ABSTRACT
We describe our experiences in designing new media technologies in cooperation with Liberia’s Truth and Reconciliation Commission. This work includes two major projects: a dynamic, interactive Web site for the Commission, and a mobile video-sharing kiosk intended for use in-country where connectivity is limited. We place specific focus on our design exercises with members of the Liberian diaspora in Atlanta. Our report includes lessons learned in using diaspora members as surrogates for users in-country. These lessons include the need to recognize diversity even within the diaspora community, the relevance of both city geography and physical environment, the utility of both trusted insiders and institutions, the periodic inconsistency between “book” knowledge, diaspora knowledge, and in-country realities, and the overall value of the perspective of diaspora members.

1. INTRODUCTION
Participatory and user-centered design are two popular and canonical interaction design methodologies. The central questions posed by a user-centered approach remain today as fundamental to good design processes: Who are the users? What are their needs and wants? How can they be active participants in the design and development process? A well-regarded refinement, advocated by proponents of contextual design, goes perhaps a step further by positioning the system designer in the specific context of the “customer” [2]. In other words, the designer enters the work site itself and participates directly in the problem context.

However, not all users are available to participate and not all contexts are readily visited by system designers. In this paper we offer a case study from Liberia, West Africa, where due variously to distance, context, and culture, our user base was not readily available for participatory or contextual design exercises. In their absence we have explored ways to rely on surrogate user models—Liberians in the diaspora.

2. BACKGROUND
Liberia, founded in 1847 by freed African slaves from the USA, is situated on the Atlantic coast of West Africa. Unrest has been a staple there for more than 14 years with two major civil wars in this time period. These years of conflict have seen nearly one-third of the population displaced and taken the lives of approximately 250,000 people. A tenuous peace was established in 2003 and democratic elections were held in the fall of 2005 resulting in the selection of Africa’s first elected female head of state, President Ellen Johnson-Sirleaf (see [4] for a review of the Liberian conflict).
Our challenge has been to apply appropriate user-centered or participatory design methods in the creation of the kiosk despite the remoteness of our target user group. Liberia’s limited telecommunications infrastructure allows some forms of remote consultation via email and telephone, and these proved essential in our experiences. But bandwidth is not sufficient for some real-time engagements such as video-conferencing or remote desktop control, making many design exercises unfeasible. Further, to develop such a system entirely in-country is also unrealistic due to scarce bandwidth, costly and limited equipment inventories, and a lack of fabrication tools. As a result, during the early-stage design process at our facilities in Atlanta, we have relied on Liberians based in that city as surrogates to our target user population.

3. DESIGN EXPERIENCES

We consulted communities of Atlanta-based Liberians throughout the early stages of the design process for the kiosk system. In total, we held 11 meetings with these and other participants, at various locations including the Georgia Tech campus, Emory University, the Carter Center, Mina’s Kitchen (a local Liberian restaurant), and the Atlanta Civic Center.

Our first exercise involved paper prototypes of our initial design, and employed a think aloud protocol. Participants were asked to imagine a scenario in which our system had just arrived in a Liberian village. They were assigned goals involving video browsing, playback and recording, and attempted to complete them using the paper prototype while a member of our group responded to their inputs.

Feedback gathered from this first exercise included recommendations for choice of icons, and a realization that our multi-screen, hierarchical navigation system was not likely to be easily interpretable by some users. Based on these insights, we produced a second design, which featured a flat, one-screen navigation structure, and improved visual imagery. A higher-fidelity Flash prototype was produced from this design.

A second exercise was organized with this working prototype, which resulted in further recommendations regarding iconography. In general, iconography prevailed as an area of critical interest from most of our participants.

Our third usability study was held shortly thereafter at Mina’s Kitchen, where participants were selected at random from the restaurant’s clientele (Figure 4). The main result from this exercise was that users, especially recently arrived Liberians with minimal computer experience, were still having trouble understanding the various functions of the system. We resolved to further simplify our design.

In January 2008 a member of the research group left for Liberia to make preparations to deploy the system, including the purchase of suitable mobile power equipment and a vehicle to house the kiosk. Meanwhile the Atlanta team continued to refine the software design, and began work on the physical housing.

One of our design choices was to add an animated help agent, whom we named ‘Moses’, to provide verbal assistance to guide users through the system. For the character’s voice model, with the help of the diaspora community, we contacted a former Liberian radio DJ living in Wichita, KS, who was willing to help with the project. We provided him with a script, which he recorded in his home studio and mailed to us in CD-R format. While we were initially happy with the results, it turned out that his Liberian accent was unnatural to some Liberians in-country, perhaps due to his time in the U.S. Once our project manager was established in Monrovia, we recruited a new voice model and re-did the recordings.

Based on findings from the design of an interactive system in India [6], we undertook the production of a full-context video, intended to be shown at the start of a kiosk session in order to familiarize the user with the system. In cooperation with the Georgia Tech film club, we recorded the short video which dramatized the purpose of the kiosk, and contained instructional scenes on mechanics of the interface. It featured two main characters, a narrator, and several extras, all drawn from Atlanta’s Liberian diaspora community. However, once the video arrived in Liberia and was shown to users, our project manager found that the performance of the diaspora members was found to be unnatural to those in-country. This, again, was most likely due to accents, and perhaps in this case also due to dress.

A final series of user studies took place before the system was sent for field testing in Liberia. In these several sessions, researchers from Georgia Tech, employees of the Carter Center, patrons of Mina’s Kitchen, and members of the Liberian Association of Metro Atlanta volunteered to test our latest design. After some bug fixes and minor enhancements resulting from these exercises, the system was shipped to Liberia in late April 2008. The finalized user interface is shown in Figure 5, while Figure 6 shows the system in use shortly after its arrival in Monrovia.

4. LESSONS LEARNED

The processes of designing the TRC Web site and video-sharing kiosk have provided our research group with extensive experience in using diaspora members as surrogates for users in-country. Below, we describe lessons learned from those experiences.

The diaspora perspective is indeed valuable. In designing the kiosk, we found that diaspora members served as a well needed and unique reality check on our designs. In particular, working with recently arrived Liberians with little computer experience made clear on several occasions that our design needed to be drastically simplified. As a result, a hierarchical navigation structure was abandoned in favour of a flat, one-screen design; content filtering via iconic tags or map locations was eliminated; and the need for an animated help agent was confirmed.

While in retrospect this may seem like a trivial contribution, at the time we designers found it difficult to separate ourselves from interaction paradigms such as hierarchies and filtering with which we are so familiar, but which are not appropriate for some users. In our highly computerized society, we suggest that finding a group of informants without similar biases has become increasingly difficult. The perspectives of our recently arrived collaborators were thus of great value.

Designers can be educated. Many members of our design team, while highly technically qualified, knew little of Liberia or its culture at the outset of the project. Most team members had never visited the country. This is obviously an important discrepancy, and we feel that our considerable experiences within the diaspora community served as something of a cultural education, albeit a brief one.

For instance, upon entering Mina’s, one has the sense of being transported to Monrovia—both the décor and the food serve as key examples of the Liberian aesthetic. In the language of
Distracting and disconcerting. A group of Liberians recently arriving to the area found this solution to use flashing graphics on the homepage of the Web site while a group of Liberians recently arriving to the area found this solution distracting and disconcerting.

Certainly none of these activities is a full substitute for time spent in-country, but we feel that they are of definite value in establishing a basic understanding.

‘Book’ knowledge, diaspora knowledge, and in-country realities may differ. All computer interaction design can confront a mismatch between some forms of “book knowledge” (e.g., be sure to localize the English health information system to the native Hindi language for use by rural nurses in Northern India) and the in-country ground realities actually confronted (e.g., but don’t localize to their native Hindi when the rural nurse’s entire work-flow is conducted in English and they may not know the health terms in Hindi). Additionally, we have found that by relying on diaspora as surrogates of actual end-users a second level for potential design-reality gaps can arise, that between the diaspora informants and the in-country end-users.

This phenomenon was demonstrated by the example of the full-context video. In that case, the diaspora did not call out a bad design choice and only during in-country tests did we understand our errors. Indeed, the full-context approach was vetted through our diaspora focus groups and colleagues from the diaspora starred in the film.

Diversity is important. Liberia is a small country with a population less than that of many U.S. states, and the fraction of its expatriate population which happens to reside in Atlanta is much smaller. This makes it tempting to conceive of the diaspora population with which we interacted as a cohesive, homogeneous group of Liberian expatriates. As we have learned, however, this is far from the truth—many distinct demographics, social networks, and communities can be identified within the broader group.

We have found that time since emigration is one significant differentiator among expatriates—some having arrived relatively recently, others having fled the war earlier, and still others having chosen to emigrate to the U.S. before war broke out in 1989. Predictably, such groups exhibit differing levels of integration to U.S. society, and differing levels of immediate connection to social networks back in Liberia. As described above, we also found that this factor often determined the nature of feedback we received during focus groups and other exercises.

For instance, during design focus groups we found that individuals who had only just recently arrived to Atlanta from Africa (some coming from displaced persons communities outside of Liberia but still within West Africa) were less likely to weave together a Liberian esthetic with foreign though common web design approaches. In this way those recently arriving to Atlanta provided at times more “natural” design inputs while those who had been in the USA for a longer period often wove a Liberian esthetic together with other design concepts. In a concrete example of this, a long-term member of the diaspora counseled us to use flashing graphics on the homepage of the Web site while a group of Liberians recently arriving to the area found this solution distracting and disconcerting.

Geography and diversity are related. Related to the previous lesson is the realization that the subgroups described above are distributed geographically within Atlanta. For example, recently arrived refugees mainly reside in the Clarkston area in the east of the city (also the location of the Liberian restaurant Mina’s Kitchen). This is due specifically to a U.S. government refugee resettlement program. Several clusters of expatriates are centered around churches with largely Liberian congregation: one in Norcross in the northeast of Atlanta, and one in College Park, to the south. Still other expatriates, usually those that have been in the U.S. for a longer time, are scattered throughout the metropolitan Atlanta area. This is illustrated in Figure 7.

We have found that this geographic phenomenon holds several implications for our research efforts. First of all, as shown in Figure 1, the fact that Georgia Tech is located roughly at the center of these various enclaves turned out to be a convenient coincidence. Not only was it about equally easy for members of each group to travel to the campus for meetings, we also felt the location conveyed a sense of neutrality.

Second, as alluded to above, we found that members from different geographic groups offered feedback according to differing perspectives. Thus we were careful to sample our participants accordingly.

We expect that this geographic phenomenon is the result of systematic factors and likely to be common to many diasporic communities.

A variety of physical environments can be appropriate. Just as geographic location of meetings varied depending on the target demographic or social network, so did the nature of the physical environments in which meetings took place. We point to two examples to illustrate this point. The first is a conference room at Georgia Tech. The room is quite well appointed, and several degrees more ornate than a standard academic conference room. Meetings at this room were usually catered for lunch by the university’s catering services. In total, these elements created a decidedly formal environment for the meetings.

We describe these details for two reasons. First, the creation of such an atmosphere is part of standard protocol for receiving elite informants such as Liberia’s ambassador to the U.S. and others. Inviting such persons to meet at a casual establishment such as Mina’s Kitchen would clearly be inappropriate. Secondly, we found that the formal atmosphere lent a sense of significance, importance, and ownership to the work of the focus groups. We suggest that this phenomenon may be due in part to the more pronounced respect for formality and protocol characteristic of Liberian culture, especially as compared to contemporary Western culture.

The second location that repeatedly played host to our meetings was Mina’s Kitchen. As stated, Mina’s offered a far more casual environment, as well as a vastly different décor. Thus while the conference room may have exuded importance and formality, the Liberian-ness of Mina’s Kitchen perhaps made for a space more conducive to the imaginative think-aloud exercises we performed there.

Trusted insiders and informal social networks are helpful to elicit participation. Gaining access to members of the Liberian expatriate community proved to be a non-trivial undertaking, certainly a more challenging than the usual practice of dipping into the institute’s subject pool. We found that trusted insiders...
were extremely helpful in finding participants for our exercises. We offer several examples. One such insider was an employee of the Carter Center, which has significant operations in Liberia, is conveniently based in Atlanta, and has extensive relationships with the local diaspora. Our contact at the Carter Center was particularly trusted by community leaders, due to his activities in the community within Atlanta, and his extensive experience in Liberia as well. He was instrumental in facilitating contact with many elements of the community.

A second insider worked with newly resettled communities, and was able to encourage them to join our meetings. This connection was especially vital, since while those communities offered a valuable perspective given their more recent time in-country, they also proved most difficult to establish contact with, due to fears related to their tenuous immigration status, and their often meager economic resources.

Institutions can also be helpful. Like individuals, institutions are also valuable tools in reaching out to the diaspora. In addition to the aforementioned geographic and cultural relevance of Mina’s Kitchen, it also provided a trusted and legitimizing environment for our activities (as did Mina herself, further strengthening our previous lesson). Georgia Tech also enjoys a well-known and respected reputation among the diaspora community, which was certainly helpful. The Liberian Association of Metro Atlanta (LAMA) was another helpful ally, and one which is likely to have counterparts in other diaspora communities.

Religious communities were of great importance to our work. As stated, several of the geographic pockets of Liberian expatriates are based around churches. The relationships we established with the leaders of several of those churches proved extremely useful, including the provision of facilities, eliciting of participation, and, more broadly, the legitimization of our work within the community.

5. CONCLUSION AND FUTURE VISION
In this report we have described our experiences in the design of new media technologies with the Liberian diaspora community. We acknowledge that a diaspora community is not a full substitute for substantive design exercises and field testing in-country. Indeed, now that our project’s personnel and equipment is more firmly established in Liberia, we expect our reliance on the diaspora community to taper off. Nonetheless, we feel that our experiences make a convincing case for the potential value to be derived from such communities, especially in the early stages of design. We further hope and believe that some of the lessons we have reported will be generalizable to other similar efforts.

We also note that our experiences have been extremely enjoyable. The communities with which we have worked have been cooperative, hospitable, insightful, and genuinely enthusiastic about the work. We feel privileged to be a part of such a vibrant community and such an important discourse.

We have identified a number of next steps for both of these systems in their design and deployment. A major next research step will be to perform significant formal evaluations. We are now in the process of refining protocols and instruments for this assessment work. The TRC is mandated according to a fixed-term and is expected to wind down its work next year. At that time we plan to shift our attention to a memorialization effort, in which we will research ways to use the content and capabilities developed thus far in the creation of a lasting memorial, both virtual and physical, to the civil conflict and its aftermath.

6. REFERENCES
Bio for Thomas Smyth

I’m a 2nd year Ph.D student at Georgia Tech’s GVU Center, studying under Dr. Michael Best. My research interests are in new media technologies in developing regions, interaction techniques for low-literacy users. I have field experience in Liberia, Uganda, and Ghana, both as a researcher and as a volunteer software developer.

One thing I would like to get from the workshop is a better collection of sources for information on development theory and practice and the development ‘industry’ in general. I follow a few blogs and have read a few books, but feel like I should be reading a lot more about development. I’m sure some other people at the workshop will have some good tips.