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Source: *Anthropology & Education Quarterly*, Vol. 35, No. 2 (Jun., 2004), pp. 254-268

Published by: [Wiley](#) on behalf of the [American Anthropological Association](#)

Stable URL: <http://www.jstor.org/stable/3651405>

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Reflections from the Field

Critical Design Ethnography: Designing for Change

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This article describes critical design ethnography, an ethnographic process involving participatory design work aimed at transforming a local context while producing an instructional design that can be used in multiple contexts. Here, we reflect on the opportunities and challenges that emerged as we built local critiques then reified them into a designed artifact that has been implemented in classrooms all over the world. [critical ethnography, participatory design, action research, instructional design]

In this article, we reflect on the challenges and opportunities encountered as we engaged in critical design ethnography, a process that sits at the intersection of participatory action research, critical ethnography, and socially responsive instructional design. The question of how to engage groups in collaborative work is central to participatory research, in which the researcher advocates an empowerment agenda while seeking to understand and build relationships with the community under study. In this type of work—what some refer to as participatory action research—the ethnographer's goal is to empower groups and individuals, thereby facilitating social change. In contrast to traditional ethnographic research in which the researcher seeks primarily to understand

Anthropology and Education Quarterly, Vol. 35, Issue 2, pp. 254–268, ISSN 0161-7761, online ISSN 1548-1492. © 2004 by the American Anthropological Association. All rights reserved. Send requests for permission to reprint to: Rights and Permissions, University of California Press, Journals Division, 2000 Center Street, Suite 303, Berkeley, CA 94704-1223.

(not change) the conditions of the community being studied, participatory action research assumes a *critical* stance, in which the researcher becomes a *change agent* who is collaboratively developing structures intended to critique and support the transformation of the communities being studied.

Our role in the present case, however, was not simply as ethnographers or even critical ethnographers, but as instructional designers interested in the research and development of designed structures that facilitate learning and empowerment. We developed the Quest Atlantis project, which is a multi-user virtual environment, a collection of other media resources, a series of associated centers, and a set of social commitments designed to aid children in valuing their communities and in recognizing that they have important ways to contribute to their communities and the world. In support of this undertaking, we first contacted a local Boys and Girls Club that had just received new equipment to create a computer laboratory, and then we later contacted some nearby elementary schools.

As designers, we were excited about the opportunity to serve a local site by conducting a traditional needs analysis, and the Club was enthusiastic about receiving support to establish their new laboratory. However, as we spent increasing amounts of time at the Boys and Girls Club and later at two elementary schools, we became deeply involved in local dynamics and relationships with local stakeholders. The tenor of our relationships prompted us to view these sites more holistically. We learned to listen first and *then* talk, placing emphasis on establishing trust, respect, and shared intention rather than simply imposing an instructional design. Over time, our focus shifted and our team became committed to understanding the participants and their contexts of participation, with the later goal that lessons learned would allow us to develop a more useful product prototype. In our new way of thinking, design became an outgrowth of healthy relationships, as opposed to our relationships being an outgrowth of good design.

We began to adopt a method that we now refer to as critical design ethnography. Out of this work we have come to understand two propositions of particular relevance to educational anthropologists and instructional designers. In fact, we view our work as lying at the intersection of educational anthropology and instructional design. The first proposition is that ethnographic methods provide a valuable toolkit for instructional designers who want to develop complex educational interventions that require local adaptation. Reciprocally, the second proposition is that instructional designers can offer critical anthropologists a methodology for extending their work to future contexts. To be sure, we recognize many concerns associated with this proposition. As outsiders, building a critique with the goal of supporting change is controversial enough. Reifying this critique into a designed artifact that ostensibly will be of use to other contexts may be even more naïve and possibly arrogant.

However, while this perspective seems to imply that locally designed critiques and interventions may be adopted in other situations without the risk of imposing imported values and assumptions, we believe that critical designs when transferred to future contexts demand and continually support local reinterpretation.

In our initial work, we adopted the role of participant observers, finding ourselves becoming part of the context, helping children, befriending staff, challenging existing norms, researching the process, and reifying these understandings into an instructional design. We asked increasingly sophisticated questions about what participant structures can be embedded in a design and what emerges through activity. We asked how we could support the empowerment of community participants, and about the importance of local adaptation of our participant structures. As we explored these questions, we found the answers to be more uncertain, complex, and varied than we initially expected. Issues of ownership, voice, and intentionality become problematic when the ethnographer is not simply writing about the culture of another but additionally advocates a change agenda (Delgado-Gaitan 1993; Freire 1970; Levinson 1996). Our commitment to produce an artifact to facilitate academic learning and local empowerment exacerbated these tensions. In this article, we contextualize this effort in terms of related work and then discuss our methodological process and the core tensions that emerged in this work.

Design Ethnography

Building Shared Commitments

Educational anthropologists straddle both basic and applied research, with their work challenging the conventional distinctions between the two (Eisenhart 2001; Levinson 1998). Ethnographic work that has loyalties to both the tenets of basic research and an applied agenda brings with it a host of tensions. The ethnographer's social position, history, and political stance will influence the relationships s/he forms and, as a result, how the research is conducted, what is learned, how it is communicated, and what resultant actions are taken. These tensions are further highlighted when one carries out applied anthropological work under the heading of "action," "participatory," or "collaborative" research, which aims to empower the participant(s) as activist(s) within their own field of transaction (Fals-Borda and Rahman 1991; Greenwood et al. 1993; Levinson 1998; Reason 1994; Selener 1997; Yanow 2000). Frequently this involves inviting the research participants to become critically reflective about their positions in society and the possibility for them to engage in social action (Lather 1986). The tension lies, in part, in defining courses of action when there are multiple and competing perspectives and agendas or when the researcher holds perspectives at odds with the local participants. How does the researcher deal with conflicting interests in the

field site? Whose voice should be given primacy? What gets reported, and what is omitted?

Our work proceeds with the researcher acting as a participant-observer, a stance that suggests characteristic implications. Finn (1994), reviewing current literature in the fields of action and participatory research, outlines three key elements that distinguish participatory research: (1) *people*—it is “people-centered” in that critical inquiry is informed by and responds to experiences and needs of people, especially those belonging to traditionally disenfranchised groups; (2) *power*—it supports empowerment through the development of common knowledge and critical awareness; and (3) *praxis*—it recognizes the inseparability of theory and practice and the commitment improving both. At the same time, it involves a critical awareness of the personal-political dialectic. The important point is that while we are building a thick description of the existing context, we are also positioned in a role in which we have a clear agenda and critical expertise to provide service and activities.

Thus, playing the role of codesigner complicated our work as researchers and forced us to confront challenges beyond those traditionally associated with naturalistic and ethnographic research (Clifford and Marcus 1986; Geertz 1983; Jackson 1996). As design ethnographers, we move beyond being simply participant observers in that we are also change agents supporting local transformation and creating ties to action ethnography (Nilsson 2000), action research (Eden and Huxham 1996; Stringer 1996), Cole’s (1996) utopian methodology, and Engeström’s (1987, 1996) developmental work research. This role positions us outside the context or organization (having “peripheral membership”), while the role of change agent positions us inside the organization (having “active membership”) (Adler and Adler 1997).

Designing for Change

Given anthropology’s long-standing effort to inquire with depth and sensitivity into a range of contexts, we raised concern regarding the potential for our designs to bear hegemonic influence; that is, to impose themselves upon other contexts. These concerns may be effectively addressed by reference to the understandings central to the field of instructional design. To begin, designers consider their work to be part of a system of human activity (Engeström 1987) and, accordingly, recognize themselves as “directly positioned in social and political contexts of educational practice” and thus also “accountable for the social and political consequences of their research programs” (Barab and Squire 2004). Further, designers consider their work not as an end in itself, nor as a product positioned to impact a situation. Rather, a central tenet entails understanding that the designed intervention or artifact positively depends on users transacting with the work, each other, and their

multiple social systems in order for the design to serve *as a tool that is part of the system* (Barab, Schatz, and Scheckler 2004).

To elaborate this point, one may consider that a design bears a range of affordances that, as Gibson (1979) writes, represent possible actions, regardless of the user's awareness of them. Perceptually rich media, for example, can have a physiological impact that, while requiring the individual to make sense of the stimuli, nonetheless can either facilitate or impede that interpretive process. Similarly, media affording a perceived sense of presence remains inert, transactionally incomplete, until the individual engages with the media, but again, the impact of the design affects the individual in a consistent transactive fashion that occurs in spite of many individual differences (Ekman 1989; Reeves and Nass 1996). Naturally, the converse remains true as well. As Norman (1988) explained, affordances require the user to recognize them, to make them actual, and in this paradox is a dynamic central to instructional design: The human propensity and power to imbue phenomena with meaning reflects not only the nuanced and spirited individual imagination, and not only the vigor of one's language and culture, but also the evolutionary bedrock we share (Plutchik 1980).

A central challenge for instructional designers is to regard such shared psycho-physiological processes not as a deterministic threat to the sentient individual but rather as a means *through which* individuals interpret the world idiosyncratically. As the Cognition and Technology Group at Vanderbilt (1992:115) wrote, "there is structure in the world, both the physical world and the epistemological world, that places constraints on knowing," yet ironically, these constraining structures make possible the very act of meaning making. For this reason many instructional designers have advanced "flexibly adaptive designs," referring to designs that are amenable to local adaptation yet retain their integrity. We thus regard instructional design as the work of structuring participation, affording experience, and offering venues through which individuals come together, interact, and come to understand the world.

The Context of Our Work

As an example of critical design ethnography, we have been working on the Quest Atlantis project (Barab, Thomas, Dodge, Carteaux, and Tuzun in press). Quest Atlantis (QA) is an immersive context designed to engage children ages 9 to 12 in socially responsible dramatic play that has both real-world and fictional elements, and whose storyline inspires in children a disposition toward social action. QA leverages a three-dimensional multi-user environment, standards-based educational activities called Quests, academic unit plans, comic books, a novel, a board game, trading cards, social commitments, various characters, ways of behaving, and other resources to immerse children in learning activities that sit at the intersection of academic work, entertainment, and social commitments. It allows users to travel to virtual places to perform

Quests, talk with other users and mentors, and build virtual personae. Completing Quests requires that members participate in real-world, socially and academically meaningful activities, such as environmental studies, researching about activists, calculating frequency distributions, analyzing articles, interviewing community members, and developing action plans. The challenge has been to develop an adaptive entity that is not a game yet remains engaging, is not a lesson yet fosters learning, and is not evangelical yet promotes a social agenda.

The Quest Atlantis community consists of the virtual Quest Atlantis space and the face-to-face Quest Atlantis Centers. To participate in Quest Atlantis, children must register at a Quest Atlantis Center. Once registered, they may participate as part of a physical location (e.g., the Boys and Girls Club and dozens of elementary schools around the world), or from libraries or homes, but they must be associated with a particular location through their registration. While we nurture the growth of a new community and its associated norms, a central commitment is to collaborate with parents and local schools to ensure that the Quests foster connections to both school work and home life. Our goal is not to simply create an isolated system, but to design a system that is linked into, takes advantage of, and supports existing structures already part of the Questers' everyday life, thus promoting broader literacy and authentic praxis (Freire 1970). The mission of Quest Atlantis is to support children in developing their own sense of purpose as individuals, members of their communities, and knowledgeable citizens of the world.

Work on QA began with an 18-month ethnographic study at a local Boys and Girls Club in a Midwestern town, serving 6 to 18 year olds with a focus on those identified as "at-risk." This was followed by a related study at an elementary school in the same town, with a number of students at the school participating at the Club after school. The Boys and Girls Club of America is one of the largest and oldest community-based youth programs in the United States, with over 1,000 children using its facilities each year. More than 50 percent are minorities, and over 75 percent come from families of low socio-economic status.

Methods

Our core commitment has been social, targeting the enrichment and empowerment of the lives of the participants with whom we collaborate (Levinson 1998). Our process involves four interrelated stages: (1) developing a "thick description" of one or more context(s)—this involves prolonged engagement as participant observer and blurring lines between researcher and researched; (2) developing a series of social commitments that have local and global significance—this involves co-construction of meanings and beliefs in some universals; (3) reifying these understandings and commitments into a design—this involves participatory design and co-evolution that is never quite complete; and

(4) scaling up and reinterpretation to multiple contexts—this involves flexible design and continual adaptation.

The initial work involves ethnographic methods to understand the contexts of intervention (Clifford and Marcus 1986; Grills 1998). This includes characterizing current patterns of social action and structure in the sites, understanding the meaning of the activities for community members, and working with a few individuals to develop case studies. Consistent with other ethnographies, the goal is to characterize the four interrelated domains of community life of the initial contexts being researched—ecology, social organization, developmental cycle, and cosmology (Geertz 1983). However, unlike traditional ethnographies, our work involves understanding current conditions as well as working toward changing them.

The evidence collected by critical design ethnographers is based both on observations of existing interactions (wearing our hats as ethnographers) and interactions that have been created by us (wearing our hats as designers). In this way, and like accounts of ethnographers now perceived as “writing culture” (Marcus and Fischer 1986; Wright 1994), our stories were both observed and created. However, moving beyond strict ethnographic accounts, the contexts that we investigate are not simply created by our pens: We actually have a hand in changing and designing context. Therefore, we run the risk of making our interpretations real. In building interpretations, we use the traditional ethnographic methods of participant observation, semi-structured interviews, and document analysis, as well as some less commonly employed methods:

- Activity Analysis – Interviewing members individually and collectively about their participation in activities, and observing them as they participate in those activities.
- Talking Diaries – Participants describe important events in their lives as if they were reading diaries from a certain time period (Levinson 1996).
- Personal Documentaries – Participants take pictures of important events in their lives and then narrate them orally or in written form. While usually done individually, we have also had success doing personal documentaries in pairs.
- Researcher Biographies – A form of data collection in which one member of our team follows the participant through his/her day to develop a day-in-the-life documentary.

Our work also involves team ethnography, with multiple researchers collecting field notes and entering them into a single database for analysis (Erickson and Stull 1998). By drawing on these sources of data we attempt to triangulate our interpretations (Lincoln and Guba 1986).

To both build a thick description and develop an intervention, a fundamental aspect of our process involves building trust and shared commitment. At one level this requires purposively selecting initial

contexts of collaboration because of certain features, such as convenient location, similarity to other potential future contexts, openness to collaboration with the research team, and interest in the design. At another level, this requires being “up-front” with our goals, maintaining a respectful stance, listening rather than talking, demonstrating commitment, being open to change, and developing a collaborative dialogue. Within this structure, we work with local participants to identify needs, social commitments, and possible interventions, engaging in a participatory design process that involves shared voice and commitment. A core challenge is not to let our preexisting perspectives or social commitments become funnels through which all data are interpreted. As such, formative concepts/theories and designs are constantly tested against the empirical evidence and with the multiple voices of our collaborators. As interpretations are built, we debrief with participants to determine the extent to which our characterizations resonate with their views (Lather 1986; Lincoln and Guba 1986).

Core Tensions in Implementation

In doing critical design ethnography, we have identified numerous struggles that we have confronted and consider central to our work. These struggles have challenged us to reflect deeply on our empowerment agenda and how our work might have unplanned consequences. These struggles further challenge us by calling into question our respectful stance as responsible researchers and designers and oblige our acknowledgment of the sobering level of responsibility we assume when we engage in critical design ethnography. We also fully acknowledge that we have in no way “solved” these problems but have worked to develop ongoing strategies for mitigating their potentially negative effects.

The first step of critical design ethnography is developing a thick description. Inherent in this activity is the question of the extent to which we can truly understand another cultural context (see, e.g., Marcus and Fischer 1986). We have responded by drawing on established anthropological methods, spending over two years at both the Club and the elementary school. While uncommon in design work, we consider this anthropology inspired approach to be more respectful and more likely to yield the sophisticated, nuanced understandings required for developing appropriate designs than when we limit our contact with the target population to needs analysis or brief usability studies.

In less than a month after we started visiting the Club, the children knew us by name and we knew them as well. It typically started by helping a child with a technological mishap, or breaking up an argument, but as it became more obvious that more help was needed, our social commitment began to outweigh our ethnographic commitment, and relationships emerged. For example, while one researcher attempted to remain a “fly on the wall,” children began literally to climb on his shoulders, type on his computer, and engage him in their everyday

activities. On multiple occasions another member was asked to supervise the entire Club when all the paid staff had to leave to pick up children from area schools.

The second step of critical design ethnography involves developing a series of social commitments that have local and global significance. This brings us face-to-face with our own potential arrogance. How can we possibly determine the social commitments for anyone, and why should we even assume that they want or need to articulate these commitments? A challenge is determining what constitutes a legitimate warrant for action, especially when it is not solely identified by the peoples with whom one is collaborating. While there is nothing wrong with an agenda in theory, it becomes problematic when an outsider intends to impose their agenda on another. Such a process can undermine local knowledge, people, and power, possibly contributing to mistrust, inappropriate interventions, and undesirable outcomes.

A core commitment underlying collaborative work is to establish rapport, allowing all parties legitimate voice and a growing appreciation for work that involves time, investment, and intellectual contribution. This is not a total denial of any agenda; rather we work to establish an agenda grounded in contextual realities. For example, at the elementary school one teacher asked us if she could have an online rubric to aid in reviewing children's work. Following its implementation, teacher comments went from one or two paragraphs to an evaluation score with an accompanying sentence. Although practical in terms of teachers' time, this type of standardized feedback was inconsistent with our pedagogical commitment to individual inquiry and portfolio assessment. Numerous other design decisions and system functionalities emerged through similar interactions in which real-world use challenged existing design structures. We found that agendas, theories, and insights should not be imposed prescriptively, but drawn upon opportunistically as appropriate in the context of the particular relationship through which they were realized. In this way, local experience, awareness of the literature, and evolving commitments all transact with local dynamics to potentially support change.

The third step of critical design ethnography is reifying understandings and commitments into a design. Is it possible to imbue a designed artifact with a social commitment? If so, how can we be sure that the design appropriately reflects these intentions? While many researchers rightly have called into question the notion of reifying experience into a designed artifact, we hold that much of what we experience in life are reifications that someone else has designed with the expectation that the viewer will re-imbue it with local meaning. Similarly, we have reified our social commitments into a designed artifact that has the potential of having an interpreter make that potential manifest. Like a muscle at rest that contains potential energy, the designed artifact contains potential action that can be actualized by others at other times (Gibson 1979).

In carrying out our design, we considered the children, the Club and school staff, parents, and ourselves as codesigners, mutually determining the purpose, value, and worth of the emergent collaboration and socially responsive design work. Their agendas were as significant in determining the direction of our research and design as were those we initially brought to the project. We became committed to the codevelopment of an agenda and design solution (see also Sanday 1998; Schuler and Namioka 1993; Wasson 2000) whereby all parties have an opportunity to bring their respective expertise to bear on the relationship. A core challenge has been to develop a socially responsive design that when used will engage participants in reflecting on important social issues in their lives and the world more generally. Evidence that we have approached this goal can be seen in Questers' statements that QA "teaches you about life. . . about how you can treat others and about your neighborhood [and] what you can do in the world;" "it helps me do the right thing;" and "QA taught me that you can help people just by learning."

The fourth step in critical design ethnography is scaling up and the reinterpretation of a design to multiple contexts. The question here is the appropriateness of a design for other contexts. How can we know that our careful work in one context can be generalized to other contexts? The goal is not to "sterilize" designs or make them "teacher proof," free from all confounding variables. Instead, the challenge is to develop flexibly adaptive designs that remain useful even when applied to new contexts. Quest Atlantis is flexibly adaptive in that the learning activities, its interface, and its back-story can be modified by users to fit local contexts. This allows for local interpretation during the implementation stage. In fact, QA has been adopted by dozens of teachers and thousands of children all over the world, with evidence of the design engaging children in important issues. Further, given the over 400 Quests to choose from and the different materials available to support the Quest Atlantis experience, each context of implementation looks very different, with no two contexts involving local participants in the same Quests.

More generally, we believe that contexts are never without agency; there are always teachers, administrators, students, and community members creating context, and therefore local adaptability must be allowed for in the design. We have adopted "mutual adaptation" to capture how an innovation both changes and is changed by a local context. Designs such as QA that foster community participation constantly adapt as new members participate, adding their thoughts and local struggles to the shared space through community bulletin boards, email messages, chat dialogues, completed Quests, and suggestions and contributions to our design team.

Final Thoughts

As designers with a change agenda, we carry out what we have referred to as critical design ethnography. Our agenda is always evolving

and mutable. In fact, in our work, we have abandoned perspectives and goals that were at one point central to our agenda in favor of new goals and commitments that revealed themselves as more applicable, meaningful, and useful over time. It is this process of inquiring to understand, critiquing to make better, and designing to instantiate a change into an intervention that we call critical design ethnography.

This fundamentally ethnographic work, involving engaged participation with a particular cultural system over an extended period of time, was different, richer, and more situated than our previous design work. We consider the relation between design ethnography and the field of anthropology to be a reciprocal one. On the one hand, our perspective as designers reflects such developments as action and critical ethnographic methods, which allow us to design with the insight and sensitivity not normally accessible to designers. On the other hand, doing design work bears considerable potential as a methodology for anthropologists seeking to extend case understandings to other contexts. As educational anthropologists, we find it difficult to check our ethics, social values, and desire to good at the door. We believe that this process of making implicit values explicit, engaging in dialogue with participants about shared social commitments, and collaborating to design artifacts that reify social commitments into participant structures is one way that educational anthropologists might have an even greater impact through their work.

In reflecting on the impact of QA, the staff at the Club described to us how children were choosing to do educational work in their free time and how more girls were going to the computer room than before QA. Teachers at the elementary school reported that QA "has really gotten us to focus on social commitments;" "QA is making science more exciting for my class;" and "QA has allowed us to make our work more public... kids are really collaborating now." Another teacher reported that

A lot of the kids ... were able to do more than what I had expected. ... The QA environment allowed them to express their opinion more, and I don't think I would have gotten that kind of feedback from them if we were [in a] discussion form in the classroom because. ... I tend to be a little bit too stringent, and [with] two or three kids trying to talk at one time, it's hard to have your voice heard.

Stepping back and reflecting on our work, we see our relationships with Quest Atlantis Centers as having three ongoing focal points that design ethnographers might consider. First is the issue of *trust*. Building trust is a necessary component in any relationship. Issues of trust are especially sensitive in the context of university-school or university-other relationships, in which the university may be viewed as using others for their own agendas and community members may distrust university researchers' motives and commitments. We view trust as evolving

based on many factors, including adopting a participatory posture, developing multi-tiered relationships, and having an evolving as opposed to an imposed agenda.

The second focal point is the designed *intervention*, capturing the assumption that critical design ethnography involves building a socially responsive design with the goal of supporting change. In our case, the intervention evolved over time as a dialectic between building a critique and designing online spaces; the design itself is continually being remade as specific structures are adapted to local contexts. Further, because our design is a web-based, multi-user environment in which members interact, the participation of new members changes the design and member experience.

The third focal point involves *sustainability* and addresses the necessary commitment of the design ethnographer to support sustainable change. The goal is that the plan and the implementation are innovative but sustainable. All too often researchers finish their data collection and then shift to the next project, at which point the intervention without the support of the research team simply crumbles. We are still determining the best way to gradually scale back yet provide the necessary supports for participants. Also, as contributors to the designed space, it is critical to make sure that the initial innovation sites are either integrated into a business model for project dissemination or, in nonprofit cases such as ours, stakeholders are adequately reciprocated with time and resources.

Reflecting more generally on the challenges of critical design ethnography, our experience was that in this partnership we had to first put aside our own agenda so that we could build a collaborative agenda that included our own commitments, but did so as part of a locally grounded, locally relevant, and locally owned process. There is a tension in simultaneously advancing an agenda and at the same time listening, honoring, and learning from others. This tension remained throughout our work, with our view sometimes being front and center, at other times fading into the background, and at others being challenged, modified, or abandoned. We view this not as a contradiction but as a tension that is inherent in the process of carrying out critical design ethnography, and, we argue, of living more generally.

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Notes

Acknowledgments. This research was supported in part by a CAREER grant from the National Science Foundation, REC-9980081, and by the National Science Foundation grant #0092831. For more information about the Quest Atlantis project see <http://atlantis.crlt.indiana.edu>.

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