

# Cultural Assessment for Sustainable Kiosk Projects

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**Abstract**—Kiosk/telecenter projects, which provide access to information technologies and related services, have become an important vehicle for delivering the benefits of ICTs to the developing world. As more of these projects are implemented, there is a real need to evaluate their long-term impacts. Assessments, however, are often restricted to economic and technical factors which, though important, by themselves privilege objects and models over people and situated use. Beginning with the premise that successful and sustainable kiosk projects are those that adapt to local contexts and cultures, this paper presents a holistic model for assessment that centers on cultural factors. We argue that understanding cultural factors allows kiosk projects to respond to local histories, needs, and values in a way that ultimately enhances the long-term viability of change. After discussing some challenges that many kiosks currently face with respect to a holistic, culture-centered assessment, we present a brief review of models for ‘rapid’ ethnography which are drawn from applied anthropology. Finally, we propose a focused and practical framework for holistic analysis to inform program development.

**Index Terms**—Developing Nations, Technology Assessment, Technology Social Factors

## I. INTRODUCTION

### A. Dropping Boxes

IN 2002 while conducting an ethnographic evaluation of a technological intervention in Baltimore, MD, we were struck by the clarity of purpose that program managers felt [1]. The organization was funded by a major computer manufacturer to do development in area of East Baltimore characterized by poverty, crime, and a lack of infrastructure and services. Board members talked a big talk about harnessing the power of information and communication technologies (ICTs) to change lives – just as many in the ICT for Development (ICT4D) community do. But as the program progressed, staff began to talk with distaste about ‘dropping boxes.’ Dropping boxes, it turned out, was the idea of technology without purpose. In one participant’s imagination it was the act of pulling a truck up to the corner and kicking computer hardware out of the back. Dropping boxes was a euphemism for senseless development – temptingly easy but practically pointless. The group had developed a shared understanding that dropping boxes was anathema because it

made the program about objects, not ideas. It provided no thought, no substance, no human guidance for development.

### B. A Time for Reflection

Kiosk/telecenter projects, which provide access to information technologies and related services, have become an important vehicle for delivering the benefits of ICTs to the developing world. (For a thorough typology of Kiosk/telecenter projects see [2]. I use the term kiosk to refer to a broad category of projects, but others choose to use telecenter or Cybercafé.) But despite the popularity of the kiosk model, sustainability is an ongoing uncertainty [3]. There is relatively little understanding of proposed changes in the long-term or how interventions fare as they are turned loose from the organizations that fostered them [4]. Some projects are still ‘dropping boxes’ and choosing to operate under the assumption that the mere presence of ICTs will foster development – that thoughts about actual use or propriety for a given context can come later.

Given this ongoing pattern, it is time to begin evaluating kiosk projects with respect to the full array of factors that create local contexts, not simply the economic and technical factors that often dominate planning and assessment. Considering cultural factors as the hub of a holistic perspective can lead to more sustainable success. A culturally appropriate kiosk does not require that communities abandon deeply rooted, historically produced values and behaviors in favor of new, foreign, and unproven ones. Rather, it is designed with respect for the powerful sociocultural traditions embodied in existing beliefs and practices, and integrates itself with them as a means to lasting change.

With a holistic view we privilege not just the technology, but its meaning. Meanings, after all, are at the roots of the behaviors and ideas that interventions hope to change. Anthropologist Clifford Geertz wrote [5]:

The concept of culture I espouse... is essentially a semiotic one. Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of

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law but an interpretive one in search of meaning.

Geertz's comments tell us that understanding meaning as expressed in local cultural contexts is where the path to sustainable change might begin. Communities do not respond to our perceptions of the internal logic of a technology, or to the rationalization of its utility. As a result, ideas about situated use should precede the development of a technology or program, not follow it. Using kiosk projects as a continuous ad hoc experiment would be fine if we could assure ourselves that doing so would not divert resources from other, more well-reasoned measures. But in an environment where resources are limited, ignoring factors that could contribute to the sustainable success of programs can serve the needs of researchers and practitioners more than those of the people whose lives we seek to influence.

In response to criticism of existing practices, we have heard some ICT4D researchers and practitioners say 'Why should we bother? Our strategies are already working. We are achieving our goals.' But whose goals are achieved? Though many have had interesting and beneficial outcomes, the majority of kiosk projects have not stood the test of time, so it cannot be individual programs' goals. Considering the relative lack of examinations of failures or the development of integrated bodies of best practices it does not seem that researchers or practitioners' goals are being met either.

It appears, then, that there is room for improvement. Creating culturally appropriate programs and technologies is one means to such improvement. A culturally appropriate program or technology is one that adapts to and integrates with existing cultural characteristics in a target community. Objections to a cultural focus are often based on the idea that it is difficult and impractical. We believe this belief is at least partly a product of the relative lack of comprehensive, rigorous, and practical methodological and analytical frameworks tailored to the assessment of IT projects. This paper attempts to address that deficiency.

In laying out this framework, we aim to systematize a process that some projects are already undertaking. We recognize that more and more researchers and practitioners are turning to anthropology and ethnography to help understand both existing and potential applications of ICTs in the developing world. For these like-minded colleagues, the contribution of this paper may not simply be in making the case for a holistic culture-centered perspective, but instead in beginning the long process of developing an ethnographically-informed framework for the analysis of kiosk projects and the sites they inhabit.

We make the case for culturally appropriate kiosks in three steps. First, we present three unique challenges that ICT4D projects present. Second, we construct a specific argument for the importance of a holistic culture-centered perspective and outline how it can promote lasting change. Finally, we lay out a framework for doing cultural assessment of kiosk projects that includes an outline of 'rapid' ethnographic techniques and a more detailed discussion of its analytical elements.

## II. CURRENT CHALLENGES

Because of the unique and powerful capabilities of ICTs, holistic cultural assessment of kiosk projects involves several unique challenges. The following discussion presents three of these challenges as well as some ideas for addressing them.

### A. 'Technocentrism'

Kiosk projects sometimes focus development and assessment primarily on technological factors. Technological factors should certainly be an important consideration, especially because interventions usually occur in countries where infrastructure is thin and unreliable. But when technological considerations overwhelm all other factors, important barriers to the sustainable adoption and use of a technology may be missed.

As an example of 'technocentrism', we might consider the case of projects that rely on long-distance wireless technology to provide Internet connectivity. Wireless backbones are desirable for a number of reasons, including that they are cost effective and relatively reliable [6]. However, line-of-sight is often required for connectivity. Such a requirement means that sites must be located in areas that meet technical requirements (e.g. on a hill). Technical alternatives such as relays make it possible to gain flexibility in the placement of long-distance wireless end-points. Since using relays or other technological solutions may introduce additional technical challenges and costs, however, implementing them requires that planners understand the diversity of factors that hinge on where a kiosk is sited.

On one hand it does not make sense to put a kiosk site in a location where connectivity is not possible. On the other hand connectivity does little good if there is no one to use it because the site exists outside of the established patterns of daily life in a community. A solution that asks community members to adopt an entirely new practice, for instance traveling out of familiar and trusted areas to kiosk sites, will face much more formidable barriers than one that accepts existing practices and attempts to integrate with them. The only real solution is to compromise – to consider technological factors in balance with others.

### B. 'Technological Determinism'

ICTs and the internet have been hyped in the popular media and deified in the popular consciousness since the dot-com boom in the mid-nineties. Driven by overzealous technologists and journalists, along with corporations looking for new markets, zeal for ICTs has spread to the developing world. The popular assumption seems to be of the 'if you build it they will come' variety, where a high-tech solution is always the correct one. There is little recognition of the consequences of introducing technology into communities, especially in the developing world. The benefits of ICTs, however, do not manifest themselves equally in all contexts. Some technologies may actually do more harm than good when they conflict with local values. For example, a recent kiosk planning project in Tijuana, Mexico found that in the context

of a home for juvenile delinquents, the potential for harmful interactions outweighed educational benefits. The dominant value in that context was not that the internet would provide access to valuable information but rather that access would create dangerous opportunities for the kids.

Many kiosk projects also reflect an ethnocentric prioritization of the value of certain ICT uses. For example, a common observation is that the primary clients of some kiosk projects are young boys and girls playing games. The implication of this observation is often that this is not an appropriate use of the technology.

While our Western, business-centered priorities may suggest, for instance, that Microsoft Office is a better use of ICTs in developing countries than games are, we should not impose that priority on others without considering their point of view. By adopting local ideas about needs and priorities instead, we can leverage them to gain trust and allow participants to address a kiosk project on terms with which they are familiar. So, for example, we might conclude that entertainment itself has an important value, especially because for many in the developing world escape of the kind that computer games supply is a luxury. A more culturally appropriate attitude would be to understand the local value of game-playing and where games and entertainment can become a tool for effecting substantive changes in other domains. Games can be a powerful learning tool when they are appropriately designed. Playing games also helps community members to become more familiar with ICTs, and to eliminate the confusion and mistrust that can surround a new and foreign technology.

### C. *Interface with Local Practices & Beliefs*

ICT-based interventions have the capacity to both enhance and overturn existing practices. Coupled with the popular hype that surrounds ICTs, both the idea of and the presence of ICTs can influence communities beyond the localized object of an intervention. If we can understand local perceptions of technology and its place in the world, then, we can plan for the ways that it can help and hinder kiosk projects.

One study, for example, found that perceptions about cell phones and the Internet among communities of Latino immigrants in the Southwestern United States were major barriers to their adoption [7]. The study found that participants perceived cultural characteristics such as *orgullo* (sense of pride), *simpatía* ('behaviors that promote smooth and harmonious relationships'), and high power distance (respect for and loyalty to one's superiors) had an important impact on the way participants viewed the affordances of ICTs. Participants had also learned to be actively conscious of the challenges, difficulties, and dangers of computers and the internet. Finally, the study found that Latinos shared a perception that they would have to abandon their native language in order to embrace computers and the internet, something that they were by and large not willing to do.

Although there is an apparent lack of studies that consider local perceptions and values related to ICTs, we believe the

previous example illustrates their importance. If community members feel that the presence or use of ICTs is in conflict with other deeply held beliefs, even the most appropriate intervention will likely fail.

Some kiosk projects, however, have addressed the potential for problematic relationships with local values and beliefs as a side effect of e-literacy efforts [8]. Even if e-literacy projects do not succeed in transferring knowledge and skills, they inevitably increase familiarity with ICTs. As community members interact with previously foreign technologies, they can learn to overcome their wariness of them and see their presence and use through the lens of their own experience. Through this process kiosk projects that are sensitive to local practices and beliefs can become more sustainable and integral to daily life.

## III. THE CASE FOR CULTURE

### A. *Kiosk-Projects and Cultural Factors*

It seems reasonable to suggest that the kiosk, as a broad genre of development projects, is moving towards maturity. A sufficiently diverse array of projects has been implemented so that we can begin to look at them critically in different contexts. At first, it was understandable to look on kiosk projects with rose-colored glasses. Especially during the late 1990s IT boom, a general zeal for the burgeoning Internet and PC markets may also have buoyed high hopes for kiosks. But we have come to a point (or perhaps past it) where we should start to ask from a broader perspective whether we can do better than we are currently doing.

Other research has attempted to define success and sustainability in the context of kiosk projects, but it has done so primarily from the perspective of technology, infrastructure, and economics [3], [9], [10]. As an alternative, we propose a holistic, culture-centered view on success and sustainability that uses a model for assessment practice based on 'rapid' ethnographic techniques. While this methodology is important for making ethnography practical and accessible, its power comes from a cultural perspective. This perspective helps to clarify the places we can look in our data for barriers and enablers – it helps us know what to do with ethnographic data once we've got it. The model we propose summarizes 'rapid' ethnographic techniques with three methodological guidelines, and provides four general analytical frames that help to operationalize cultural factors in local contexts.

#### *Methodological Guidelines*

- Advance Preparation
- Local Collaboration
- Mixed-Methods

#### *Analytical Frames*

- Needs & Assets
- Characteristics & Flows
- Places & Spaces
- Gatekeepers

In considering the concepts of cultural assessment and

sustainability, thinking in the long-term is essential. Many interventions appear to effect substantive changes within a limited timeframe, or while researchers are still active in the field. Once researchers are no longer actively promoting new ideas, however, changes can be easily overcome. Tradition, history, and habit ally, and the program's influence fades away. Assessments may never show this slow degradation of new ideas unless they are conducted months or years down the line, but such assessments are infrequently done. Because of the lack of longitudinal studies, we must admit that in many cases we simply don't know how sustainable changes proposed by kiosk projects have been.

### B. Culturally Appropriate Kiosks

We define culture as a shared set of values and beliefs that tie a community together – a way of perceiving and acting that forms a 'worldview.' Whatever culture is, it is shared, and whether it is shared among two people or two million is unimportant. Culture is the glue that binds people – that fills the gaps in social communities. By this definition it becomes easier to see why addressing culture is essential for designing and evaluating any intervention.

As we begin a discussion of cultural assessment and cultural appropriateness, it is important to emphasize that we do not propose a focus on culture at the expense of other factors. Instead we propose a holistic view that situates culture at the center of a wider system. (Figure 1)

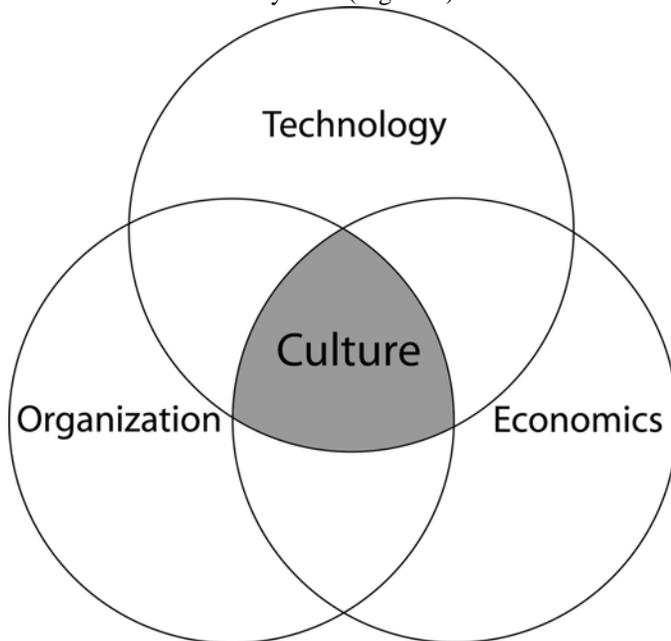


Figure 1. Local understandings about technology, organizations, and economics are embodied in culture, so putting culture at the center of assessment enables a holistic perspective.

It is the consideration of the local context of an intervention – of situated practices and perceptions – and the tailoring of a program to that context which makes an intervention culturally appropriate. Ultimately, a culturally appropriate program is one which respects and puts an emphasis on the perceptions and behaviors of targeted groups. Regardless of the internal logic of an intervention – how rational or

apparently self-evident its benefits are by our standards – it must fit within a local cultural context to be effective and sustainable. What we think about an intervention is ultimately less important than what our targeted groups think. Researchers cannot expect communities to adapt to the presence of changes they perceive as foreign, regardless of how useful or important we perceive it might be from an external perspective. Making interventions culturally appropriate helps to ally proposed changes with existing sociocultural structures that have already gained trust and sustainability within the community. A culturally appropriate intervention can be understood from a community's own point of view, a fact which makes changes more likely to stick.

The framework we propose is meant to move the task of assessment closer to the local, but it does not resolve the inherent contradiction of development – whatever researchers do they will always be outsiders to some degree, and our designs and decisions will reflect that. One useful strategy for addressing this contradiction is to turn the execution of projects wholly or partly over to locally based groups [11], [12]. But even this does not completely solve the problem of bias, as local stakeholders usually have their own needs in mind. A part of development is to weigh the needs and biases of different stakeholders and balance them in a mutually beneficial fashion. While cultural assessment of the kind we suggest has its pitfalls, it does have the benefit of helping to achieve this balance.

Finding the correlations between cultural appropriateness and sustainable change is an important challenge. We could find few studies that explicitly compare the outcomes of culturally appropriate and more traditional interventions. One study, conducted by Robert Dushay and his colleagues, did compare the effects of culturally appropriate and traditional public health interventions, but only in the short term [13]. The study showed no statistically significant differences between the two according to an accepted metric for HIV risk behaviors. But this finding is hardly clear-cut.

This study raises the point that success, like sustainability, is a problematic concept. How we choose to define success and sustainability is influenced by which outcomes we expect, which we can measure, and which are popular among stakeholders. Future funding can hinge on being able to demonstrate success in predetermined ways, and so it is to researchers' benefit to cast programs as successes even in situations where no effects are measurable. However, the measures of success that we choose based on grant reports or academic norms may not be the ones that demonstrate actual success in changing behaviors or attitudes. Dushay's study showed that using metrics accepted in the public health and epidemiological communities showed no success for the culturally appropriate programs. However, those programs also drew more clients and kept them involved longer. Participants said they liked them better.

Ultimately, we might ask: Which measures better reflect the character of experience from a local perspective: those defined by the intervention community or those defined by the target

community? There is no easy answer – indeed the answer is probably that both sets of measures are important. Dushay’s study supports a holistic perspective on assessment, however, because it demonstrates the importance of understanding and acting on multiple points of view.

#### IV. HOLISTIC CULTURAL ASSESSMENT

Before we begin discussion of a specific model for holistic cultural assessment of kiosk projects, some background is necessary. Designing culturally appropriate programs requires that researchers learn about the local context of the communities in which they work. Cultural assessment is not simply the gathering of cultural information, but also the acceptance of and respect for local cultural knowledge [14]. Ethnography is a powerful toolkit for doing cultural assessment because it adopts a holistic point of view and aims to understand not just a single phenomenon under study but the context in which it exists.

In practical terms, ethnography is the documentation and description of culture. Though it was developed primarily by cultural anthropologists, its use is now much more widespread. Along with this expanded role for ethnography has come a broadening of its methodologies. Traditionally ethnography has been considered a multi-year enterprise that involves far-flung places and exotic environments. This model, however, bears little resemblance to what many anthropologists, much less practitioners in other fields, do today. Still, we suspect it informs popular conceptions of ethnography. It is perhaps what lead Michael Agar, in the first sentence of a chapter titled ‘Who Are We To Do This?’, to write: ‘Ethnography is really quite an arrogant enterprise [15].’

‘Rapid’ ethnographic techniques are an attempt to adapt the traditional ethnographic model to more practical and contemporary needs.<sup>2</sup> Rapid assessment can address at least two problems with traditional ethnography: (1) that it is perceived as cumbersome and impractical, and; (2) that it is an unknown quantity. What ethnographers actually do remains a mystery to many people (even some anthropologists). Rapid assessment recognizes that there are practical constraints on data gathering in an applied setting, and that making it useful requires, to a certain degree, systematizing the art and craft of ethnography.

Another frequent worry is that we don’t know what to make of ethnographic data once we’ve got it. How, exactly, will it help us make better decisions? Stakeholders who are used to informing decisions with statistics may be uncomfortable with using conclusions generated from narratives and rich descriptions. However, these worries are fueled in part by the popular misconception that ethnography is a qualitative method. Though ethnography is frequently defined by its

primary method – participant observation – it is in fact a mixed methods approach. Good ethnography is informed by a variety of qualitative and quantitative methods including statistics and surveys. ‘Rapid’ ethnographic methods in particular draw much of their strength from correlating findings across methods and providing the appropriate findings for the situation.

Still, in contexts where bullet points and statistics are the norm, qualitative findings can seem like a square peg for a round hole. One way to address this problem, of course, is to expand popular conceptions about findings. Unfortunately a more common way is to adopt what we call the ‘PowerPoint version of culture.’ The PowerPoint version of culture condenses complex, contested meanings and deep, rich data into a set of static, shallow bullet points. While it is possible to condense a set of ethnographic findings into a succinct format, the practice of using bullet points can obscure nuanced understandings in favor of broad generalizations and cover up incomplete or under-informed work with the trappings of a structured presentation [18].

‘Rapid’ may also be an inappropriate modifier for the set of ethnographic methods we propose because it sets up an explicit comparison with traditional ethnographic methods where speed is the primary identifier. Rapid assessment can condense some of the practices of long-term ethnographic research into several weeks or months. But its goal is not simply to do ethnography quickly. After all what is quick for one application is unacceptably slow in another. Rather, we propose two more accurate goals for rapid assessment: (1) to implement ethnographic methods in a way that is appropriate for the context of application, and; (2) to maximize time spent in the field – to gather the largest amount of the most relevant information that we possibly can. Understanding the distinction between rapid on the one hand and appropriate and efficient on the other is important for figuring out the best way to implement a research design. Time is certainly a factor but it should not, by itself, drive research.

Method by itself, however, is only a small part of any research framework. As ethnographic methods have diffused more widely, the theory and perspective that informs those methods has, by and large, not diffused along with it. The value of ethnography is not simply in data collection – it is also in the theory, drawn primarily from anthropology, which informs both method and analysis. In this context, the discussion of theory does not relate to macro-level epistemology and ontology. Rather, it refers to the set of perspectives and foci that inform data analysis. Just as important as the questions we choose to ask is where we begin looking for their answers. The places we choose to look, of course, will differ based on the context of application. So, following a discussion of some basic guidelines for ‘rapid’ ethnographic research, we present four domains which may yield insights that are particularly useful for making kiosk projects culturally appropriate.

<sup>2</sup> Techniques for doing applied ethnography have been given many titles: Rapid Ethnographic Assessment Procedures (REAP), Rapid Assessment Programs (RAP), Rapid Appraisal Process (RAP), to name a few. We use a more general term here in order to avoid confusion over the specific model we propose.. This paper presents only a general overview of these frameworks. See [16] and [17] for further discussion.

## A. Methodological Guidelines

### 1) Preparation

Time in the field is precious and expensive. In order to maximize the value of this time, as much preparation as possible should be done in advance. We take Levy et. al.'s suggestion that the two most important elements of effective preparation are defining a clear and narrow focus and reviewing the literature on related topics in order to gain an understanding of relevant values and beliefs [14].

Defining a focus is the single most important element to preparation for rapid assessment. Although we advocate a holistic approach, we consider holism to involve an understanding of the array of factors that surround a set of narrow foci. Defining these foci makes assessment manageable, because it provides some advance direction about objects of study. The analytical frames that follow this methodological discussion are a place to start. In many cases, however, researchers lack the domain knowledge necessary to apply these frames to local contexts. In such cases, consulting domain experts and conducting literature reviews are helpful. However, we have also found it to be useful to develop both a list of specific research questions and a list of rough hypotheses as a first planning step. We do this with the knowledge that our questions and hypotheses will change many times over the course of research and that we must be open to this process. Ethnography is an inductive, iterative venture. However, we do not consider that inductive, in the context of rapid assessment, means that we do not form and test hypotheses in any sense. Rather, it suggests that we are willing to abandon any and all of our hypotheses and develop completely new ones as research progresses.

Finally, preparing for the field is not a simple matter of collecting data, but rather a process of familiarization with local context. Importantly, this process encompasses more than learning the language. The ability to speak a local language, by itself, does not enable communication because it tells us little about the meanings and histories that inform what people say and how they say it. Identifying the issues and challenges that are likely to play a part in discussions around specific topics will help to avoid the conflicts that make time spent in the field less efficient and confound results later on.

### 2) Local Collaboration

An important precursor to making programs culturally appropriate is learning to view things as someone from within the community might view them. No one is more capable of understanding local culture than those who are native to it. It is essential, therefore, to partner with individuals and organizations in the target communities. Partnering in this way allows outsiders to capitalize on existing social networks, cultural capital, and trust that individuals and organizations have already built up. Examples of the types of individuals who researchers might seek out are politicians, elders, religious leaders, scholars, and established businesspeople. These people are sometimes, but not necessarily, the targets of kiosk projects themselves. Local collaborators should be

involved in every stage of research planning, implementation, and analysis, not simply as token representatives but as true partners.

Anthropologists working in the field often find 'key informants,' with whom they form close relationships. One of the most important functions of key informants is to review and vet findings before they are operationalized. Local collaborators may be able to identify biases and misconceptions which can lead to inappropriate programs. However, just as researchers must be honest and reflexive about their own goals, they must also be wary of the biases that informants bring. For example, local collaborators are sometimes eager to ally with external people and organizations because they feel that they lack power or status within their own social networks. Their efforts to influence their own position within the community may have an influence on the advice and feedback they provide.

### 3) Mixed-Methods Approach

Spending only a short time in the field unavoidably limits both the breadth and the depth of data that it is possible to collect. One way to mitigate this issue is to use a mixed-methods approach. Using a variety of methods, both quantitative and qualitative, enables the researcher to triangulate data and verify potential findings across methods. Focusing on a variety of methods is also an efficient use of field time. A well designed assessment process is one which allows for the simultaneous execution of multiple methods at multiple field sites within the community.

## B. Analytical Frames

Now that we have outlined a general methodological framework, we address the more difficult question of the analytical frames that inform data collection and analysis – the people, structures, and phenomenon on which should research focus? The following sections outline four frames which bear in particular on the objects of kiosk projects. These are just a start, however. Every application will require that researchers prioritize them with further themes that are unique to the application.

### 1) Needs & Assets

Needs assessment is an attempt to uncover and address what a community lacks. Public health, jobs, governance, infrastructure, and education are all examples of individual community needs that might be addressed with a kiosk project. It is undoubtedly important to identify these deficiencies. However, needs assessment by itself represents a negative outlook on local communities. Focusing solely on what they lack leads us to problems rather than solutions. One way to address this is to turn the question around. Instead of simply asking what a community needs, we can also ask what they already have. What are the assets a community has developed, despite the deficiencies in other domains, that interventions can leverage and integrate with? This focus on the strengths within a community has been coined Asset Mapping [19].

Local business strengths are one important asset for kiosk

project planners to consider. One kiosk project, for example, partnered with local businesses to provide IT services for marketing and infrastructure [8]. In doing so, the centers aligned their fate with that of the local business, which was much more established than the center. Finally, we can look at needs as potential problems and assets as potential solutions, attempting to draw the links between them in creative ways that communities themselves have not yet found. Doing so allows the community to help itself.

### 2) *Characteristics & Flows*

The characteristics of local communities are an essential factor in the success or failure of kiosk projects [20]. Though we advocate a focused-holistic approach to assessment, paying attention to the flows of people and resources in and out of communities allows them to be situated in larger socio-economic and socio-political systems. One useful technique is to brainstorm a list that includes any and all factors which may have an influence on a kiosk-style intervention. This should also be considered as an iterative process. As fieldwork begins new areas will emerge and existing areas will reveal themselves to be less important. Local community members will also have valuable insight into elements of the local context that researchers might miss. A comprehensive assessment of local context might include:

- Demographics (Age, Gender, Ethnicity)
- Dominant Trades and Industries
- Immigration and Expatriation Patterns
- Topology / Geographical Features
- Political Structures
- Social Organizations
- Important Historical Events
- Religious Beliefs
- Popular Pastimes & Hobbies
- Gathering Places & Social Functions

In a given context, some of these characteristics and flows will be more essential than others. By starting with a complete list and narrowing it as research progresses, however, researchers can avoid applying an undue bias towards some.

### 3) *Places & Spaces*

We have already discussed the importance of balancing technical and sociocultural concerns when choosing sites for kiosks. It is also important to consider the context of buildings and institutions that house kiosks. Schools which may otherwise be ideal sites, for example, can be challenging because they introduce issues of liability and access to the general public. Similarly, religious institutions may be problematic in communities with particular religious division or contention. There are certainly ways to design for these conditions, but the options become fewer after the fact.

In *The Great Good Place*, Gary Oldenburg provides an interesting way of understanding the connections between physical kiosk sites and the communities they inhabit [21]. Oldenburg identifies certain sites that he terms ‘Third Places.’ These sites are ‘social condensers’ – hubs of social activity that they serve to sustain and reproduce a sense of place and

identity. Third places can be parks, public plazas, cafés or any place which, through a combination of physical and sociocultural characteristics, draws a community together. Capitalizing on existing third places and understanding how kiosk sites can be transformed into third places, are strategies that can enhance the sustainability of kiosks and expand their reach to new populations [22].

### 4) *Gatekeepers*

Gatekeepers are those pivotal people in whom the trust of the community is vested. They are the social links through which groups operate, and they are the people who bring together disparate people to form cohesive units. Gatekeepers are thought leaders and action motivators, and as such they are the people through who change flows. Gatekeepers show us that in many contexts the messenger is more important than the message. An intervention might, for example, provide a powerful health information system as a means to reduce disease. But the objective quality of that information cannot, by itself, usurp the trust and power built up in communities where the accepted source of health information is a village elder. An otherwise appropriate kiosk project that chooses an inappropriate conduit cannot hope to achieve lasting change.

Understanding that gatekeepers exist also presents a potential pitfall for kiosk projects which attempt to uproot entrenched patterns of action. In the above example, replacing village elders with a networked database not only seems unlikely but potentially offensive to important local stakeholders. E-governance projects, which use ICTs to provide more direct and convenient access to government services, demonstrate both the importance of understanding the power of gatekeepers and the complexity of the issues involved. Many e-governance initiatives uproot the powerful social processes that drive community governance in the name of increased access. Worn pathways of patronage and power are suddenly circumvented by new, ICT-enabled networks [23]. Other e-governance projects may hinge entirely on connections within local bureaucracies, in conjunction with ICTs, to provide effective services.

In both of these examples the importance of understanding where gatekeepers can be barriers or enablers is clear. We suggest that where practices and beliefs do not appear logical or meaningful by our external standards, the presence of gatekeepers with alternative perspectives and/or motives may explain them to some degree. Charisma, after all, can be more powerful than logic. These explanations are invaluable for designing kiosk projects that incorporate local, social relations and value systems.

## V. CONCLUSION

This paper has made the case for doing holistic, culture-focused assessment of kiosk projects as a means to make them more sustainably successful. This type of assessment can be practical in nearly any situation, and will always, we believe, lead to better outcomes. Researchers and practitioners must enter assessment with a perspective that balances technological and economic factors with sociocultural ones.

Doing so will avoid 'reinventing the wheel,' and uncover powerful local characteristics upon which kiosk projects can build. Grappling with culture isn't easy, but we believe it represents a surer path to long-lasting change as a result of kiosk projects.

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#### REFERENCES

- [1] J. Antin, "Empowerment Evaluation: From Theory to Practice," *Practicing Anthropology*, vol. 27, pp. 23-26, 2005.
- [2] J. Rothenberg-Aalami and J. Pal, "Rural Telecenter Impact Assessments and the Political Economy of ICT for Development," *Berkeley Roundtable on International Economy* 2005.
- [3] R. W. Harris, "Telecentres in Rural Asia: Towards a Success Model," presented at Conference on Information Technology and Communications for Development, Kathmandu, Nepal, 2001.
- [4] C. Jauernig, "Review of Telecenter Sustainability Criteria for the Establishment of Sustainable Rural Business Resource Centers for SMEs in Developing Countries," *United Nations Industrial Development Organization (UNIDO)*, Vienna, Austria 2003.
- [5] C. Geertz, *The Interpretation of Cultures: Selected Essays*. New York, NY: Basic Books, 1973.
- [6] Wireless Internet Institute. *The Wireless Internet Opportunity for Developing Countries*. World Times, Inc., Boston, MA, 2003 (see also <http://www.w2i.org>).
- [7] P. M. Leonardi, "Problematizing 'New Media': Culturally Based Perceptions of Cell Phones, Computers, and the Internet among United States Latinos," *Critical Studies in Media Communication*, vol. 20, pp. 160-179, 2003.
- [8] G. R. Kiran, "Akshaya project, Malappuram, Kerala," Bangalore, India 2004.
- [9] M. Jensen and A. Esterhuysen, "The Community Telecentre Cookbook for Africa: Recipes for Self-Sustainability," *United Nations Educational Scientific and Cultural Organization (UNESCO)*, Paris, France 2001.
- [10] F. Proenza, "Telecenter Sustainability - Myths and Opportunities," *Journal of Development Communications*, vol. 13, 2002.
- [11] A. Punathambekar, "MSSRF's Information Village Research Project, Pondicherry," 2004.
- [12] "Supporting Development in Cambodia Through Greater Access to Information," *The Asia Foundation*, San Francisco, CA April 2005.
- [13] R. A. Dushay, M. Singer, M. R. Weeks, L. Rohena, and R. Gruber, "Lowering HIV Risk Among Ethnic Minority Drug Users: Comparing Culturally Targeted Intervention to a Standard Intervention," *American Journal of Drug & Alcohol Abuse*, vol. 27, pp. 501-524, 2001.
- [14] C. Levy, S. Carter, G. Priloutskaia, and G. Gallegos, "Critical Elements in the Design of Culturally Appropriate Interventions Intended to Reduce Health Disparities: Immunization Rates Among Hispanic Seniors," *Journal of Health and Human Services Administration*, vol. 26, pp. 199-238, 2003.
- [15] M. Agar, *The Professional Stranger: An Informal Introduction to Ethnography*. New York: Academic Press, 1980.
- [16] J. Beebe, "Basic Concepts and Techniques of Rapid Appraisal," *Human Organization*, vol. 54, pp. 42-51, 1995.
- [17] J. van Willigen, *Applied Anthropology: An Introduction*. Westport, CT: Bergin & Garvey, 2002.
- [18] E. Tufte, "Powerpoint is Evil," in *Wired*, 2003.
- [19] K. Jasek-Rysdahl, "Applying Sen's Capabilities Framework to Neighborhoods: Using Local Asset Maps to Deepen Our Understanding of Well-being," *Review of Social Economy*, vol. 59, pp. 1470-1162, 2001.
- [20] R. W. Harris, A. Kumar, and V. Balaji, "Sustainable Telecentres? Two Cases from India," 2003.
- [21] G. Oldenburg, *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of the Community*. New York, NY: Marlowe & Company, 1989.

- [22] T. Salvador, J. Sherry, and A. E. Urrutia, "Less Cyber, More Cafe: Design Implications for Easing the Digital Divide with Locally Social Cyber Cafes," *Information Technology and Development*, vol. 11, pp. 77-95, 2005.
- [23] R. Kumar, "Drishtee's soochana kendras, Sirsa, Haryana," 2004.