations and priorities that emerge from the reflective stages of authoring and sharing information can transform into a structure of information access goals.

This theory is to be explored in the context of the Village Incubator (VI) research project based in Southern India. The research, in its initial stages, involves an engagement with two village communities that lack written literacy, basic education skills, and other indicators that are often emphasized in development interventions. As a number of communities operate within oral traditions that
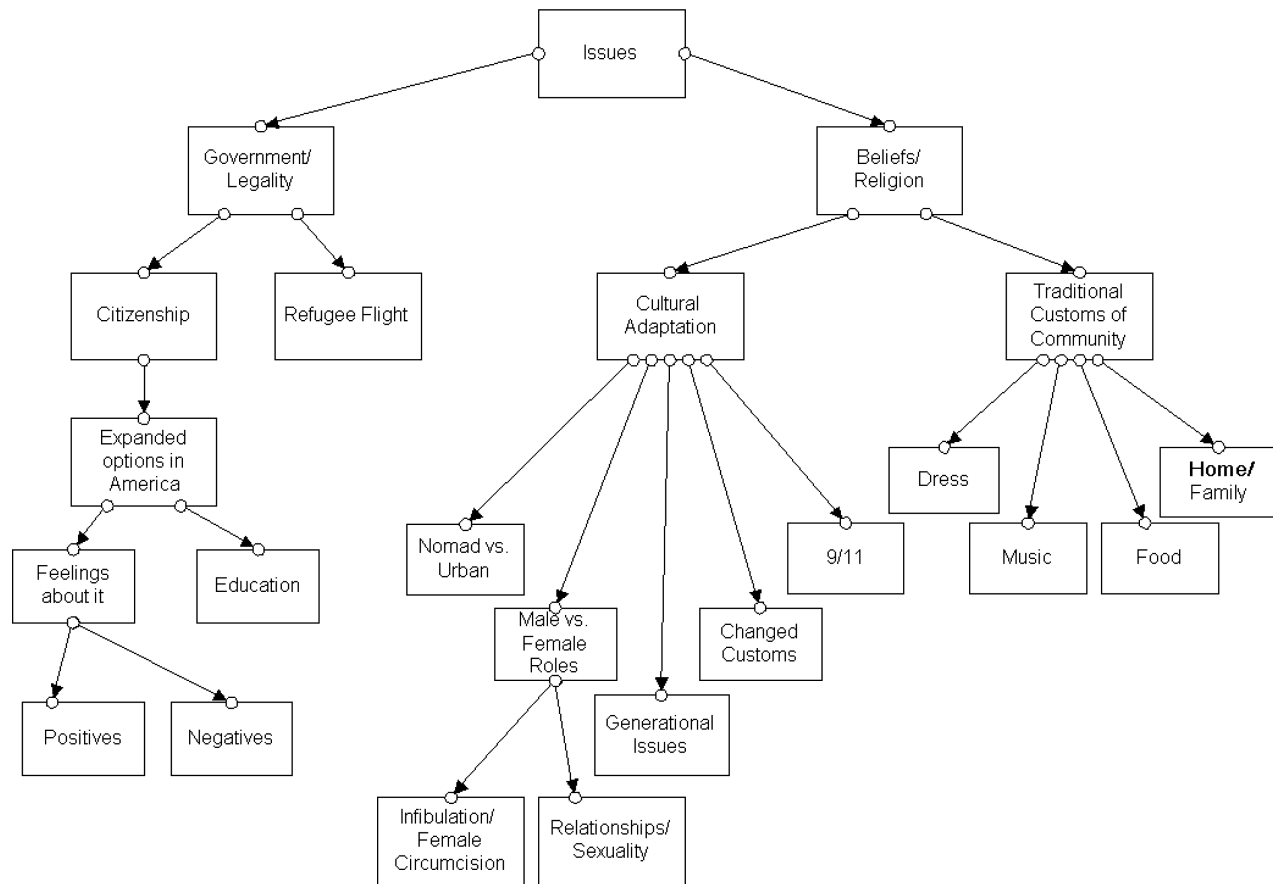
**FIG. 1.**   Somali community ontology for the Village Voice project (Srinivasan, 2004, p. 105).

maintain a mythic and mimetic basis of ritualizing knowledge and its transmission, even Western liberal approaches toward development that ask communities to declare their own visions have tended to fail (Ong, 1988; Goody & Watt, 1968). Personal exchange norms and institutionalized practices instead dictate activity within such communities (Greif, 2002), rather than notions of transformation and planning. Indeed, many development projects presuppose that these shifts can only occur within communities that embrace the literacy of writing and reading. These projects have failed in their resonance with communities, and require the development of external symbolic systems that endanger traditions and are at best slowly adopted (Donald, 1993).

## SOUTHERN INDIA—INFORMATION DEVELOPMENT AND COMMUNITY VOICE[1]

The Village Incubator project seeks to determine whether the two communities in question can articulate and develop their own visions by creating, sharing, and reflecting on video, image, and audio information, and thereby actu-

alize Freire's ideals. It is a collaborative effort between researchers and community members that will only proceed when community-derived goals and visions are expressed to researchers. Several villages in connection with the research partner NGO (Byrraju Foundation[2]) have expressed interest in working with the NGO and researchers on developing technologies that can serve their own indigenous needs. There is receptiveness to new approaches that enable the introduction of technologies that serve local developmental goals.

The work of several visual anthropologists (including the already discussed work of Turner with the Kayapo, Eric Michaels with the Warlpiri [Michaels et al., 1994] and Sol Worth with the Navajo [Worth & Adair, 1972]) has shown how indigenous video and information can catalyze community activity and reflection. To realize Freire's theories, neither the researcher nor the NGO will make instrumental assumptions of community goals or visions, and instead both recognize that these will emerge over time and community reflection. It is therefore a project that is based around the praxis of dialogue between the researcher and NGO with a diverse set of community members. The project will proceed as follows:

- Two villages of several possibilities will be selected in Southern India (Andhra Pradesh and Tamil Nadu). Both villages will be selected based on the maintenance of preliterate oral traditions and a long, sustaining poverty and also the ease by which the NGO and researcher can access the field sites.
- Interns will be selected via the NGO to live within these communities and build relationships with community members that in turn can over time facilitate the deployment of the project. The relationship building will laterally work across the power structures and relationships within the community by taking an open and inclusive approach (Srinivasan, 2005).
- Video and other visual technologies (photograph-focused, perhaps sound-focused) will be provided to community members if the project and relationships develop appropriately to make this step feasible.
- Little doctrinaire instruction will be given on the use of these technologies or the imposition of values of what is or is not adequate use. Only operational training (of functionality and range of use) will be provided.
- The goal at this point will be to study the nature of the externalized information production process, how it diffuses within the community, how it might transform collective visions and activities, and how a corpus may be assembled from different media pieces created by community members. In previous research, I had observed that the process of assemblage and media creation could generate discourse, dialogue, and other elements of public space—for instance, how taboo and ritualized topics were uncovered and reframed by a refugee community (Srinivasan, 2004).
- After these initial stages, the goal will be to study how the collection of media produced content will transform into mobilized community goals and an ICT project that can harmonize with these. This process will focus on community meetings to articulate shared priorities, notions, and conceptualizations that emerge from the creation of these multiple videos and their sharing.
- Evaluations of this research will be periodically be conducted, based on (1) whether information access indicators are identified, (2) the level of engagement the community maintains in creating information and accessing the chosen sources, and (3) the integration and stewardship of new initiatives that relate to collectively identified visions. This step may involve an analysis of how the process connects to existing community infrastructures and practices (such as schools, religious festivals, social and political meetings, and so on). These evaluations will identify whether the ICT initiative can sustain independently of the constant presence of the researcher or NGO partner.

## POINTS OF DEPARTURE—FREIRE[3] AND THE TRAJECTORY OF ICT DEVELOPMENT

Freire's *Pedagogy of the Oppressed* holds dramatic impact in the domain of global information development research efforts. He introduced a model of engagement with communities that recognizes development as a shared process of construction where communication and reflection uncover deeper wisdom. While Freire largely frames his model in binary and dialectical terms (such as oppressor–oppressed) and advocates an oppressed-led transition, it still informs a critical research agenda that integrates information and development. It opens up new ways of thinking in which development is not seen as merely information transfer, but as a process where communities can develop their own authorship and classifications.

Village Incubator is but a first attempt to weave Freire's ideas explicitly within ICT development research. Communities that author, circulate, and classify information represent a departure from the banking model of education that dismisses the community or student as a passive recipient. Described initiatives have ranged from rather blind impositions of information technologies onto developing communities to more sensitized informational projects that cultivate community-created information. Yet the fact is that most well-intentioned projects are visioned independent of the community–researcher praxis. In that regard, while they may not directly reify models of stratification and subservience, they do not forge new relationships and a codiscovery of ICT development goals and processes. In contrast, the Village Incubator project presents an opportunity for interested communities to engage the NGO, researcher, or other external institution with a sense of their own visions. This can help researchers develop ICT initiatives with communities that can sustain and resonate with local, cultural realities and beliefs.

Importantly, Freire's inspirations reconcile questions of cultural and pedagogical studies with information research by highlighting their interconnections within projects emerging from the vernacular of the community. Research that presents the community with the objective of leading its own endeavors begins to open up important answers to multidisciplinary questions, including (1) how do belief systems originate and circulate in communities, (2) how do communities conceive of memory and archival knowledge, (3) what types of visual and audio technologies work with different types of cultural systems, and (4) how can development indicators be elicited that are

informationally oriented, economically oriented, and culturally oriented?

Is it possible to engage in ICT development research that is community-focused yet still engages the goals of access and connection that dominate information society agendas? Is it possible for a productive linkage to be formed between the hypotheses of this article and beneficial elements of resource-sharing that remain global priorities within the United Nations, World Bank, and other institutions? Such solutions may be realized in further research that conceives of an information society that accommodates multiple epistemologies, contexts, and cultural realities (Srinivasan, 2006; Visvanathan, 2002). Such answers present possibilities for convergent, praxis-oriented solutions in future ICT development research.

## NOTES

1. This project was inspired by collaborative efforts conducted with the Kozmetsky Global Collaboratory (KGC), based at Stanford University.

2. http://www.byrrajufoundation.org

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