Participatory Design for Sustainable Campus Living
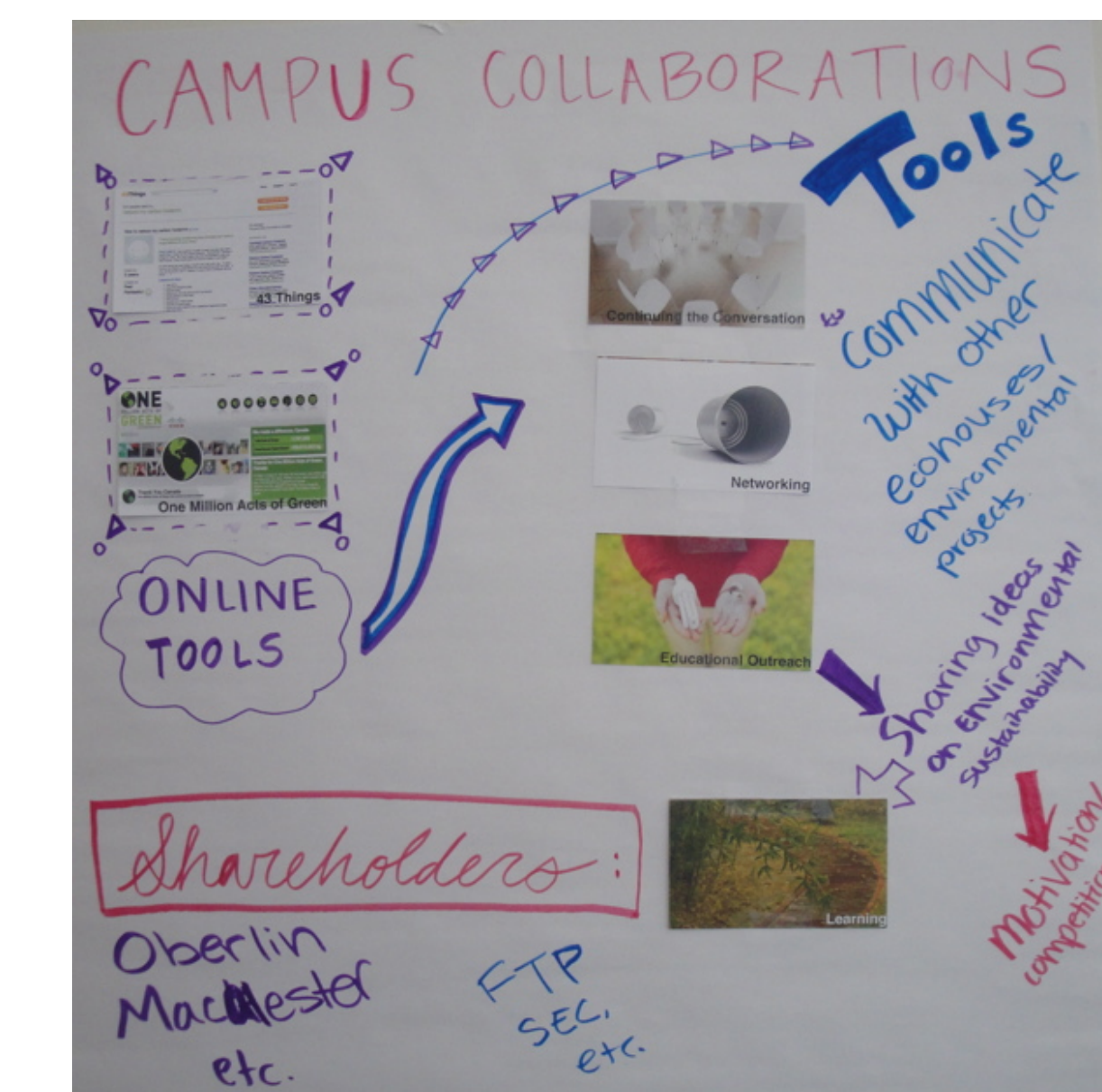
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Design context: EcoHouse

EcoHouse is a student residence at Grinnell College. In their proposal, students committed not only to live sustainably, but to educate the community, raise a garden, and test new resource conservation technologies and practices for use on campus. This participatory design work approaches EcoHouse as an "opportunity space" [7] and aims to design and deploy technologies in support of that mission.
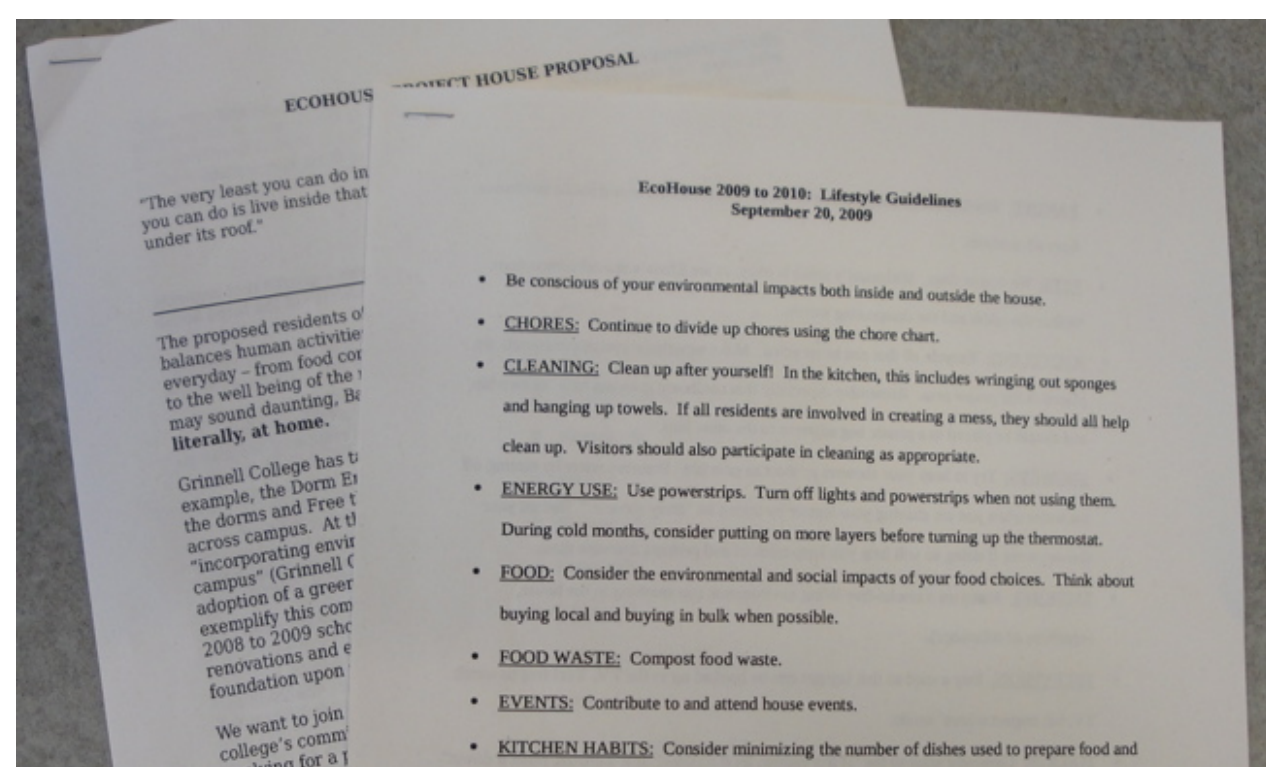
Ethnographically-inspired methods

To better understand the house's mission, concerns, projects, procedures, and social dynamics, along with individuals' interests and concerns, I used the following ethnographically-inspired methods:
- Interviews of each of the house's ten residents
- Review of the house proposal and other documents
- Participant-observation of house meetings
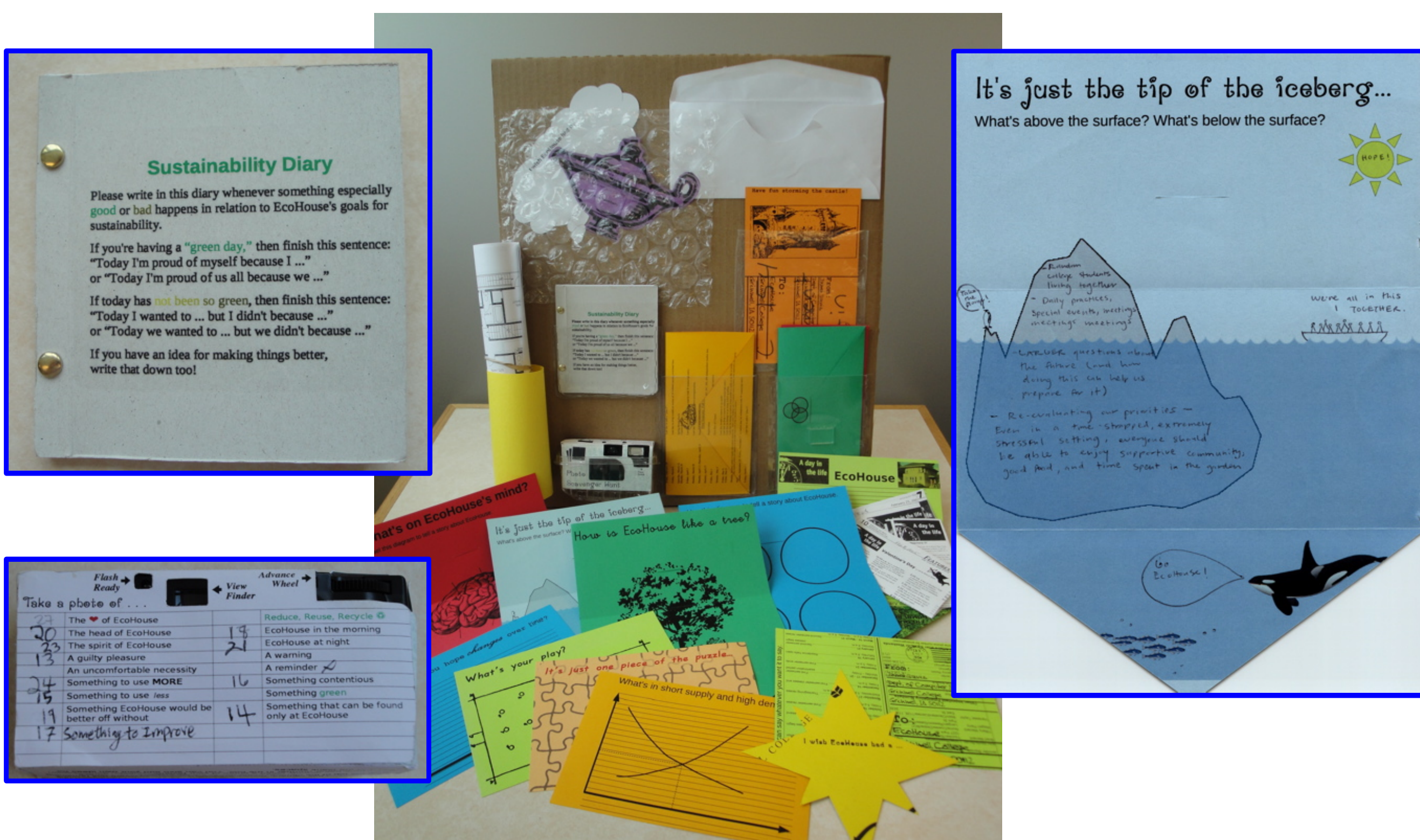
Generative tools

Though similar in form to cultural probes [4], generative tools such as the above are meant as "primes" to start engaging participants' creativity and ref ection, while also providing inspiration and information to feed into design [9]. Participants responded well; they completed most materials, told many stories, and had fun.

Abstract

Participatory methods may help to address issues of ethics and representation in the design of persuasive technology [1] and design for sustainability [5]. Such methods have already shown some promise [2,8]. But how can participatory design result in effective persuasive technologies? How will participants and non-participants relate to the resulting technologies?

As a f rst step, I report on the use of ethnographically-inspired methods, generative tools [9], and the Inspiration Card Workshop [6] to generate concepts for persuasive technologies [3] for use by a college EcoHouse.
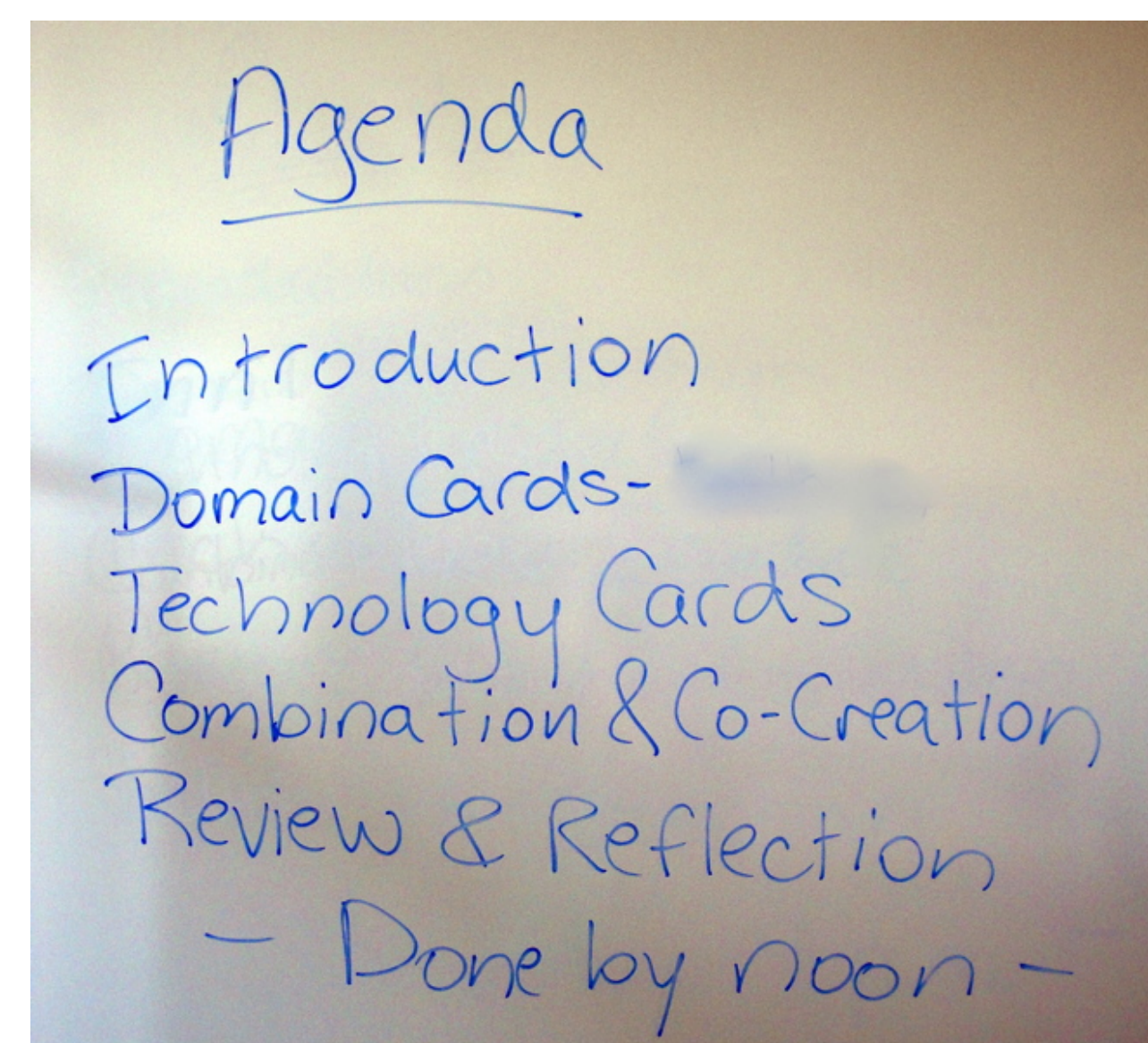
Inspiration Card Workshop

To bridge the gap from analysis and ref ection to generating concepts, I facilitated two Inspiration Card Workshops [6], one with four participants and one with three. As the name suggest, the workshop centers on the Inspiration Cards shown below. After a participant introduced the Domain Cards and I introduced the Technology Cards, we moved into the Combination and Co-Creation stage. Participants could choose any cards to combine into a new design concept, and represent that concept on a poster.

Domain Cards provide a tangible representation of concepts from the design context: in this case, EcoHouse. (27 cards)

Technology Cards introduce a repertoire of example persuasive technologies to combine and imitate. (18 cards)

Workshop results

The two workshops resulted in a total of 26 design concepts. All represent persuasive technologies, and all but two are related to EcoHouse's mission. As Halskov and Dålsgard found [6], many of the concepts are straightforward applications of a Technology Card to the new domain (for example, "1000 Acts of Green for Grinnell", above). However, others are more novel in their combinations, and even introduce other technologies from participants' experiences, such as using key cards to control electrical appliances ("Room Off-Switch", above).

In later plenary discussions, we decided to further explore these design directions.

- An online community for Eco-houses and dormitories, intended to provide opportunities for social comparison, public goal setting, and social learning (left).

- Using sensors and automation to make it easier to turn off lights and other electrical devices.

- Making feedback on electricity, natural gas, and water consumption more frequent and visible.

Discussion questions

- What other persuasive technology domains have a natural group of potential users to participate in design? Should users *always* be included?

- How might domain experts f t into participatory design of persuasive technology?

- What participatory methods might be effective for designing, e.g., mobile or online persuasion?

- How might participatory methods directly engage with the ethical issues of persuasive technology?

References

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