Beyond the Hype: Sustainability & HCI

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Abstract
In this panel we explore: (1) the burgeoning discourse on sustainability concerns within HCI, (2) the material and behavioral challenges of sustainability in relation to interaction design, (3) the benefits and risks involved in labeling a project or product as environmentally sustainable, and (4) implications of taking on (or ignoring) sustainability as a research, design, and teaching topic for HCI.

Keywords
Sustainability, design, interaction design.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous. J.7. [Computers in other systems]: Consumer products. K.1. [The Computer Industry]: Markets. K.4.m. [Computers and society]: Miscellaneous.

Introduction
The term “green” has become ubiquitous in Western culture. It provides a quick way to designate communities, conferences, firms, people, political parties, and innumerable consumer products that make a claim of environmental sustainability. What lies behind these claims is often difficult to tease out.

Increasing numbers of Human Computer Interaction (HCI) researchers and practitioners are attempting to ascertain what it means to practice in a more sustainable manner. In so doing, they face complex challenges with little past experience to guide them.

The purpose of this panel is to provide the CHI community with an opportunity to interact with individuals in the midst of research, educational, and business endeavors that bring together HCI and sustainability. Specifically, the panel will address (1) the burgeoning discourse on sustainability concerns within HCI, (2) the material and behavioral challenges of sustainability in relation to interaction design, (3) the benefits and risks involved in labeling a project or product as environmentally sustainable, and (4) implications of taking on (or ignoring) sustainability as a research, design, and teaching topic for HCI.

Background and Intended Audience

What does environmental sustainability have to do with the HCI community?

- The world generates twenty to fifty million metric tons of "e-waste" each year [3].
- 95 percent of American consumers do not know the meaning of "e-waste" [3].
- The elements that illuminate liquid crystal displays for MP3 players, iPods, and cell phones can cause damage to the brain, nervous and reproductive systems, the lungs, and kidneys and are harmful to a developing fetus [3].

The list above highlights the staggering material challenges of e-waste. The statements focus attention on the physical properties of information technologies, but a more complex problem space lurks behind the material issues. As a field, HCI is largely oriented to the generation of short-lived consumer products and to the support of enhanced productivity. Both goals sustain an ethos of constant consumption. This orientation suggests that the problems for the field are structural as well as material. That is to say, making hardware recyclable and non-toxic does not fully "solve" the problem (though it would be a big step in the right direction).

In 1968 Hardin addressed the issue of pollution and finite resources in his article entitled the "Tragedy of the Commons" [4]. Hardin claimed that there is a category of problems for which there is no technical solution. Is sustainability one of those problems? Or is there a role for information technology to play? If so, what might that role look like?

To begin exploring that question a SIG entitled "Sustainability and Interaction" was hosted during CHI 2007 [5]. The SIG drew over 100 attendees. This number was surpassed during the paper session in which Eli Blevis presented his award winning paper on the same topic [1]. A mix of anthropologists, computer scientists, cognitive psychologists, interaction designers, social scientists, and usability experts attended both events. Break out sessions during the SIG made evident that a large number of the attendees already possessed a strong personal interest in the topic of sustainability, but were unsure how to integrate this concern with their research agenda or design practice.

The overwhelming interest and enthusiasm demonstrated by members of the CHI community during the 2007 conference was channeled into

Panel Time Management

5 min.	Photo montage while settling of audience
7 min.	Audience interaction: Provocative polling results and other surprising sustainability facts (Eli Blevis)
16 min.	Introduction of issues, panel format, panelists and respondents (Lisa Nathan)
5 min.	Panelist 1: Jay Hasbrouck
3 min.	Respondent: John Thomas
5 min.	Panelist 2: Bill Tomlinson
3 min.	Respondent: Batya Friedman
5 min.	Panelist 3: Phoebe Sengers
3 min.	Respondent: John Thomas
5 min.	Panelist 4: Penny Hagen
3 min.	Respondent: Batya Friedman
30 min.	Audience interaction: Comments and questions

numerous activities over the past year. Tangible outcomes include (1) an active HCI sustainability listserv [7], (2) an HCI sustainability Wiki [6], (3) conference guidance provided by the CHI 2008 sustainability advisory board, and (4) numerous research collaborations. We posit that for CHI 2008, a panel of experts would draw even larger numbers of participants and have a wider influence as the topic of sustainability has grown from being perceived as 'just' a social concern to being recognized as a legitimate business concern. Whereas in the past sustainability was framed as a competitive opportunity, social commentators suggest that it will soon be a competitive requirement [2].

Panel Format

Opening and Audience Engagement. We will begin the session with a short, compelling, photo montage depicting the work of prize winning photographer Chris Jordan. The images will portray the large-scale issues the panel will take up (e.g., waste, electricity use, and consumerism). The photo montage will be followed by an informative interactive session with the audience

Welcome and Panel Overview. A brief welcome and an overview of the issues of sustainability follows. We then describe the panel format, introduce the panelists and respondents. Panelists include: Jay Hasbrouck, Bill Tomlinson, Phoebe Sengers, and Penny Hagen. Respondents include: John Thomas and Batya Friedman.

Panelists, Projects, Issues and Response. After the brief introductions, each panelist will have 5 minutes to describe one HCI/Sustainability endeavor that she or he is working on along with issues encountered during the project. After each project description the respondent will have 2 to 3 minutes to critically respond to the project description.

Audience Interaction and Commentary. After all of the panelists have discussed their projects, the discussion will be opened up to the audience, encouraging questioning of the panelists, comments to the respondents, and descriptions of their own projects.

Panelist Qualifications and Project Descriptions

All panelists and respondents have confirmed their participation.

Panelist 1: Jay Hasbrouck is a Social Anthropologist in Domestic Designs and Technologies Research within the User Experience Group at Intel Corporation.

Project 1: *Dead, Dying, and Disabled Technologies* is the title of a research project which draws from a set of worldwide ethnographic investigations conducted by Intel's User Experience Group. The project focuses on the latter stages of consumer use in the lifecycle of technological devices.

Panelist 2: Bill Tomlinson is an Assistant Professor of Informatics at the University of California, Irvine, and a researcher in the California Institute for Telecommunications and Information Technology.

Project 2: The Green Scanner is a system that can help consumers engage in environmentally preferable purchasing in most or all of their everyday transactions.

Questions: Discussion Seeds

- Given that designers are not the final arbiters of a product's use how should we understand the designer's role in supporting sustainability in design?
- Replacing rampant consumption with rampant "green" consumption is unlikely to fully resolve environmental issues. What role can or should IT design play in helping us move beyond consumerism as a central driver?
- What new roles might repurposing or re-use play if recycling isn't an optimal use of resources?
- Are we moving even more than ever towards a short life span appliance metaphor? Should we resist this move, and if so, how could this be done practically?
- How can we move beyond a framework of guilt (e.g., tracking one's carbon footprint) to designing IT interventions that help people experience the environment in positive ways?

Panelist 3: Phoebe Sengers is an Assistant Professor in Information Science and Science & Technology Studies at Cornell University.

Project 3: Environmental Interventions is a senior-level course that looks at how IT can be used to intervene in public debates around the environment.

Panelist 4: Penny Hagen is Executive Director at Digital Eskimo. She specializes in design strategy and research with an emphasis on employing and appropriating UX design methods, process and technologies to support design for social change.

Project 4: Digital Eskimo is a design agency based in Sydney, Australia that has a strong commitment to working on projects that progress humanity towards a sustainable way of being. Sustainability is defined in terms of environmental, social and economic health. Their clients include Amnesty International Australia, WWF, Climate Friendly, Greenpeace Australia, Planet Ark and Green Pages Australia."

Respondent Qualifications

Respondent 1: John Thomas received a Ph.D. in psychology from the University of Michigan. He works for IBM in HCI (Pattern Languages, e-learning, HCI & International Development; tools for parallel programming). He has over 150 publications and invited presentations in HCI.

Respondent 2: Batya Friedman is a Professor in the Information School and an Adjunct Professor in the Department of Computer Science and Engineering at the University of Washington where she directs the Value Sensitive Design Research Group. She received both her B.A. (1979) and Ph.D. (1988) from the University of California, Berkeley.

Acknowledgements

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