Transformative Models of Learning and Discovery in Cultures of Participation

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Overview
The rise in social computing facilitated and supported by Web 2.0 cyberinfrastructures has resulted in a shift from consumer cultures to cultures of participation. These developments represent unique and fundamental opportunities and challenges for exploring fundamental transformations of learning and discovery including: (1) allowing passive consumers to become active decision makers and contributors; (2) democratizing participation; and (3) solving systemic problems transcending the individual human mind and requiring collaborative actions. The Center for LifeLong Learning & Design (L3D) is pursuing this research in the context of Smart Grid environments that overlay information and communication infrastructures on electric grids and World-in-3D efforts, yet the research is inspired by and applicable to a broad range of domains.

Theoretical Frameworks
The energy domain is dominated by model-authoritative environments in which only a selected few create and distribute information about energy consumption. L3D is using a meta-design approach to transform the energy domain into a model-democratic system in which everyone interested can become a contributor (see Figure 1).

Socio-Technical System Developments
The Envisionment and Discovery Collaboratory (EDC) allows participants to explore data and simulations for gaining a better understanding of the interaction between their individual energy choices and the overall behavior of their neighborhood’s energy use (see Figure 2). It integrates L3D research on representations of energy that are personally meaningful to energy consumers.

Evaluation/Assessment
L3D is assessing the frameworks and system developments with groups of students and staff interested in saving energy across campus. In addition, the emotional potential of novel energy representations in the EDC and other energy-related systems through lab experiments and qualitative research with our partners.

Relevant Publications

Partners
El Pueblo Magico
SketchUp
CU Boulder SAT

Contact Information
PIs
Gerhard Fischer
gerhard@colorado.edu
Kris Gutiérrez
kris.gutierrez@colorado.edu
Researchers
Hal Eden
haleden@colorado.edu
Holger Dick
holger.dick@colorado.edu
Jason Zietz
jason.zietz@colorado.edu
Website
http://l3d.cs.colorado.edu/energy