

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.

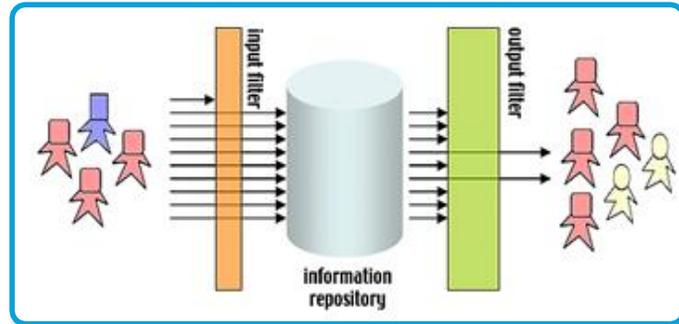


Figure 1: Model-Democratic

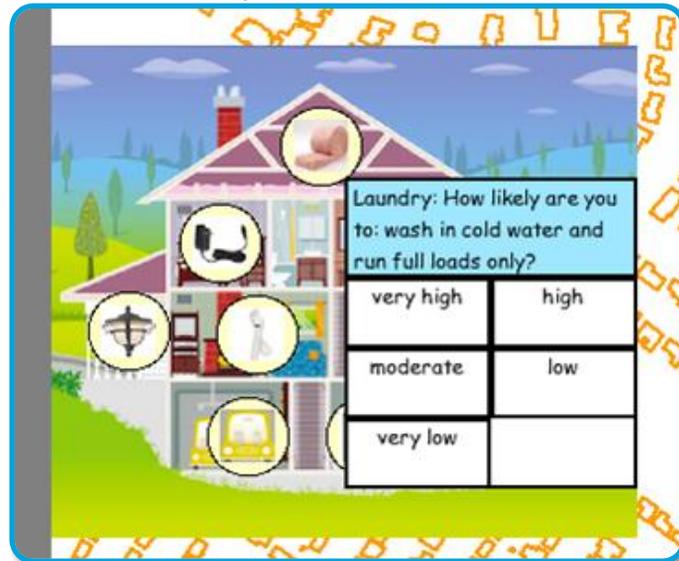


Figure 2: Collaborative Design Activities in the EDC

Relevant Publications

- Fischer, G. and T. Herrmann (2011). "Socio-technical Systems: A Meta-design Perspective." *International Journal of Sociotechnology and Knowledge Development* 3(1): 1-33.
- Gutierrez, K. (2011). "Teaching Toward Possibility: Building Cultural Supports for Robust Learning" *POWERPLAY*, v. 2011, .22
- Dick, H., H. Eden, et al. (2011). From Consumers to Owners: Using Meta-design Environments to Motivate Changes in Energy Consumption. *Proceedings of IS-EUD 2011*. Springer Berlin / Heidelberg. 6654: 319-324.

Partners

El Pueblo Magico After school club focused on helping minorities
 SketchUp 3D modeling software used for Google Earth models
 CU Boulder SAT Sustainability Action Team helping students and staff

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