

# Usability Research as Participative Inquiry

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## ABSTRACT

Digital library usability research often does little to develop the capacity of users or improve social outcomes associated with use. These research consequences, however, are important when users represent marginalized members of society, such as the poor and people of color. Drawing on the tenets of participatory action research and the notion of a “community of inquiry” as developed in the philosophy of John Dewey and Charles S. Peirce, we discuss usability research as a democratic and collaborative process in which all digital library stakeholders can learn from each other. Our “participative inquiry” approach to the design and evaluation of digital libraries is grounded in two empirical research projects: 1) the development of a digital library of health information for African American women; and 2) the creation of a digital library that is itself devoted to inquiry-based learning.

**Keywords:** Digital libraries, digital divide, participatory action research, usability, health, inquiry-based learning

## INTRODUCTION

What particular issues arise in digital library research when intended users are on the wrong side of socioeconomic, information, and digital divides? How can digital library design and evaluation account more fully for the practices and consequences of use for marginalized members of society, such as the poor and people of color? Information system usability research, generally, is too often characterized by features that are especially detrimental to those outside the social mainstream: it relies on external standards of expertise; treats users as subjects or objects of the research; and pays only indirect attention to social outcomes associated with both research practices and system use.

## THE AFYA PROJECT

In the Afya (Swahili for “health”) project, we are establishing a collaboration between local Black women – members of a grassroots group called SisterNet -- and other community partners in building a collection of digital tools and resources that women will find congenial, usable and useful in their efforts to nurture a healthy lifestyle. Our

goal is to build capacity for creating and sharing health information across the social, cultural, economic and technology divides that separate Black women from health and information service providers. Ultimately, we are striving for social transformation on a community-wide basis. To support these aims, user research in the Afya project strives to:

- Incorporate local knowledge held by marginalized groups;
- Gain the participation of marginalized groups in evaluation activities early in the design and development process; and
- Build capacity and achieve constructive social outcomes.

## DL RESEARCH AS PARTICIPATIVE INQUIRY

Our work in the Afya project represents a reconsideration of traditional approaches to DL design and evaluation research [1]. To engage seriously with the social practice of disenfranchised users, we are incorporating ideas and techniques from two domains that are not often folded into technology evaluations. One domain is participatory action research (PAR), which claims social practice as its fundamental object of study and explicitly pursues an agenda focused on improving conditions for disenfranchised members of society [9, 11]. The other domain encompasses inquiry-based learning [5]. Here we find that framing usability research as a collaborative “community inquiry” process helps in integrating the knowledge and views of diverse participants in the development of digital libraries. The notion of “community inquiry” frames DL research as a democratic process in which everyone can learn from each other [3]. In addition to foregrounding social responsibility, our participative inquiry approach to usability studies focuses on new ways of thinking about knowledge and how it is created and used by those with a stake in the process and outcomes of evaluation: social science researchers, digital library designers and managers, librarians, and marginalized members of society.

Participatory evaluation (along with its near relative empowerment evaluation) extends participatory action research principles and methods into the domain of evaluation in a manner that has promise for framing

usability studies. It reflects concerns for both social justice and the improved utilization of evaluation results. Learning and empowerment are explicit goals of both the conduct and product of participatory evaluation, which is seen as a developmental process [10]. There is a broader view of what constitutes legitimate knowledge, and how it is generated for and through action. Key participants are those with little power who will be affected by the evaluation. Their knowledge and how it can be engaged in improving social practice are central to evaluation.

Both the process and product of DL research involving marginalized society members must respect multiple perspectives. In dealing directly with the question of racism in evaluation research, Patton [7, p. 437] calls for evaluators to reflect more critically on their own knowledge bases and values: How does the lens of race, gender, or socioeconomic status shape the understanding and actions of researchers? What methods and measures capture fairly the experiences of people of color and the poor? When are evaluative judgments conditioned by personal politics?

#### EQUITABLE KNOWLEDGE SHARING

Especially germane to the Afya project is the negotiation of whose knowledge is legitimate in developing and evaluating digital health resources, in figuring out how to create digital libraries that will be both usable and useful for Black women. A cornerstone of inquiry-based learning is that it aims to respond to human needs by democratic and equitable processes. A successful "community of inquiry" [8] is not one in which everyone is the same, but instead one that accommodates plurality. Clark argues [4, p. 74] that we should focus on maintaining equitable relations first, and then consider collective tasks: "[This] renders the progress of expertise in a community secondary to a relational and epistemological practice of confronting differences so that its participants can come to understand how the beliefs and purposes of others can call their own into question." Glassman [6] notes that the "disturbed equilibrium" that occurs when the local knowledge held by diverse individuals comes into contact, and conflicts, is the necessary grounding for true learning and change in a democratic society.

In the Afya project, "use scenarios" that recognize the validity of knowledge arising from the values, goals, and experiences of SisterNet women help us achieve a more socially just equilibrium in digital library design and evaluation [2]. The following scenario, for example, contributed by a young Black woman in a group discussion session, suggests the social context that could underlie one health information-seeking event:

*It's hard to know if it is really racism or if the healthcare providers are being pushed. The fact that if a Black woman presents with abdominal pains the first thing they want to do is run a series of venereal*

*disease test on her, whether that is the issue or not.*

In all, we collected about 140 such scenarios from SisterNet women, healthcare providers, and librarians. From them we drew ideas for the goals, content, communication features, and interface design of SisterNet's digital library on health. We also used the scenarios to develop other offline activities as part of the community action plan created by SisterNet women.

#### THE ROLE OF EVALUATION WORKSHOPS

Another aspect of reframing the role of people's usability assessments is to use their evaluations throughout the lifecycle of system design and implementation. In Afya, user evaluation is cast as the fundamental task and responsibility of the SisterNet women serving as our community action researchers, an activity that began in our needs assessment discussion groups, where women presented their assessment of community healthcare and health information provision.

Also important to participative usability research is fostering a developmental process of assessment that contributes to new learning among all research participants. In Afya, we are using situated evaluation workshops in which participants include SisterNet women, librarians, system developers, and health providers. They work together as evaluators of digital library services in order to identify appropriate criteria and guidelines for the digital library we are building. Their participation as evaluators helps them, in turn, to build their capacity as critical creators and users of digital health information so that their future practice is improved. Moreover, Afya workshops create opportunities for all stakeholders to learn and practice together activities and relationships that are more socially just.

We believe that the processes of creating, using, and evaluating the tools and resources of digital libraries should exemplify the social participation and capacity building that both PAR and inquiry-based learning exemplify. Digital library users are the developers, through their creation of the site content, their contributions to the interface, and their evaluations, often simply by discussion within the inquiry community of the DL's usefulness, and reports of what works and what does not in the context of their own settings of use.

#### MUTUAL LEARNING AMONG DL STAKEHOLDERS: AN EXAMPLE

As noted above, workshops, conducted in a variety of settings, are the cornerstone of system design and evaluation through participative inquiry. In the Afya project, a small group of SisterNet women, university faculty and students, and librarians gathered to brainstorm about a workshop for their Spiritual Health Conference that would simultaneously promote learning about computers and spiritual health. As always, SisterNet was keen on

developing a workshop activity that involved Black women taking direct action related to improving their lives, not just passively absorbing relevant information.

At the pre-conference brainstorming session, the women present decided to investigate use of the Inquiry Page Web site (<http://www.inquiry.uiuc.edu>) for their spiritual health and technology workshop. The tossed around some ideas and ended up creating an Inquiry Unit in the form of an online template that SisterNet women could “spin off” to create their personal spiritual health plans. Librarians, students, and SisterNet women all suggested Web sites related to Black women’s spiritual health that could be included in the template, and together they crafted the template’s instructions for creating, discussing, and reflecting on a personal health plan. Arlene was one of the women who participated in the workshop. Her spiritual health plan can be viewed at:

[http://www.inquiry.uiuc.edu/bin/update\\_unit.cgi?command=select&xmlfile=u10905.xml](http://www.inquiry.uiuc.edu/bin/update_unit.cgi?command=select&xmlfile=u10905.xml)

The spiritual health and technology workshop demonstrates how diverse participants who are engaged in community inquiry can learn from each other in the course of evaluating the usability and usefulness of digital library tools and resources. SisterNet women learned a little bit about how to find, critique and use digital resources in pursuit of meaningful personal goals from librarians and library science faculty and students. In return, the developers of the SisterNet and Inquiry Page websites learned from SisterNet women how to improve their DL services.

For example, SisterNet women who created spiritual health Inquiry Units noted that the emphasis on grade levels and school subjects in the Inquiry Unit form was not appropriate for their community-action project. We then found a way to change the presentation of the Units so that grade levels and school subjects were not so prominent. We are now working on a “distributed Inquiry Page module” which customizes the Inquiry Page for the SisterNet website. At a subsequent Afya workshop, participants explored using their customized Inquiry Page to develop other types of online health-related resources that would bring together ideas, information, and experiences from the perspectives of different community members. They came up with an idea for creating simplified Inquiry Units that all SisterNet women could easily use to share their health stories, questions, and tips in a kind of “SisterNet Scrapbook” on their Web site. SisterNet women -- many of whom are low-income community residents with little computing experience -- are proving that people on the wrong side of the Digital Divide can become active creators and contributors in the development and evaluation of digital libraries.

## CONCLUSION

Our work with the Afya and Inquiry Page projects is helping us learn about digital library design and evaluation

as a socially grounded activity that is based in professional social responsibility, attends to details of social practice, and can lead to positive social consequences. We feel that a usability study approach that closes the distance among digital library stakeholders by framing their work as collaborative inquiry is one path for developing valuable and equitable online services in a world scarred by social, economic, and digital divides.

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