Reframing Persuasive Technology for Sustainability

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Abstract

Rather than giving up on persuasive technology, let's shift the focus from individual behaviors to pro-environmental attitudes and social action. Climate psychologist Per Espen Stoknes suggests strategies.

Introduction

I never set out to do sustainability research. As a new assistant professor, I was drawn to the ethical quandary of persuasive technology: so much potential for good coupled with so many slippery slopes. I set an agenda to apply design methods that explicitly attend to ethical values in this new context.

But design research needs a problem. Working at a small, elite liberal arts college in rural Iowa, concern for the environment was something I shared with my students. With Tim Miller and Pat Rich, I carried out the first application of participatory design for conservation behaviors [6]. During a junior research leave, I partnered with Grinnell's EcoHouse to further explore the possibilities of participatory design [2].

Around the same time, sustainability started to gain visibility in the CHI community. With works such as "Sustainably unpersuaded: How persuasion narrows our vision of sustainability" [1], I found myself discouraged that persuasive technology had any role in sustainable HCI, or indeed, that I could make any difference at all. And I'm not alone. At times like this, I might count myself among the 31% of Americans who are
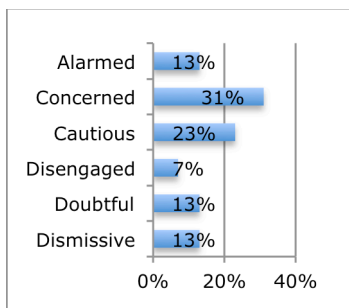
Figure 1. The "Six Americas" of climate change attitudes in the United States. October 2014, n= 1.275. Source: [6 via 8].

The **Alarmed** are well-informed about global warming, convinced it is a serious and urgent threat, and taking personal and political action.

The **Concerned** are moderately well-informed about global warming and convinced it is a serious problem, but are not necessarily taking action.

The **Cautious** have given some thought to global warming, but are not sure it is a problem.

The **Disengaged** haven't thought much about the issue, and don't know much about it.

The **Doubtful** believe global warming is a distant threat, if they believe it is happening at all.

The **Dismissive** are sure global warming is not happening. They see no threat and take no action.

"Concerned"— convinced that global warming is a problem, but not doing much about it (see Figure 1).

At the time, I chose to keep my commitment to persuasive technology and find another design problem. But somehow sustainability keeps drawing me back—through co-authors, workshop organizers, new colleagues at Whitman College. I'm faced with the question: How to redeem persuasive technology as an approach to sustainable HCI? If individual behavior change is not enough, what can PT contribute?

Recall that B.J. Fogg originally defined persuasive technology as technology to change *attitudes* and behaviors [3]. To change infrastructures, institutions, and culture, we need the will to change. The 13% of Americans who are "Alarmed" can't do it on their own.

Changing attitudes is hard, so hard that the persuasive technology community has all but given up. In his opening remarks at PERSUASIVE 2014, B.J. Fogg admitted it is very difficult for technology to persuade someone who does not wish to be persuaded. I myself have argued for designing with users who are already committed to sustainable lifestyles [2]. Yet, attitudes need to change, and technology is the lever I have.

Psychological barriers to climate action

Climate psychologist Per Espen Stoknes is the author of *What We Think About When We Try Not to Think About Global Warming* [7]. Drawing on evolutionary, cognitive, and social psychology, Stoknes seeks to explain why so few are taking action to address climate change. He identifies five major barriers to joining the "Alarmed": Distance, Doom, Dissonance, Denial, and iDentity [7, p. 82].

Distance: Global warming is remote in time and space. It's abstract; we can't see it. It doesn't seem to directly affect us or our kin. So, it is easy to ignore.

Doom: "When climate change is framed an encroaching disaster that can only be addressed by loss, cost, and sacrifice, it creates a wish to avoid the topic" [7, p. 82]. We are averse to loss. And when we don't know how to act, we feel helpless. We disengage.

Dissonance: If our belief in global warming conflicts with our consumption behaviors, we tend to change our attitudes, not our behaviors. We also tend to align our attitudes with those of others we respect.

Denial: When we doubt, ignore, or otherwise avoid acknowledging unsettling facts, we find relief from fear and guilt. Mockery is not born of ignorance, but self-defense.

iDentity: As our last line of defense, we disregard messages from sources who do not share our values and filter out information that challenges our values.

Stoknes' first principle for changing attitudes is to turn these barriers upside-down: To make climate disruption "feel near, human, personal, and urgent" [7, p. 90], to frame climate action in positive terms, to provide opportunities for consistent and visible action, to avoid triggering guilt and fear, and to reduce cultural and political polarization.

Strategies for attitude change

Many have argued that individual behavior change is an inadequate solution. The scope of what we can do as individuals, within existing cultures and infrastructures,

is simply too limited. And as we saw in Figure 1, too few are motivated to take action at all. But Stoknes argues that a strategy of individual responsibility isn't just inadequate; it's counter-productive [7, p. 92]. An intense program of private behavior change can leave us feeling complacent, with no energy left for public action. We've done our part; what more can we do? Or, what we do in our private lives seems to have no impact on the world. We can't do it alone; why bother at all? Whether we give up in exhaustion or despair, focusing on individual responsibility is defeating.

Instead, Stoknes proposes five strategies for collective responsibility and social action, most of which will be familiar to students of persuasive technology: nudging, leveraging social networks, positive framing, storytelling, and meaningful indicators.

Nudging is the simplification of choices to make the best choices easy: for example, setting all printers to print double-sided by default, or automatically including carbon offsets with the purchase of plane tickets [7, p. 125]. How does this go beyond individual behavior? First, choice architecture is an inevitable part of our infrastructures; there is always a default. Second, nudges overcome the barriers of distance and doom, making the climate issue near to our behavior choices and providing a clear opportunity for action. Third, nudges leverage cognitive dissonance. They are a foot in the door: if we engage in *many* pro-environmental behaviors, in time our attitudes will follow [7, p. 130].

Persuasive technology designers are familiar with the power of **social networks** and, in particular, social norms. But Stoknes flips the idea around. In persuasive technology, social norms are a typically viewed as a

means to individual behavior change. Stoknes suggests instead that individual actions contribute to the establishment of social norms—particularly actions we make visible in the public sphere, such as recycling, installing rooftop solar, or driving an electric car. Such actions have symbolic meaning beyond their direct impacts. They send a message to others that we care (leveraging dissonance) and that meaningful action is possible (overcoming distance and doom) [7, p.109].

Stoknes further suggests that we show support through initiatives like Earth Hour, introduce the topic of climate change in existing social networks such as churches, and form local groups to take action as consumers or citizens. Persuasive technologies could promote real-world participation and face-to-face engagements. Indeed, in my participatory design project with EcoHouse, residents found the opportunity for conversation and reflection more valuable than any new technology we developed [2]. In a design study with the Danish military, Gram-Hansen and Ryberg showed how a cooperative learning game not only teaches new behaviors, but also promotes pro-environmental attitudes within a community of practice [4].

We typically **frame** climate change in terms of destruction, uncertainty, cost, and sacrifice. Instead, Stoknes suggests we reframe climate change in terms of health, preparedness, insurance, and opportunity. We should talk about doing the right thing, regardless of the actual outcomes. Arnold Schwartzenegger's December 7 post, "I don't give a **** if we agree about climate change"[1], provides a notable example of

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[1]   https://www.facebook.com/notes/arnold-schwarzenegger/i-dont-give-a-if-we-agree-about-climate-change/10153855713574658

reframing renewable energy around health (clean air) and opportunity (economic growth). Framing is something that all sustainable IT designers should pay attention to: Any system that addresses sustainability has some framing of the issue, either positive or negative. Stoknes suggests we will be more successful with positive frames. Furthermore, persuasive technologies that influence word choice might help users to craft social media posts that invoke positive frames and avoid negative frames.

Alongside framing, Stoknes argues we need to tell hopeful **stories** about environmental activism. Setting aside the environmental apocalypse narrative, Stoknes proposes alternative narratives around green growth, human well-being, responsible stewardship, and re-wilding the planet. Persuasive media [3], such as videos, games, or interactive visualizations, could enable powerful storytelling in support of pro-environmental attitudes.

Finally, Stoknes argues we need new **indicators** of progress to support these new stories. Existing metrics such as tons of CO2 emissions, inches of sea level rise, and average surface temperatures are difficult to evaluate and slow to respond to human action. Stoknes suggests we instead look at metrics like Greenhouse Emissions per Value Added, the Integrated Wealth Indicator, the Kantian Climate Policy Indicator, and the Nature Index. Such metrics have a use in persuasive technologies. And, sustainable HCI can help make these indicators accessible to the public.

Designers & researchers are people too
We should not assume that our CHI colleagues are motivated to design for sustainability. My experience shows that barriers to climate action in the personal or political sphere can get in the way of professional engagement, too. Perhaps one of the best things we can do is apply Stoknes' strategies—with or without technology—to persuade more of our colleagues to consider sustainability in their designs.

Acknowledgements

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