

In this forum we highlight innovative thought, design, and research in the area of interaction design and sustainability, illustrating the diversity of approaches across HCI communities. — Lisa Nathan and Samuel Mann, Editors

Sustainability in an Imaginary World

Roy Bendor and members of the Sustainability in an Imaginary World project,
The University of British Columbia

What if our environmental crisis is as much a failure of our imagination as it is a moment of reckoning with the material consequences of modernity? What would technologically mediated public engagement with sustainability look like, if instead of discussing gallons of fuel or water consumed, carbon dioxide parts-per-million, or dollars spent and saved, we collectively explored visions of possible futures? These are the questions that motivate Sustainability in an Imaginary World, an interdisciplinary project funded by a three-year Insight Grant from the Canadian Social Sciences and Humanities Research Council (SSHRC). Initiated a year and a half ago, the project involves faculty members and students from The University of British Columbia's arts, design, and social science communities, including theater, visual arts, sustainability, scenario analysis, and human-computer interaction. What we are building together is an interactive multimedia experience.

Our approach to sustainability recognizes it as an essentially contested concept [1], one that includes ambiguity, tension, and fuzziness. We also believe that while sustainability evokes concrete material and biotic processes—often associated with planetary limits, industrial pollution, and individual consumption [2]—it should not be reduced to them [3]. Instead, we

approach sustainability as a normative ethical principle—not an end goal but an emergent property of processes of discussion and negotiation about what kind of world we want to live in. In this sense, we understand sustainability as a platform for *futurescaping*, or, to use Nelson Goodman's term, a process of *worldmaking* [4], by which we collectively make sense of, order, and prioritize social, cultural, and material phenomena. Working from such a *procedural approach to sustainability* [5], the project poses and seeks to test two hypotheses.

Our first hypothesis is that sustainability may imply a challenge to our underlying dominant cultural ideas about nature, science, technology, and society. In this mode, the project proposes that while it may be important to engage sustainability through such issues as land use, energy efficiency, urban form, or consumptive behavior, it is crucial that we also consider sustainability as a way to conjure and evaluate deeper ontological and epistemological questions, such as, what is the world?

Insights

- Sustainability is about much more than the material consequences of modernity. We see it as a process of collective worldmaking.
- Public engagement on sustainability can be explored through the lens of aesthetics—as a question of experience, affect, creativity, and self-reflection.

How do we know it? What can we do to change it?

For this purpose, and based largely on Richard Rorty's essay "Philosophy as a Transitional Genre" [6], we sketched three "worlds." Each world represents an internally consistent set of corresponding cultural assumptions through which the different meanings and realities of sustainability may be engaged. In a *spiritual* world, an enchanted nature is brimming with meaning and is part of some larger divine plan. Truth is guaranteed by a transcendental being and may be accessed through the practices associated with faith and ritual. In a *materialist* world, a disenchanted nature exists independent of our beliefs and is knowable through the application of the tools and methods of calculative reason (e.g., science and philosophy). Last, in a *literary, imaginative* world, nature is available to us chiefly as a product of social discourse. Accordingly, truth is discursive and intersubjective, inflected by the sociomaterial conditions within which it is pursued, and exists only as a momentary stabilization of what is otherwise in constant flux.

Of course, these positions are only suggestive approximations or archetypes. One may imagine other worlds that may or may not coexist, overlap, or clash. In any case, we illustrate the spiritual, materialist, and literary worlds as means to shift the discourse of sustainability from focusing on material facts to assessing cultural values, helping to convey the realization that both the meaning and



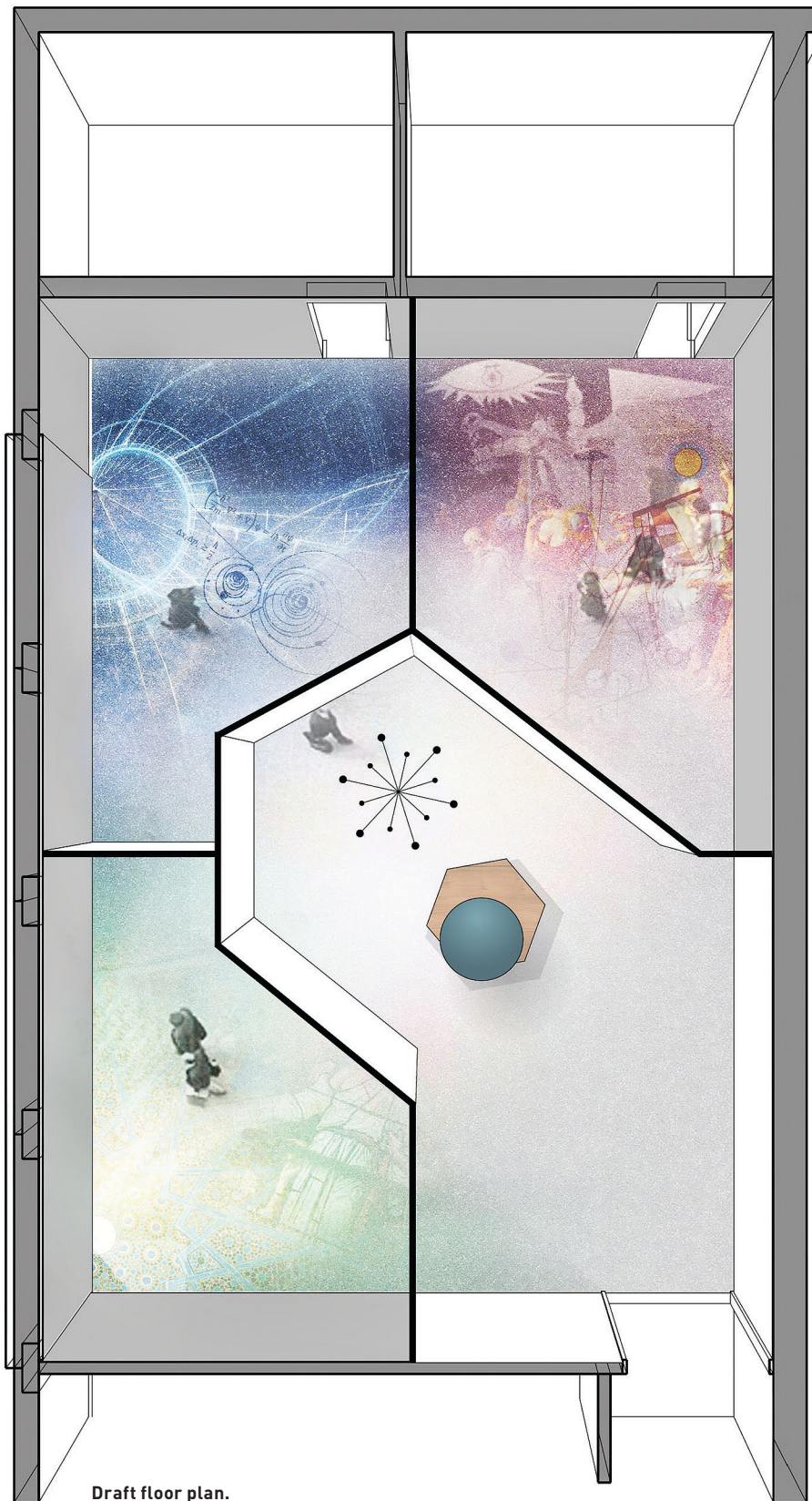
Aesthetic renditions of the spiritual world (top), the materialist world (middle), and the literary world (bottom).

the very material constitution of the world around us are human artifacts (as encoded, for instance, in the notion of the Anthropocene). In other words, the three worlds signify both a pluralistic reality (or “pluriverse”) and the horizons under which sociomaterial agency unfolds.

Our second hypothesis is that these deeper issues could be productively

explored through the lens of aesthetics; that is, they could be posed as questions of experience, affect, creativity, and self-reflection and not, as the information-deficit communication paradigm would hold, as a problem of accessing information and translating it into actionable knowledge [7]. What we are trying to develop, then, are ways to evoke sustainability with artistic vocabularies,

but without falling back on didactic or propagandistic playbooks. We are not interested in merely converting facts into values by translating scientific data into something the public may care about; rather, we see the arts themselves as a way of knowing the world—a methodology for exploring, understanding, and building human realities. To this extent, we are experimenting with the



Draft floor plan.

techniques of relational aesthetics, immersive interactive theatre, and speculative design.

ONE EVENT. THREE WORLDS.

Using narrative to tease out the differences between the three worlds, the experience is triggered by an unexplained event: the appearance of a mysterious object reported to be glowing just offshore, accompanied by high winds that have knocked out communication towers. Extreme political unrest, vigilantism, and looting spread throughout the land. Participants learn about the event from fragments of video screened during a process of registration.

After being equipped with wireless headsets, participants are ushered in groups of six into a dark, scarcely illuminated space, where an interactive spherical display (or orb) hangs from the ceiling. As they wander within this space, they hear three voices of unknown origin or identity describing the event. These personal narratives, participants will later learn, correspond to the three worlds described above. Shrouded and dimmed, the orb hangs over a large touchscreen tabletop. The tabletop is then revealed to be a Ouija board, with which participants will collectively answer questions about the event and how responses to it may be formulated.

After answering the last question, the room's walls lift to reveal three doorways, leading to three smaller rooms. Each room features an interactive mixed-media installation—a tactile manifestation of how the event may have been perceived, interpreted, and acted upon through the prism provided by each of the three worlds. What was previously only hinted at by fragments of narrative and voices is now animated as a particular inhabitable psycho-cultural environment.

Once participants have had a chance to interact with all three rooms, the experience reaches its climax: The rooms go dark and participants are guided back to the orb. Here, they discover that the shrouds around the suspended object have blown away and it is now glowing brightly in all its ambiguous glory. Participants are then invited to select

a token that represents their preferred path (i.e., one of the worlds/rooms) and hold it up to the orb. The tokens, color-coded to match the rooms and embedded with RFID tags, cause the orb to magically flush with that color, thus revealing the meaning of the orb as a symbol of the cumulative nature of the future—an instantiation of the choices made by those who went through the experience before, and whose decisions and actions set the conditions for any possible future to materialize.

After exiting the room, participants will have the opportunity to record a short video that describes their experience, enabling us to thicken our understanding of the interpretative strategies participants employ as they encounter the event and the three worlds.

SOME DESIGN QUESTIONS

In the process of designing the experience, we encountered several key questions. We bring them here not only as evidence of the difficulties involved in large multidisciplinary projects, but also as an indication of the kind of challenges designers may face when creating interventions aimed at challenging ontological presuppositions.

The first question has less to do with the experience itself and more to do with our own creative processes: *To what extent should we perceive ourselves as curators, or inversely, as facilitators of collective design?* The first position implies a top-down creative process, the second a more bottom-up approach. Our solution so far has been to try to combine both approaches. While all project members have complete autonomy

over their research questions and goals, and some leeway in terms of the design affordances associated with those research agendas, the experience's overarching design has truly been a collective effort. Though the price we pay in terms of time-to-completion may be steep (something that could also be attributed to the ambitious scope of the project), we hope this will result in a better design and a more meaningful experience for participants.

The second question pertains to the kind of design strategies most suitable for articulating and conveying the three worlds: *In what ways should the experience incorporate representational strategies, and in what ways should it pursue performative modalities, allowing participants to inhabit and interact with the worlds?* This question not only brings out project members' different conceptual and methodological backgrounds, but also touches on a panoply of related issues such as the difficulty of representing abstract concepts, the challenge of communicating coexisting future possibilities, the kinds of biases that accompany different representational strategies, and the kinds of experiences we would like participants to have.

Considerations of user experiences are also the context for the third and final question: Insofar as we hope that participants would walk away from the experience with a heightened sense of agency, *what form should that agency take?* To be clear, the project aims not to change participant behavior but rather to affect participants' perceptions of the world and their attitudes toward the possibility of acting upon it. To this extent, we have posited a spectrum of agency that spans from, on the "weaker" side, a form of interpretative agency we would otherwise associate with spectatorship, to a "deeper" form of agency that we are calling ontological agency. This type of agency pertains to participants' ability to contemplate and affect the conceptual structures that potentiate future possibility—to reconsider values, worldviews, and

potentials to remake the world. If we are successful, the experience will conjure the latter.

As may be apparent, Sustainability in an Imaginary World is an ambitious project. We've set ourselves the task of creating an evocative and thought-provoking experience, one that is also compelling and enjoyable. We hope participants will go away feeling enchanted and empowered, challenged, moved, and inspired. If nothing else, we hope the project will provide us with important insights about the capacity of technologically mediated experiences to evoke ontological agency and reconsiderations of our collective capacity to remake the world sustainably.

ENDNOTES

1. Jacobs, M. Sustainable development as a contested concept. *Fairness and Futurity: Essays on Environmental Sustainability and Social Justice*. A. Dobson, ed. Oxford Univ. Press, 2006, 21–45.
2. See for instance Rockström et al. A safe operating space for humanity. *Nature* 461 (2009), 472–475.
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5. Robinson, J. and Cole, R.J. Theoretical underpinnings of regenerative sustainability. *Building Research & Information* 43 (2015), 2133–2143.
6. Rorty, R. Philosophy as a transitional genre. In *Philosophy as Cultural Politics*. Cambridge Univ. Press, Cambridge, 2007, 3–28.
7. Brossard, D. and Lewenstein, B.V. A critical appraisal of models of public understanding of science. *Communicating Science*. L. Kahlor and P.A. Stout, eds. Routledge, New York and London, 2010, 11–39.

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