

C. NEW MEDIA

Supporting Collaborative Design by Communities of Interest with the Envisionment and Discovery Collaboratory (EDC)

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ABSTRACT

A major role of new media is not to deliver predigested information to individuals, but to provide the opportunity and resources for social debate, discussion, and the creation of new knowledge. In *collaborative design*, the knowledge to understand, frame, and resolve problems does not exist, but is constructed and evolved during the process, exploiting the power of “symmetry of ignorance” and “breakdowns.” From this perspective, access to existing information and knowledge (often seen as the major advance of new media) is a very limiting concept.

To illustrate this theoretical approach towards collaborative learning, the participants in this interactive event will engage in collaborative design activities supported by the *Envisionment and Discovery Collaboratory (EDC)*. The EDC merges physical interaction, handheld devices, simulations, end-user modifiability, and evolving web spaces to support a) the integration of problem framing and problem solving, b) the creation of shared understanding articulated as externalizations, and c) computer-supported learning among stakeholders.

We will design the interactive event such that the participants will form a *community of interest* (defined by their collective concern with the resolution of a design problem) as they take on the roles of stakeholders from various communities of practice (such as city planners, transportation designers, and citizens). The event will illustrate the possibilities and limitations of the EDC for providing unique and innovative computer support for collaborative learning.

OBJECTIVE

Participants in this interactive experience will

- Learn about the challenges and opportunities faced by participants in collaborative design settings;
- Develop a deeper understanding of the nature of wicked design problems;
- Work with some of the technologies being developed to support collaboration and participation at L³D;
- Experience the strengths and weaknesses of our approaches;
- Bring back insights from their participation to the overall conference discourse; and
- Have an opportunity to participate in our research by providing us with feedback.

DESCRIPTION

The EDC [Arias et al., 1999; Arias et al., 2000] is a unique, immersive environment that provides stakeholders new opportunities to engage in active knowledge construction supported by new techniques in human-computer interaction.. The EDC uses:

- physical interaction (using SmartBoard touch screens and PitA-Board [Eden, 2002] interfaces)
- handheld wireless devices (PDAs, QueryLens⁽¹⁾),

⁽¹⁾ <http://www.cs.colorado.edu/~L³D/clever/projects/querylens.html>

simulations providing for end-user modifiability (built in substrates such as AgentSheets and Squeak), and evolving web spaces (using DynaSites, LivingBook, and SPIDER) utilizing open source principles [Scharff, 2002].

This proposed interactive experience will engage all participants in playing the roles of various stakeholders (representing members of different communities who come together in a community of interest), using the EDC to explore, frame, and attempt to reach a resolution in the context of the following problem scenario.

Colorado's rich history of mining has provided a colorful flavor to the development of the state, along with a legacy of environmental problems. The EPA has targeted mine sites near the towns of Vanessaville, Sharffeton, and Edensburg for cleanup. In working with residents to develop a viable approach to the environmental reclamation that is needed. However, they must address resident fears of increased tax burdens, the stigma that can accompany "Superfund" designation, potential depression of property values, and skepticism regarding the severity of the problems and their impacts. The perceptions of residents vary greatly depending upon their location (upstream, downstream, distance from watershed features)

The planners face a difficult challenge in bringing together members of the community in a way that promotes civic discourse leading to a resolution of the challenges that are faced.

The participants will work together to resolve this community problem by constructing and modifying neighborhood model—placing and moving physical objects that represent objects such as houses, parks, schools, and bus stops. In doing so, they will engage in collaborative knowledge construction, creation of boundary objects for shared understanding, end-user modifiability of computational environments, and engage in innovative processes to construct new content.

We will conclude this interactive event with session at the conference site on Friday, in which the participants' experience with our interactive event can be brought back into the overall conference discourse. We will show videotape portions of the EDC interactive event to playback for the session attendees who did participate in the experience to ground the discussion, and will ask those who did participate to form an informal discussion panel on the challenges for learning and participation that the EDC is working to address.

REFERENCES

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