

Engaging with Climate Change

How we think about engagement



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executive summary

This report assembles an overview of the schools of thought informing our current conceptions about engaging people with climate change. In much of the thinking today, people's behavior is often seen as a barrier to be overcome, a target for carrots and sticks, or an opportunity to engineer a better result. "Engagement" implies a deeper connection between people and climate change, and so offers a further step toward addressing the risks. It is clear that climate change will not be mitigated effectively unless more people are far more engaged in doing things differently.

At this point, the question remains: what can those of us concerned about climate change do to encourage, entice, bribe, fool or threaten others into sharing our concerns and turning those concerns into action that will reduce our impact? We continue to believe that somehow we can do more: we can be more effective, we can reach more people and save more energy, water and air, and produce less CO₂, if only more people were more engaged.

This report has three goals:

1. To offer a guide for navigating the "landscape" of four main orientations that define our views of engagement today;
2. To clarify the underlying assumptions, values, frameworks and primary methods for the different orientations; and
3. To explore how these underlying features may be most effective in the real world.

Much of the thinking on this topic occurs in academic circles. With experience in areas like energy efficiency, we have learned how far the previous generation of tools can get us. The results are not promising, not adequate to the scale of change we need. But the evolution of ideas is accelerating, and we have reached a point where we can begin to have a greater impact on humanity's biggest physical challenge, climate change, by engaging people at a deeper level, through a deeper understanding of why we don't do what we know we should.

In this field, four main orientations have emerged since the early 1980s. Each has evolved as the field has evolved:

- **Behavioral.** "How can we get x to do y?" This is the predominant approach to engagement, largely informed by cognitive sciences. It includes behavioral economics and "behavior-change," as well as studies on measuring attitudes. Examples include incentive-based programs and the focus on eliciting short-term, measurable results.
- **Socio-Cultural.** "What do people value/believe (and how can we message/frame/influence)?" This thinking includes studies and initiatives focused on values, beliefs, worldviews, and political and ideological affiliations. Examples include cultural cognition theory, WWF-UK's Common Cause and the "Six Americas" project.
- **Systems.** "How can we design a better world/solution?" Systems approaches are influenced by design sciences, complexity theory, systems thinking and innovation studies. They emphasize collaboration and site-specific interventions involving cross-sector partnerships, prototyping, and piloting. Examples include IDEO.org and social innovation programs.

- **Emotional/Experiential.** “How do people feel about what is happening? How can we facilitate/support effective responses?” Experiential approaches incorporate interactive processes such as dialog, group discussions, education, immersion programs (front-line experiences), arts-based projects, and addressing hearts as well as minds. Examples include Carbon Conversations, and emerging psychosocial studies on defenses, anxieties and resistance to change.

To help guide us through these different orientations, I have designed a few maps to help us locate ourselves, and to recognize opportunities for our energies and investments. While these approaches are presented as ‘silos,’ they aren’t discrete; there are influences and flows among them. Yet each represents different ways of approaching engagement. What counts as measurable, meaningful and significant varies among these central orientations.

The opportunity going forward is about the potential for integrating elements from each perspective into toolkits optimized for each situation. Such integration requires us to consider our own biases, requirements and capacities to move beyond our comfort zones, where we need to be innovators and collaborators.

The following maps illustrate and clarify the differences that inform how we currently think about, conceptualize, research, and implement engagement.



Mapping Schools of Thought (I)

Connections, influences and evolution of dominant thoughts and influencers focused on creating change



EMOTIONAL EXPERIENCE

Self- & Community-Created Solutions, Listening, Empathy, Dialog

IMMERSION
See and Experience to Understand through Trips, Film, Art



COMMUNICATIONS

Persuasion, Framing, Messaging, Awareness



SOCIAL AND CULTURAL

Values, Identities, Beliefs



SYSTEMS

Addressing Change at Systems Level



BEHAVIORAL ECONOMICS

Incentives, Rewards, Rebates



SOCIAL PSYCHOLOGY

Attitudes, Beliefs, Opinions



BEHAVIORAL

Lever, Drivers, Tools, Motivation



COGNITIVE SCIENCE

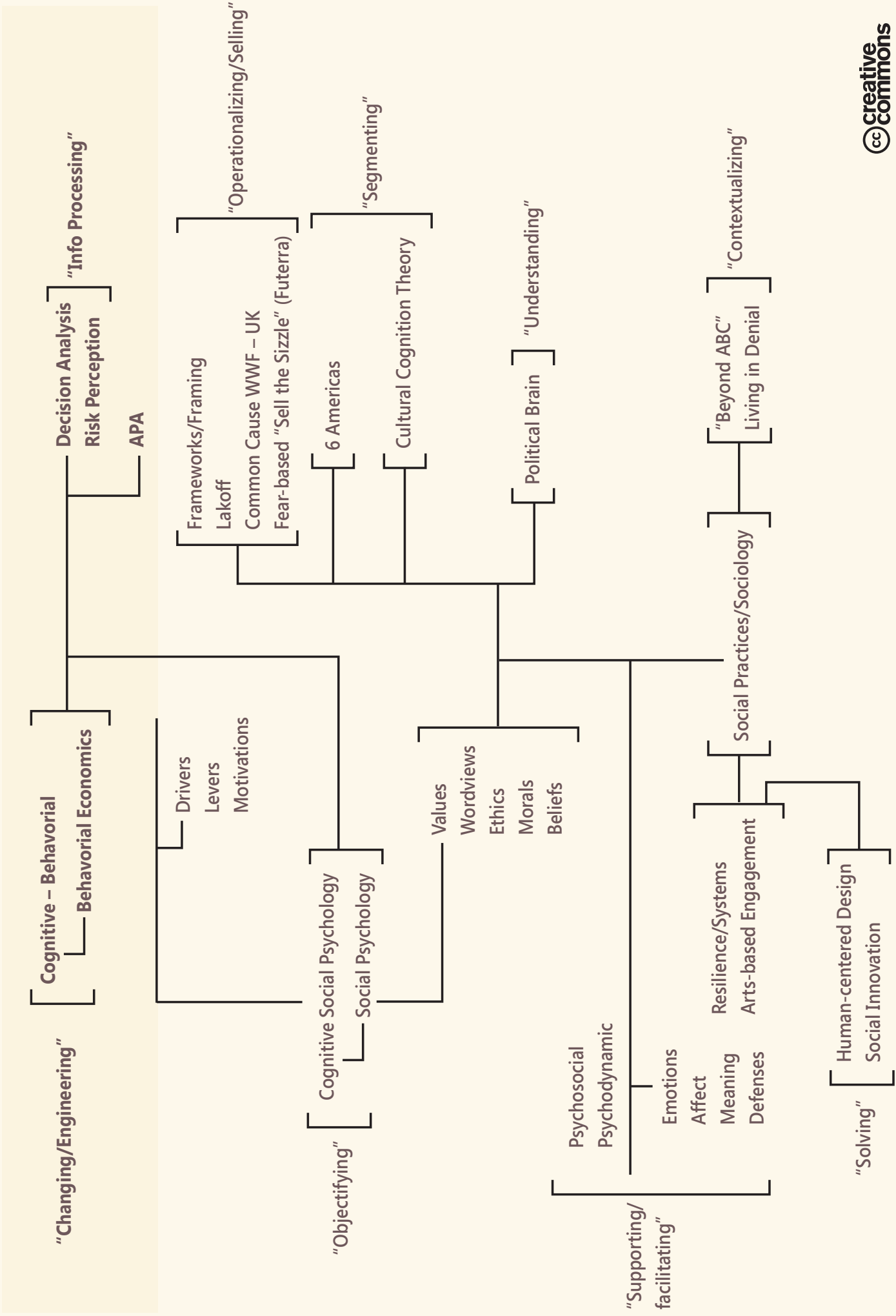
Decision-Making with Risk, Probability, Uncertainty



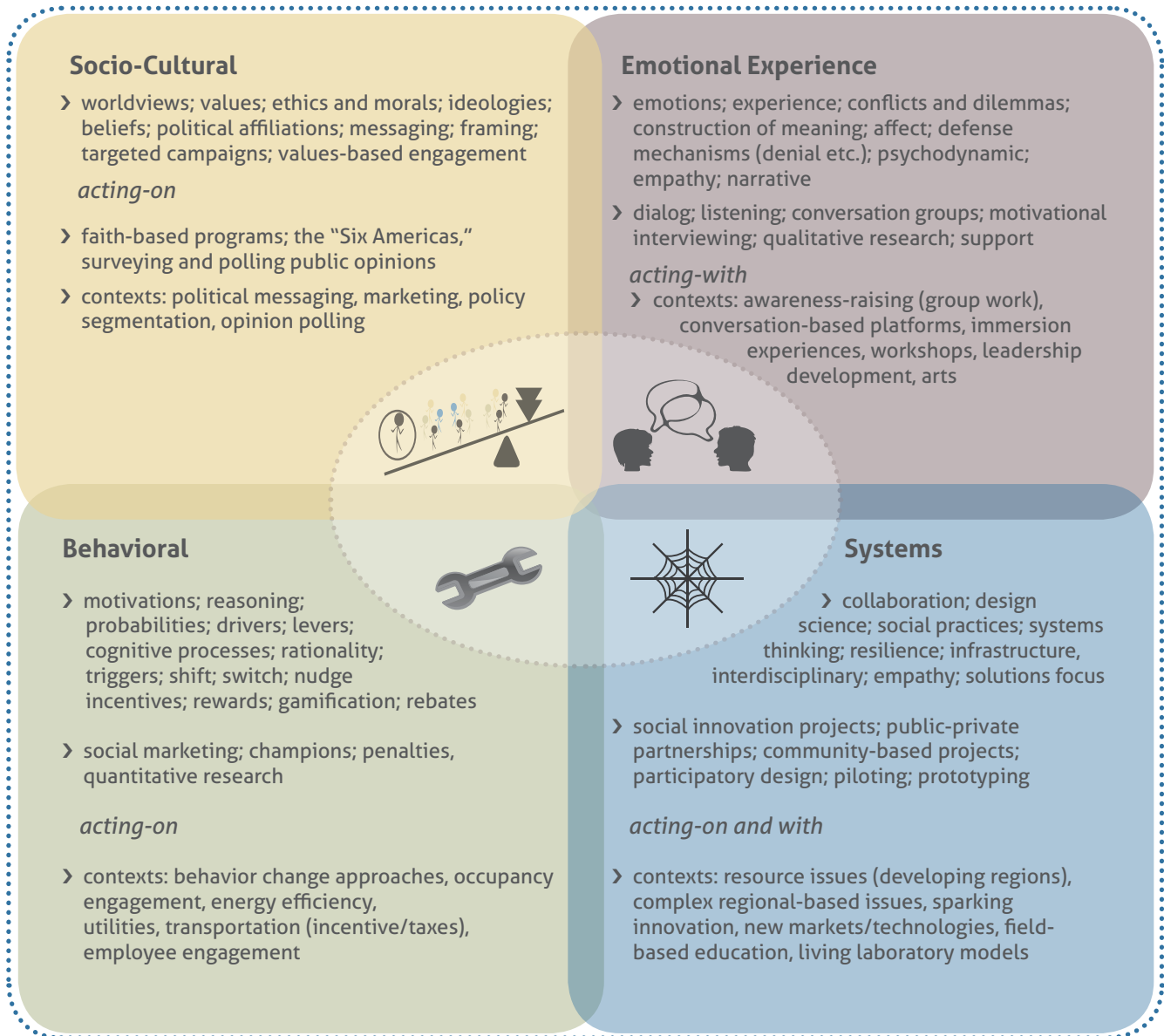
SOCIAL INNOVATION

Finding Solutions Through Listening, Empathy

Mapping Schools of Thought (II)



orientations to engagement



Adapted from Barrett C. Brown, Ph.D., Integral Sustainability Center, MetaIntegral Foundation

introduction: lay of the land

The Skoll Global Threats Fund initiative intends to support effective means of communications and engagement concerning climate change threats. This report is a resource for understanding the different perspectives in this field, the state of play, current thinking, research and initiatives.

Theories of “engagement” have evolved, and changing circumstances are demanding constant re-evaluation. What is most effective? How do we define the problems so that we don’t limit opportunities for change? What frameworks and tools are most suitable to particular contexts (e.g., engaging a community to address emissions, engaging stakeholders or targeting a constituency to support pols? What are our requirements for short-term or longer-term changes? When do our mandates for metrics override our desire for systemic (if less measurable) transformations? What tools will be most effective for evaluation? To address these questions, we must first get our bearings with respect to how intellectual traditions have shaped and informed the ways in which we define and approach the nature of our challenges.

The Landscape Is Shifting

Climate change presents unique and unprecedented challenges, especially in terms of the multi-layering of causes, effects, implications, ideological investments, political contexts and psychological and behavioral dimensions. Cognitively, ecologically, emotionally, behaviorally, climate change risks are distinct from other risks that we face, such as public health, nuclear weapons, or civil rights. We need to be able to draw on what we know, while recognizing the need for innovation.

Today, all over the world, psychology is being recognized as a critical element to meeting the challenges of climate change communications and engagement. While psychological and behavioral aspects of people’s responses to climate change are often articulated as a single field, in fact multiple perspectives are at play.

Multiple *disciplines*—social sciences, design sciences/studies, marketing sciences, branding, communication practitioners, sustainability efforts, behavior-change programs, clinical psychology and communications research—are pursuing parallel investigations. They are all producing insights into human psychology that can be applied to climate change challenges.

In what I have identified as four general (and overlapping) orientations, or frameworks (p. 7)—and the multiple disciplines described above—much of the thinking has evolved in silos. Innovative researchers can achieve breakthrough results by overcoming ideological differences and working collaboratively to integrate key elements and best practices for specific objectives.

This report seeks to guide program managers as they consider how to gain engagement on climate issues. Clarifying the underpinning assumptions and different disciplines’ perspectives, it sorts and traces the legacies, strengths and weaknesses, and examples of the current dominant trends in thinking (identified as **Behavioral, Socio-Cultural, Systems** and **Experiential**). There is significant overlap and fluidity; for example, social innovation work in design sectors is strongly influenced by behavioral economics. So we can begin to identify critical underlying assumptions informing much of what is produced on climate engagement research, I have defined the dominant orientations encountered in our work.

Second, drawing on several years of lectures and collaboration with environmental communications and engagement professionals, the report maps the familiar approaches relative to the psychosocial dimensions of climate change. This mapping serves as the first step toward developing a series of tools for guiding the appropriate use of the different approaches, and make important developments accessible to the

SGTF's 3-5 year initiative for climate change communications/engagement, creating a curated guide for current research, best practices and thought leadership for the broader philanthropic and market-based communities of practice.

A third function of this report is to provide a summary of current debates, tensions and opportunities for integration across this emerging field of inquiry and practice, specifically addressing the concerns expressed by the climate-change philanthropic community, such as issues of depth/traction, short/long term impacts, scalability, measurability, and individual/social contexts.

At the moment, many commonly used psychosocial concepts (i.e., values, worldviews, denial, affect) are taken for granted though often misused. This report clarifies this confusion in providing a high level overview.

This report briefly explores how these theories might integrate to achieve more powerful results in the hands of interdisciplinary teams who can critically assess contexts, methods and desired outcomes. It does not dive into the content of the individual theories, or dispute their claims or arguments.

Finally, as author, I have my own views and positions on engagement, my own take on the state of play, emerging trends and key areas of focus. I have reserved my commentary for the concluding section, meanwhile drawing implications from the materials presented. To be explicit, I am a trained social scientist and have conducted research and taught courses across all four of these central areas; my specific training is in British psychosocial research, with an emphasis on experiential dimensions of environmental threat and risk.

Engagement: Conceptualizations and Definitions

When we talk about 'engagement,' what do we mean exactly? What does it mean to 'engage'? For some of us, it may be "How can we find ways to engage a target group to participate in a particular activity?" It may simply mean, "How can we get x to do y?"

When we talk about engagement, we mean getting certain groups or individuals to do something differently, like use less energy, or drive less, or vote a certain way. Our conceptions of engagement are often implicit; we need to make more *explicit* what we mean.

Is behavior-change the same when engaging a community or population? Are we talking about individual change or social and cultural engagement? British researchers Lorenzoni et al., 1997, suggest engagement "... is taken to mean a personal state of connection with the issue of climate change, in contrast to engagement solely as a process of public participation in policy making. A state of engagement is understood here as concurrently comprising *cognitive, affective and behavioral* aspects." In other words, engagement is not simply about an action or behavior but an individual's state of connection with the issues at hand.

A communications practitioner may define engagement very differently from a board of directors. Concepts of engagement inform our work and how we design our investments and strategies. Engagement includes public participation in policymaking, getting people to enact a certain behavior or practice, or a more systemic form of affective/cognitive/behavioral engagement. We must be as clear as possible about these concepts, and to do that we must understand the underpinnings of contemporary thought regarding public engagement with climate change: perceptions, opinions, attitudes, values, affect, framing, beliefs, views, emotions, and cognitive frameworks.

Structure and Approach

To clarify the distinct and overlapping orientations and frameworks active in today's climate-change engagement/psychology arena, I've drawn rough boundaries for the sake of mapping. These 'schools' or orientations help identify the most obvious expressions of distinct—and often ideologically charged—differences in approach.

The narrative begins with the earliest thinking on the psychological dimensions of climate change, exploring how the thinking presented in early papers continues to profoundly inform our thinking today—behavioral sciences. This helps us to recognize how profoundly this one school of thought has informed current research and thinking about climate change psychology and communications. Then we turn to the more recent approaches and schools of thought, highlighting their distinct attributes, orientations, assumptions and contexts. As we move from individual/cognitive psychological thought to more social/systemic approaches, we begin to see the contours of the landscape. And we can recognize that the ways we think about and explore engagement with climate change often ignore the map's artificial boundaries. The final section addresses influences and debates (which also highlights the potential for cross-fertilization), and the methodologies we use. Finally I return to the quadrants to consider the need for integration and next steps.

The Maps

I have designed this overview with a few maps to help us navigate. The first map (Mapping Schools of Thought I) is a snapshot of how these approaches are related and influencing one another, and importantly shows there *is* a landscape. The second map (Mapping Schools of Thought II) shows a more detailed flow of how the approaches inform each other and yet remain distinct. This “thought flow” is more closely related to academic schools of thought and research orientations. The third map (a quadrant diagram) is designed to help identify the central lenses we use, and the opportunity for integration. The maps help make explicit what tends to be implicit in how we approach, frame and identify central issues concerning climate change psychology and engagement.

To accomplish this, I have created porous areas that flow into one another—risk psychology and cognitive sciences has flowed into behavioral economics. Much social psychology focuses on measuring perceptions, attitudes, and beliefs. Social psychology flows into and informs research on socio-cultural dimensions, to identify and measure values, worldviews, ideological affiliations, and ethical and moral orientations. Socio-cultural research informs and flows into communications studies, as does social psychology. At the other end of the spectrum, psychodynamic/clinical psychological approaches, which share with social practices a systems approach to the human in *relationship* with environment. The goal is to emerge with a clearer sense of where we are in our landscape, as to make more effective choices and assessments.

behavioral: cognitions, drivers, levers

Socio-Cultural

- > worldviews; values; ethics and morals; ideologies; beliefs; political affiliations; messaging; framing; targeted campaigns; values-based engagement
acting-on
- > faith-based programs; the "Six Americas," surveying and polling public opinions
- > contexts: political messaging, marketing, policy segmentation, opinion polling



Emotional Experience

- > emotions; experience; conflicts and dilemmas; construction of meaning; affect; defense mechanisms (denial etc.); psychodynamic; empathy; narrative
- > dialog; listening; conversation groups; motivational interviewing; qualitative research; support
acting-with
- > contexts: awareness-raising (group work), conversation-based platforms, immersion experiences, workshops, leadership development, arts



Behavioral

- > motivations; reasoning; probabilities; drivers; levers; cognitive processes; rationality; triggers; shift; switch; nudge incentives; rewards; gamification; rebates
- > social marketing; champions; penalties, quantitative research
acting-on
- > contexts: behavior change approaches, occupancy engagement, energy efficiency, utilities, transportation (incentive/taxes), employee engagement



Systems

- > collaboration; design science; social practices; systems thinking; resilience; infrastructure, interdisciplinary; empathy; solutions focus
- > social innovation projects; public-private partnerships; community-based projects; participatory design; piloting; prototyping
acting-on and with
- > contexts: resource issues (developing regions), complex regional-based issues, sparking innovation, new markets/technologies, field-based education, living laboratory models





behavioral: cognitions, drivers, levers

“How can we get *x* to do *y*?”

Viewing engagement through the lens of cognitive behavioral psychology usually involves concepts of **uncertainty, probability, cognitive, heuristics, rationality, decisions, and risk analysis.**

While we may think of research into people’s psychological responses to climate change as recent, decision and risk psychologist Baruch Fischhoff published one of the first papers on the topic in 1981. *Hot Air: The Psychology of CO₂-Induced Climatic Change* is significant for its prescient engagement with the topic, and how this thinking and style of research has dominated the field since. As such, the paper is a historical artifact for tracking the evolution of thought concerning psychology and climate change—and illustrates how many of the issues raised by Fischhoff remain active in the discourse today. Further, it illuminates how a small band of behavioral researchers have continued to focus on information processing (of risk and decisions) as a central focus in climate psychology/engagement; and in crossing over with social scientists, have also informed how socio-cultural topics (such as values, worldviews, beliefs) are studied.

“Both the content and quality of our response hinges on the validity of our (cognitive) understanding of what is happening to us and to our world”

Fischhoff, 1981.

Fischhoff and his colleagues (Paul Slovic, Dan Kahneman, Amos Tversky, and Sarah Lichtenstein) first became involved with the US Department of Energy to help provide psychological input (1979)¹. These researchers work within the general area of decision-research and decision analysis, and since then have forged specific approaches, including

- Calibrated probability assessment (Tversky and Kahneman)²
- Psychometric paradigm (Slovic)
- Bounded rationality alternative (Kahneman)

Indeed, these circles overlap: Fischhoff was a research assistant for Kahneman in the 1970s. This group was responsible for helping establish the field of risk psychology, which informs behavioral economics as we know it—and which influences almost every sector of engagement thought today.

Due to its prevalence, it is important to recognize how the psychology of climate change was originally framed as primarily a problem of decision-making and information processing, reflecting the state of behavioral psychology at that time. Specifically, this approach focuses on the following assumptions and claims (which we will recognize in virtually every study published on climate change communications and engagement):

- Climate change presents profound **uncertainty** about its impacts and origins;

1 Fischhoff (1981), citing Sylvan Witwer at the Department of Energy-AAS Conference on CO₂-Induced Climatic Change, Annapolis, Maryland, April 6, 1979.

2 We can see how viewing responses to climate change as a failure of heuristics as legacy of this school of thought: “Many decisions are based on beliefs concerning the likelihood of uncertain events such as the outcome of an election, the guilt of a defendant, or the future value of the dollar... People rely on a limited number of heuristic principles, which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe and systematic errors” (Tversky and Kahneman, Probabilistic Reasoning, 1973).

- Uncertainties are represented by **probabilities** and probability distributions;
- People have neither the **cognitive capacity** nor structures for coping with complex, probabilistic problems (Fischhoff, 1981)
- People have **limited ability to recognize the assumptions** on which their judgments are based, or appraise the accuracy/completeness of their problem representations (Fischhoff, Slovic and Lichtenstein, 1977)

Fischhoff's early paper lays out many of the central concerns we have today in social science research: the problem of climate change is one of *information processing* (short/long term risks; unclear causality; systemic/abstract; science-based) and therefore is an issue of *mediation*. That is, the issue is represented, framed and mediated through public awareness campaigns, education and media. The focus is on *cognitive (individual) capacities* to process different forms of information, and how these processes inform our responses. For example, perceiving climate change as immediate versus distant and far off in time, or as human-generated versus a natural cyclical process, would affect one's responses.

Both cognitive-behavioral and cognitive-social psychologies deal explicitly with decisions, what informs decision-making, and how we can promote or stimulate different decisions (i.e., deciding climate change

Problem Definition

- What informs people's decision-making process?
- How can the systemic, interlocking nature of climate change be represented?
- How do people deal cognitively with this environmental event?

Worldview

This early work emerges out of the field of cognitive sciences, which has informed—and in some cases become synonymous with—Behavioral Economics. The emphasis is on the human *cognitive* ability to weigh probabilities, and the interplay of rational and irrational processes, which Kahneman later referred to as "system 1 and system 2". It is largely an individualistic worldview—the unit of study is the individual and the focus is the cognitive (rational) functions. The concern is with understanding what ultimately drives behavior. This is a study of human behavior that takes an objective experimental approach informed by natural sciences and behavioralism. The central concerns are with cognitive information processing, reasoning, problem solving and to some degree, motivation (addressed below under "new generation"). The context from which this work emerged is closely related to the nuclear energy industry, and the study of techno-industrial threats.

Methods

Controlled, laboratory experiments; statistical/quantitative; measurements of stimulus and response.

Strengths

Ability to isolate features and attributes of climate change that present perceptual challenges, such as uncertainty, reliance on scientific data, systemic causes and effects.

Weaknesses

Does not include contexts informing perceptual processes, such as social, cultural, environmental contexts; subjectivity is reduced to cognitive processes; isolates individual and rational processes.

Implications

The problem is defined in terms of how we *process information*. The focus is on humans' cognitive capacities, and specifically our limitations in grasping complex issues whose causes and effects have high uncertainty. Framing the issue as "how risk is perceived and processed" highlights the communication and public perceptions of science.

is an actual threat that requires us to do many things differently). These “rationalistic” approaches rely on logical, cognitive operations in coming to decisions. They are organized around quantification: how best to measure values and attributes that can be converted to metrics.



Social Psychology

“What are people’s attitudes about climate change?”

Social psychology is informed by behavioral and cognitive sciences; the focus is on **perceptions, attitudes, beliefs, social norms, values (usually individual), valuation, opinions, and behavior.**

Social psychology can be seen as an elaboration on the key issues laid out in cognitive behavioral psychology. But it attempts to measure in experimental settings across groups: *perception* of risk/threats, *attributes* of the issue (uncertain, systemic, etc.), and *decision-making* and *cognitive* processes. With these ideas established in the earlier research on psychology and climate change, it is not surprising to find that today they make up the majority of published work on climate change engagement.

Two early developments in risk and decision psychology work have been translated into climate change contexts: First, a focus on the **attitude or value-action gaps** (what people say in surveys and polls, versus what they actually do). Disconnects between attitudes and actions are well known; what matters is how they are understood.

The second development is a concern with **barriers to engagement**. How barriers are understood revolves around issues of perception: how people understand (comprehend), perceive (grasp conceptually, cognitively) and experience (affectively, emotionally). This is also informed by related research in public health and techno-industrial threats (Maibach et al., 2008). “Barriers to engagement” is one of the most dominant discourses in this field, and its origins come out of behavioral sciences and are now fixtures in much social science research. Reasons for this are complex but relate to methodologies used, and how the problems are defined: if people’s views and attitudes are being measured through surveys, polls and interviews, then the construction of a “barrier” or a “gap” makes heuristic sense. (Constructing engagement as overcoming barriers and gaps, however, raises significant implications, which will be addressed subsequently. For example, psychosocial studies would not frame engagement via barriers or gaps, but as conflicts and dilemmas that are negotiated socially, psychologically and culturally.)

The “barrier” discourse emerged out of public health research into social science research on climate change with the publication of the IPCC (i.e., Metz, 2007). It is now used to explain what may impede broad-scale, systemic behavioral changes in individuals and societies. Barriers to behavior-change range from perceptions (it’s a non-issue) to infrastructure (public transportation, recycling, etc.).

Carrying over from cognitive sciences, how the issue is *perceived* is of fundamental importance in social psychology. Notably, a tight cohort of this area’s key researchers continues to collaborate and reference and cross-reference one another’s work. For example, Slovic, who worked closely with Fischhoff, has also

“Long-term climate change is a phenomenon not easily detected by personal experience, yet one that invites personal observation and evaluation. Concern about... droughts or floods is low on average, in part because small-probability events tend to be underestimated based on personal experience, unless they have recently occurred, in which case they are vastly overestimated.”

(APA Task Force on Climate Change, 2009).

collaborated with Elke Weber, Anthony Leiserowitz, and Ed Maibach. Throughout the research community involved with the American Psychological Association (APA), and in the 2009 Taskforce on Climate Change report, we find familiar names: Weber, along with Paul Stern and Joseph Reser, are imminent environmental social psychologists.

In the UK, a similar ecosystem of researchers can be found among the research centers, involving Loraine Whitmarsh, Irene Lorenzoni, Nick Pigeon, Saffron O'Neill and Sophie Nicolson-Cole, all of whom have worked with one another and are the key recipients and disseminators of national research funds. Recent additions to the UK field include early-career researchers Nick Smith (who also worked with Leiserowitz at Yale as a post-doctoral fellow), Adam Corner (at Cardiff with Pigeon and Whitmarsh), Rachel Howell (2013) and Rosie Robison (who has collaborated with Pigeon) in Cambridge.

Evidence of how close these collegial connections are can be found not only in their cross-references, but also in the use of specific terminology and concepts. For example, how 'affect' is defined: Paul Slovic's 1970s definition continues to be used by Anthony Leiserowitz and Elke Weber. Their focus on how affect (a general sense of goodness or badness) motivates different modes of perceiving and engaging is a direct descendent of risk psychology. (This contrasts with how affect is defined in psychosocial and psychodynamic research, as also politically contextual, social in nature, and having a much broader range).

To some degree, these circulating ecosystems of thought reflect how knowledge is produced and evolves. Any approach or theory is a product of a particular context, and evolving knowledge is collaborative and incremental. These ecosystems produced the paradigms for how we see the psychological dimensions of climate change.

Central concerns and focus areas in this broad region of social sciences/psychology include the following:

- The role of **values** and **motivations** to engage people in climate-change issues and lower-carbon lifestyles
- The opportunities for and **barriers** to engaging individuals with climate change
- The incorporation of **self-interest** for promoting **pro-environmental behavior**
- **Public perception** of climate change, as a salient and actual threat
- The role of **credible** sources of information (trusted leaders, meteorologists, scientists, etc.) in influencing public engagement
- A concern with **public opinion** on climate change, and interest in leveraging public opinion polling into engagement strategy (messaging/framing/persuasion)

Objectively measuring *cognitive perceptions of risk* from climate change puts us squarely in cognitive sciences, which has expanded its focus to capture overall public perceptions of climate change. Different social sciences may focus on perceptions of local temperature change (Howe et al., 2012), dire warnings about weather (Feinberg and Willer, 2011), or on the use of affective imagery (Leiserowitz, 2012). Focusing on the need to make issues more tangible, focused and immediate is based on research into the perception of threats, and clearly informs much of the nascent climate communications industry. Note how this focus on communicating risks builds on the central arguments put forward by Fischhoff in 1981: the issue itself is too abstract and uncertain to generate the response required for people to take action. Regardless of the specific focus or lens, the emphasis here is on *what influences perceptions of the risk/threats*.

Relating to barriers and gaps are theories concerning what informs behaviors: how we negotiate risks and make sense of threats. Strongly present in the social psychology research, and relevant to climate change research, is the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) and Theory of

Planned Behavior or TPB model (Ajzen, 1999). The TRA focuses on how the specific perceptions of a behavior's expected costs and benefits lead to the formation of an attitude. The TPB proposes causal relations between attitudes, subjective norms, perceived behavioral control, and actual behaviors. These cost-benefit analyses inform actual behaviors, and position *attitude* as a central concept. This has informed the discourse concerning the “gaps” between attitudes and behaviors (Agyman and Ajzen, 2002) and implicitly, how behavior is approached in relation to climate change.

Problem Definition

- How do people perceive climate change?
- What informs these perceptions?
- How do these perceptions motivate behaviors?
- How do people process short-term versus long-term threats?
- What stimuli lead to the perception of climate change as a viable threat?
- What are the *barriers* to engagement?
- How do we bridge the *value-attitude gap*?
- What is the role of *attitudes* in how people respond to climate change?

Worldview

- The general public is not responding adequately to the threats of climate change.
- Attitudes concerning environmental behaviors are in conflict with actions.
- There is a “gap” between what people (individuals) say and what they do.
- There is very low buy-in, which we must address through persuasion and effective framing/messaging.
- We need to understand how issues are perceived and what may inform such perceptions, i.e. environmental factors, attitudes, beliefs, opinions.
- We can measure perceptions and learn how people understand these issues.
- The focus is primarily on measurements of psychological and cognitive processing (less so on social and cultural contexts).
- There's an assumption that survey work can deliver these insights.

Methods

While methodologies are gradually integrating qualitative work (i.e. see O'Neill and Nicholson-Cole, 2009), it mostly relies on the use of surveys, polling and quantitative methods. This field of research is firmly positioned closer to the scientific spectrum, where the preference is for scalable, generalizable studies. This translates into wide-scale survey work, and de-emphasizes qualitative research.

Strengths

Social psychological research has helped us identify central problems concerning how we perceive the complex, uncertain and abstract attributes of climate change threats. We have gained detailed insight into the trouble people have making sense of these issues, and connecting impacts with their own lives.

Weaknesses

Social psychology overlooks context, as does much of behavioral orientation, which is an important limitation. Quantitative methodologies do not capture underlying concerns. Results are hard to apply unless combined with other approaches.

Implications

Most research into the psychological dimensions of climate change engagement falls into this Cognitive-Social Psychology category. Its demonstrated efficacy in practice is limited. As a dominant mode of thought, it informs how we approach the problem as being about perception. The emphasis is on cognitive (and limited affective) processes. The underlying concern is how to shift public perceptions. The focus is on the attributes of the issues, as well as their impacts (flooding, energy shortages, drought), omitting the social and cultural contexts.

Behavior-Change, Behavioral Economics and New Generation Behavioral Economic

Behavioral change and its key influencer, behavioral economics, are focused on identifying **levers, drivers or driving factors, choice, shift, switch, motivation and motivators, incentives, rewards, optimizing, gamification, champions, eco-teams, taxes, feedback, and dashboards.**

Behavior-change approaches build on cognitive behavioral research, isolating specific motivators and contexts. It is a *causal* approach as articulated in the TPB (Theory of Planned Behavior) model: social change depends on changing values and attitudes, which drive individuals' behaviors. The policy version of behavior-change is a variant of what Paul Stern proposed: "Behavior (B) is an interactive product of personal-sphere attitudinal variables (A) and contextual factors (C)" (Stern, 2000). This view invokes positive 'motivators' and negative 'barriers' in the causal system.

The behavior-change discourse also draws from public health literature, specifically with regards to tobacco and risks. (There are questions about whether it's appropriate to draw comparisons between climate change and other behavioral contexts and social movements, i.e., tobacco, civil rights, seat belt use, and so on; this is discussed in more detail below.)

Motivation (or 'driver') is the significant focus in the behavior-change paradigm. Here, 'motivation' is similar to 'values,' providing the *reason* for action or the *goal* of the action. Research clarifies that we cannot infer values by motives; they are distinct. For example, Whitmarsh et al., 2009, focused on different motivators for behavioral change and climate; behavior-change research hones in on describing motivations in terms of typologies, such as 'intrinsic/extrinsic'.

Where cognitive-social psychology *studies* motivations, behavioral economics seeks to *operationalize* motivations. Perhaps one of the more vivid illustrations of this has been McKenzie-Mohr's *Community-Based Social Marketing*, in which he offers a toolkit and a series of interventions, portable and mobile, that can be applied in almost any community context where behavior-changes are desired. The assumptions underpinning this platform rest on cognitive-social psychology: people act in groups and rely heavily on social norms, and change takes place through diffusion. The emphasis is on 'selling' sustainability practices. Social marketing is based on Philip Kotler and Gerald Zaltman's work, when they suggested that the same marketing principles that were being used to sell products to consumers could be used to "sell" ideas, attitudes and behaviors.

Daniel Pink's *Drive: The Surprising Truth About What Motivates Us* (2009) popularizes a 'new generation' of behavioral economics, and seeks to dismantle the myth of external rewards and incentives as 'extrinsic' and focuses on meaning, purpose and efficacy.

This 'new generation' of thinking about behavior-change and motivation is shifting away from the use of external incentives to motivate behavior. Much of the activity in energy-efficiency, however, remains based on classic behavioral economic concepts. For example, providing people with dashboards that display their energy use presumes 'information' and 'feedback' can stimulate the motivation to use less energy (and thus change deep-seated behaviors). The use of coupons, rebates and other incentives continues in the tradition of providing rewards (cost-benefit analysis, appealing to self-interest) for a behavior that is presumed not to be inherently enjoyable or rewarding.

One of the better-known figures in behavioral economics, who has entered the climate change fray, is Dan Kahneman. His work has clear relevance for work in climate change: his book *Thinking, Fast and Slow* (2011) has become a resource for understanding the slowness and inadequate human capacity for responding to urgent threats. His take on the relationships between the rational and intuitive systems is reflected in other popular books. Chip and Dan Heath's *Switch: How to Change Things When Change is Hard* (2010) refers to the two systems as the 'Elephant and the Rider' to illustrate these two (largely cognitive) processes.

Building on earlier work in risk psychology (i.e. Slovic), 'new generation' behavioral economics is beginning to recognize the importance of feelings and emotions in understanding what drives human behavior. As Pink discusses in *Drive*, the efficacy of incentives and rewards is not what we thought; we want to use external rewards sparingly and with a great deal of thought, as they can backfire and reinforce that

Problem Definition

- How can we motivate, incentivize people to do x or y?
- How can we leverage what we know about cognitive processes of risk to create behavior-change programs?
- How can we overcome barriers to change?
- How can we make certain behaviors more appealing, attractive, compelling and desirable?

Worldview

- People are resistant to change, and view ecological behaviors as largely undesirable and potentially threatening.
- We need to create new tools and platforms to support behavior-change, by appealing to particular *motivations* to overcome *barriers*.
- These may include emotional appeals, rewards, incentives, or social belonging.
- All are viewed as levers for change.
- We do not have time for 'long term' meaning-change, we must find quick-acting ways to stimulate change.
- Technological advances are aiding in this (i.e. energy dashboards, hybrid cars), and celebrities are endorsing products and practices.
- Notions of habit-as-driver where volition and choice are lacking.

Methods

Experimental, quantitative, largely through measurements (surveys/polls) and in-situ experimentation in controlled settings.

Strengths

Identifying what motivates people to make behavioral changes can be very effective in the short-term. If we need people to take action quickly and create the "burning platform," these strategies can work well. They are best used in short-term and immediate contexts.

Weaknesses

Focusing on behavior-change, or ABC (attitude-behavior-choice), can limit our focus to discrete actions, and we can lose sight of the systemic and causal factors that inform behaviors and practices. Reliance on technologies, incentives and external stimuli for change can be resource-intensive and lead to burnout. The use of incentives and methods to engineer behavior has demonstrated limited efficacy: people do not feel ownership, mastery, or purpose.

Implications

Behavior-change's overarching approach is designing frameworks to elicit change. Its focus is based on the causal models designed in cognitive behavioral psychology. The promises are results-oriented; metrics inform assessment. The traction limitations concern issues of 'shallow vs. deep.' For example, we know incentives are not effective for long-term traction precisely because they do not elicit the deeper level of change required. New-generation behavior-change work addresses less tangible dimensions such as meaning, purpose, context and intrinsic values (including competency, agency, and efficacy), yet the mindset remains firmly focused on levers and motivators to shift behavior.

a practice is unappealing. Further, engaging emotions and feelings in this context is framed as *motivating levers*.

“New generation” behavioral economics—inspired by neurosciences—is more interested in emotion, affect, purpose, meaning and intuitive cognitive processes than its predecessors. Understanding how the brain “lights up” in various contexts has informed a new context sensitivity and attention to unconscious processes (as affect, or how we process risk via the amygdala). These dimensions are engaged in terms of ‘drivers’ or ‘levers,’ and engagement tends to be about “acting on” people to elicit change, rather than “acting with” to produce change (as signaled in the Approaches to Orientations diagram). In this sense, the legacy of risk and decision analysis remains: the focus is on changing behavior from the outside through stimuli of various kinds, even if the stimulus is intended to generate an emotional state.



socio-cultural: values, beliefs, worldviews

Socio-Cultural

- › worldviews; values; ethics and morals; ideologies; beliefs; political affiliations; messaging; framing; targeted campaigns; values-based engagement
- acting-on*
- › faith-based programs; the "Six Americas," surveying and polling public opinions
- › contexts: political messaging, marketing, policy segmentation, opinion polling



Emotional Experience

- › emotions; experience; conflicts and dilemmas; construction of meaning; affect; defense mechanisms (denial etc.); psychodynamic; empathy; narrative
- › dialog; listening; conversation groups; motivational interviewing; qualitative research; support
- acting-with*
- › contexts: awareness-raising (group work), conversation-based platforms, immersion experiences, workshops, leadership development, arts



Behavioral

- › motivations; reasoning; probabilities; drivers; levers; cognitive processes; rationality; triggers; shift; switch; nudge incentives; rewards; gamification; rebates
- › social marketing; champions; penalties, quantitative research
- acting-on*
- › contexts: behavior change approaches, occupancy engagement, energy efficiency, utilities, transportation (incentive/taxes), employee engagement



Systems

- › collaboration; design science; social practices; systems thinking; resilience; infrastructure, interdisciplinary; empathy; solutions focus
- › social innovation projects; public-private partnerships; community-based projects; participatory design; piloting; prototyping
- acting-on and with*
- › contexts: resource issues (developing regions), complex regional-based issues, sparking innovation, new markets/technologies, field-based education, living laboratory models





socio-cultural: values, beliefs, worldviews

“What are people’s values and beliefs about climate change, and how does this inform policy?”

The following concepts or terms indicate this area of research: **values-based framing, public understanding, public perceptions of climate change, ethics, morals, identity, and social norms.** This area includes and informs research on **framing** and **messaging.**

This broad field of research is becoming more interdisciplinary, drawing on sociology, behavioral economics, communication studies and psychology. While many topics in this area are related to psychological dimensions, surprisingly few of its researchers have psychology backgrounds; their diversity includes law and economics. We still see small self-referencing collaborations among researchers (e.g., Weber, Leiserowitz, Kahan, Slovic, Maibach have all collaborated in various configurations). While their work is more interdisciplinary, there are notable absences (e.g., social theory, ideological studies and emotional/psychodynamic dimensions of risk perception). Much of this research utilizes large surveys to investigate how people are relating to, making sense of, prioritizing and valuating climate change issues.

A significant amount of research in this area is devoted to gauging public *understandings* of climate change issues. This concerns issues of science literacy, an issue’s legitimacy, their level of concern, and how highly rated this is in relation to other pressing social (and personal) problems. Framing this as an issue of *understanding*—which we may assume is central to our work—presumes the importance of media, mediated forms of knowledge, and cognitive functions.

Understanding is often defined in terms of cognitive grasp of the issues, how well we can translate complex, scientific information while negotiating the affect-laden territory of uncertainty and potential threat to person and society. The focus on perception and understanding is a direct legacy of earlier research in risk psychology by Fischhoff, who laid out the exact problematics. This work elaborates on basic concepts in risk psychology: that how people make sense of (how they understand) the issues is paramount, and media/communications is the best way to intervene (as opposed to other forms of engagement, such as collaborative projects, or conversation-based platforms).

We see the focus on *understanding* surrounded by awareness, literacy and information campaigns. Examples of this work are abundant, as ‘understanding’ is so often a central point of inquiry for the framing issues. Significant studies and initiatives associated with this focus are the Yale Center for Climate Communication’s (YCCC) “Six Americas,” a series of studies led by Anthony Leiserowitz, as well as the collaborative research projects with George Mason University’s Center for Climate Change Communication (4C) headed by Ed Maibach. The YCCC states in its mission that it:

1. Conducts original research on public climate change awareness, attitudes, risk perceptions, policy support, and behavior;
2. Designs and tests new strategies to engage the public in climate science and solutions;
3. Empowers educators and communicators with the knowledge and tools to more effectively engage their audiences.

YCCC’s studies are focused on capturing public perceptions and positions toward climate change threats. The “Six Americas” is a widely popular heuristic used across disciplines to explain the multiplicity of views around these issues, the organizing principal of which, as well as related studies, is to organize the American population into segments and ‘profiles,’ which can then be targeted for communications

strategies and messaging. The stated objective of behavioral sciences is to uncover values, perceptions, beliefs, political positions and ideological investments to better gauge, predict and inform messaging strategies. In contrast to social practices and psychosocial work, this approach is less concerned with context (and how context can be dynamically informed by “positions” or views) and more interested in identifying and quantifying values as metrics.

Problem

- How can we effectively communicate climate change across disciplines and populations?
- How can we overcome ideological barriers?
- What are the most effective means of reaching people where they are?
- What values must we appeal to? Is this about ‘selling the sizzle’ and keeping the message positive, or ‘doom and gloom’ and telling people like it is?

Worldview

- Engagement is almost entirely based on finding the most effective means of communicating the issues.
- We must find more effective ways to adequately communicate and message the threats and implications of climate change.
- Research has shown that people respond to threats that are serious yet can be addressed (i.e. O’Neill and Nicholson-Cole, “Fear Won’t Do it”).
- We understand that information is not adequate to mobilize engagement.
- People feel confused and uncertain about the issues, and need information to be provided in a way that is commensurate with their worldviews, beliefs, values and opinions.

Methods

Mixed methodologies may be used, but this is a *quantitatively* oriented field of research. Surveys are used extensively (often online), and if interviews take place they are often conducted by phone and only one time using fixed responses. Their qualitative research is often translated into quantitative terms (i.e. to be coded; the Six Americas was conducted primarily using survey tools). Increasingly, qualitative research is being used, (e.g., the Q methodology used by O’Neill and Nicholson-Cole, Leiserowitz’s investigations into affective imagery, Nick Smith’s research using social representation theory).

Strengths

The ability to capture and group large populations’ perceptions of climate change directly informs how we design messaging and framing. Focusing on what values to tap into and speak to (intrinsic/extrinsic) is integral to designing effective rhetoric, and is essential in designing messaging.

Weaknesses

There is a risk of over-generalization and difficulty in translating results into strategy and application. The reliance on surveys and polls continues to focus on cognitive processes and captures “top of mind” (vs. deep, nuanced) responses. We miss contexts that can shape, inform and influence stances towards climate change. We do not get a sense of what underlies these stances; concerns (if present) cannot be expressed through a survey or poll. Includes risk of superficial work with questionable traction. Takes instrumental approach to values, beliefs, and views.

Implications

Focusing on how effectively we communicate about the issues is central to any coherent engagement initiative or platform. However, *how* framing and messaging are conceptualized is important. This is a largely causal approach to the design of one-directional messaging (what can we send to elicit a behavior or response?). In this sense, the underlying principles are informed by a behavioral-economist approach of stimulus-response (i.e., values, worldviews and beliefs are ‘levers’ to address, manage, and incorporate into the ‘tools’ of communications, framing and messaging).



The work carried out by GMU 4C explicitly uses social marketing and behavioral sciences. Their mission is to support the strategic development of effective communications and messaging. Targeting credible messengers (i.e., weather anchors, religious leaders etc.) is part of the approach. Similar to the YCCC, their emerging research focuses on the influence of ethics and morals, and on how climate change is communicated and framed. Ethical frames are identified to improve the design of strategic campaigns.

Framing, Messaging and Communications

The work on understanding and processing information feeds into the ever-expanding literature (hundreds of reports, papers, events, gatherings, and symposia) devoted to the issue of framing and messaging about climate change. Communications consultants, such as Susanne Moser and Cara Pike, work with organizations to craft better messaging and “engagement” strategies. In this context, engagement relies on how messages are delivered.

The research on framing is evolving, and yet it remains a constant fixture in the climate-change-engagement discourse. It has clear origins in communication studies and environmental communications, a field of research that is missing in engagement circles, yet it is academically quite active³.

We can see how social science research, from Six Americas to the Cultural Cognition Project, is broadly concerned with the implications of how messages are framed. While there may be different emphases (i.e., Kahan’s work integrates behavioral economic theories, personality psychology, risk psychology and sociology to create a new hybrid of ‘cultural cognition,’ and Leiserowitz objectively measures attitudes toward the issues), the focus remains on what this means for how we can target ideological and cultural “cognitive” frameworks via messaging.

Focus on values

The research into values-based messaging and framing has grown over recent years, sparked by the influential report published by WWF-UK, *Our Common Cause*. This report focuses on research conducted primarily by social psychologist Tim Kasser, and the concept of intrinsic/extrinsic values. His conceptual framework was developed initially in moral philosophy and behavioral economics.⁴

Similarly, research investigating the ethical and moral dimensions of climate change is a subset and elaboration of the broader social-science-and-framing school of thought (Haidt). The interest in ethical and moral dimensions is almost always focused on the design of effective messaging and framing (Haidt, Markowitz).

3 For example, the Conference on Environment and Communication has been taking place for over a decade, the journal *Environmental Communication* launched in 2007, and textbooks on environmental communications are growing. Similar to climate change psychology, environmental communications is a similarly small pond, with many of the same researchers publishing and active in the communications discipline, with little cross-over into related disciplines and communities of practice.

4 Kasser has gone on to develop what he calls the “Aspirational Index” to illustrate how appealing to extrinsic values causes the investment in intrinsic values to go down. (See <http://faculty.knox.edu/tkasser/aspirations.html>)

systems: social innovation, design, social practices

Socio-Cultural

- › worldviews; values; ethics and morals; ideologies; beliefs; political affiliations; messaging; framing; targeted campaigns; values-based engagement
acting-on
- › faith-based programs; the "Six Americas," surveying and polling public opinions
- › contexts: political messaging, marketing, policy segmentation, opinion polling



Emotional Experience

- › emotions; experience; conflicts and dilemmas; construction of meaning; affect; defense mechanisms (denial etc.); psychodynamic; empathy; narrative
- › dialog; listening; conversation groups; motivational interviewing; qualitative research; support
acting-with
- › contexts: awareness-raising (group work), conversation-based platforms, immersion experiences, workshops, leadership development, arts



Behavioral

- › motivations; reasoning; probabilities; drivers; levers; cognitive processes; rationality; triggers; shift; switch; nudge incentives; rewards; gamification; rebates
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- › contexts: behavior change approaches, occupancy engagement, energy efficiency, utilities, transportation (incentive/taxes), employee engagement



Systems

- › collaboration; design science; social practices; systems thinking; resilience; infrastructure, interdisciplinary; empathy; solutions focus
- › social innovation projects; public-private partnerships; community-based projects; participatory design; piloting; prototyping
acting-on and with
- › contexts: resource issues (developing regions), complex regional-based issues, sparking innovation, new markets/technologies, field-based education, living laboratory models





systems: social innovation, design, social practices

“How can we design a better world/solution?”

“Systems” focus approaches engagement at the macro, systemic level. This includes social-practices research; ‘social innovation’ strongly informed by design sciences and agencies; and arts and experientially focused engagement work. These are ‘systemic’ in that they address interventions at the systems level, such as availability of resources, policies, culture, ideology, beliefs and customs. In contrast

“The idea that desires and attitudes drive behavior produces a blind spot at a particularly crucial point, making it impossible to see how the contours and environmental costs of daily life evolve.”

Elizabeth Shove

Problem

- What is the *design challenge*?
- How can we address the problems of climate change through *collaboration* with communities?
- What can be designed to shape and change our behaviors and practices?

Worldview

- The problems we face are fundamentally design problems.
- Our situation requires urgent solutions, reached using design sciences.
- This involves listening, prototyping, iterations, and creating an interdisciplinary context for collaboration.
- Change must be addressed at the Systems level.
- We cannot wait for policy change to happen; we need to innovate now.

Methods

Field-based prototyping; community engagement through collaboration and listening; iteration and redesign; testing in field; cross-discipline partnerships, usually bridging public and private sectors.

Strengths

The primary strength of social innovation is the emphasis on listening, empathy and participation. For longer-term traction, co-creation and ownership is essential for deep change; further the quality of innovation and solutions is far higher through the testing and iterations required in design. It also has interdisciplinary collaboration and partnerships at its core—as with a design team, there is the recognition of partnering with complementary areas of expertise for efficacy.

Weaknesses

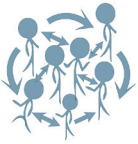
Social innovation requires high levels of organization and is resource-intensive. As a result, design firms such as IDEO or Ziba have to subsidize social innovation work with their private-sector design work. This approach lacks attention to the Psychosocial and emotional dimensions of change-work, and raises the question of how well social innovation can work in contexts that are not driven by an immediate crisis (i.e. lack of drinking water, hygiene, etc.).

Implications

Social innovation work is an application of design science. Thus far the primary contexts have concerned social equity, poverty and health in developing countries. There is great potential for social innovation work to be applied and viewed as a viable element of engagement on climate-change issues.

to Behavior-change initiatives, which target specific or discrete actions or practices, systems-informed work tends to be community-scale, is field-based, and importantly involves *participation* and *collaboration*. We know we are in the systems arena when we encounter terms, such as **empathy, synthesis, design, listening, design challenge, social practices, impact, case studies and social innovation.**

Two main areas that fall into this category: social innovation and social practices.



Social Innovation

Social innovation is a rapidly ascending orientation to engagement that incorporates human-centered design research, participatory action research, and design thinking. Social innovation has begun to infiltrate social-change disciplines. IDEO's CEO Tim Brown is one of the more visible advocates of this approach. Other examples include the Buckminster Fuller Institute's 'design challenge' created by BFI Executive Director Elizabeth Thompson, hosting competitions to address systemic global issues with innovative platforms for solving problems. This is a *solutions* orientation, and has infiltrated environmental studies programs across the country with a "solutions-based" approach that takes students into the field (city, community) to innovate and develop solutions to real-life problems.

"Social innovation" captures work that has emerged from studies of innovation in science and technology, evolutionary economics, design and complexity science. This approach is an interdisciplinary hybrid focused on real-world problem-solving initiatives with a solutions orientation. Examples of social innovation projects include Dean Karlan's Innovations for Poverty Action (IPA), ideo.org (whose tagline is "Let's design a better world with everyone"), and a growing number of social innovation programs based in design schools. Examples include Stanford's D-School, with an innovation hub and new *Social Innovation Review* magazine; School of Visual Arts' new "Design for Social Change" program headed by Cheryl Heller; Portland State University's "Social Innovation" incubator; Social Design MA at MICA, and many others.

Most distinctive about this approach to engagement is that it is field-based and uses prototyping and collaborative methodologies inspired directly by design sciences. It incorporates an attitude of co-creation, participatory processes, and greatly values listening. In design science, the process of prototyping, refinement and iteration is central. And as an innovation approach it is systemically oriented: behavior and change are inherently contextual, influenced by complex socioeconomic, political, ecological and cultural factors. The goal is *change*—but the aim is for long-term traction, and change that has systemic reach.

Social Practices

The other rising school of thought, this time in academic research, is *social practices*, which is emerging in interdisciplinary social sciences (primarily sociology), and offers a critique and rebuttal to "ABC" (attitude-behavior-choice, or behavior-change). This work, advanced most visibly by British researcher Elizabeth Shove (2010) is beginning to be recognized as a viable competing discourse to the behavior-change ideology that dominates much of the thought and practice around climate change engagement.

As Shove writes in *Beyond the ABC: climate change policy and theories of social change* (2010), "Framing the problem of climate change as a problem of human behavior marginalizes and in many ways excludes serious engagement with other possible analyses, including those grounded in social theories of practice and transition." ABC is a popular framework currently in play, particularly at the policy level. Shove's central critique is that the ABC is not only a theoretical approach, but that its politics obscure the extent to which governments sustain otherwise-unsustainable economic institutions and ways of life, and have a hand in structuring options and possibilities. It is not only in governmental sectors that this applies:

ABC is alive and well in many areas, including the private sector, where ABC is the primary orientation for engagement.

The perspectives represented by studies of social practices are concerned with the ‘macro’ level of change, similar to social innovation. The interdisciplinary nature of social practices work recognizes the importance of what produces social practices—how social arrangements hang together and how they fall apart. Shove refers to the “transition management” concept in the Netherland’s environmental policy, adopted as part of the Dutch National Environmental Policy Plan (Shove, 2010). In contrast to ‘change management,’ ‘transition management’ is concerned with how deep, systemic change can happen at multiple levels (policy, economic, educational, behavioral, etc.).

A good example of the attitude social practices may have toward behavior-change is expressed by David Uzzell (2008): “Trying to persuade people to consume and waste less through behavior-change programs will not address the larger and more significant problems concerning the ways under which people need or think they need to live and consume.” Shove concurs: “The idea that desires and attitudes drive behavior produces a blind spot at a particularly crucial point, making it impossible to see how the contours and environmental costs of daily life evolve.” (2010)

The field represented by concern with social practices is not as homogenous as that supporting the behavior-change programs, but there are certain distinctive features. One is the recognition that social transformations require not only new technologies (i.e., technology to stimulate new behaviors, such as energy dashboards or hybrid cars), but also “new markets, user practices, regulations, infrastructure and cultural meanings” (Elzen et al., 2004).

Problem

- How can we generate the systemic level of change required for effectively meeting these challenges?
- How do social practices evolve and what can support the cultivation of new social practices?

Worldview

- Social practice accounts of change do not deny the possibility of meaningful policy action, but they recognize that effect is never in isolation and that interventions go on within, not outside, the processes they seek to shape.
- Isolating behavior, attitudes and choice from context is a distraction at best; and at worst, entirely ineffectual in addressing the issues of climate change and a waste of precious resources.

Methods

Participatory-action research (PAR); theoretical innovation; participant observation; in-depth interviews; focus groups; field-based innovation work; arts-based interventions and activism (similar to social innovation).

Strengths

Systemic; addresses root causes and sources. Targets change at the macro scale. Concerned with deep, long-term change (high traction over time).

Weaknesses

Potentially challenging to translate into practices; highly theoretical; long-term impacts and difficult to measure.

Implications

This approach is a radical critique leveled at behavior-change programs and cognitive-behavioral features. It recognizes there is no separation from psychology and social contexts, and the abstraction of ABC is a fallacy and wastes our energies. This work presents a potentially innovative approach to change that is participatory, co-creative, and suited for addressing multiple levels and scales (neighborhood, community, policy).

More importantly, behavior lives “*within* rather than outside this system. Accordingly, it makes no sense to attribute behavior-change to a cast of externalized factors. Instead, the model is one in which institutions, infrastructures, and daily life interact” (Shove, 2010).

We find little or no reference to “attitudes” or “beliefs” in any of this literature, as needs and desires are located as *outcomes of sociotechnical change, not as external drivers of it*” (ibid, emphasis added). Second, historical contexts matter profoundly in understanding what people do, and why they do it. Third, design and infrastructures inscribe patterns of consumer demand far more significantly than individual consumer choices. Finally, there is the recognition that “radical innovations are those which redefine the rules of the game.” In other words, the sort of changes required to truly address the challenges of climate change are deep systemic changes, which require the status quo to be questioned—and regimes to be changed.

emotional experience: emotions, affect and immersion

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emotional experience: emotions, affect and immersion

“How do people feel about what is happening? How can we facilitate/support effective responses? How can we move hearts and minds?”

An emerging approach to ‘engaging’ people with climate change is coming out of the psychodynamic, psychoanalysis and psychosocial fields. Over the past decade, there have been increased numbers of professional gatherings and papers involving the practicing psychological areas (psychotherapy and counseling). Researchers who are also accredited psychologists with clinical training lead psychosocial research, predominantly in the UK. The result is a mode of theorizing and conceptualizing the human dimensions of climate change that is informed by an appreciation for profound psychodynamic aspects of engagement, behavior and practices. When we see the terms **affect**, **unconscious processes**, **defense mechanisms**, **empathy**, **listening**, **meaning**, **symbols**, **anxiety**, **loss**, **mourning**, and **grief**, we are in psychological/psychosocial terrain.

This approach to engagement has profound implications for how engagement is conceptualized and practiced. A psychodynamic orientation recognizes that people are driven by unconscious motivations, and that climate-change issues (and what they mean) are emotionally charged and potentially distressing, alarming, and concerning. How people manage anxiety, undesirable information and awareness is central to understanding how and why people engage with climate change issues. In addition, this approach recognizes that the personal changes urged by climate change—both behavioral and practical, along with the implications of future impacts—bring up issues of *loss* and *mourning* that must be addressed. As in clinical psychology, without addressing the presence of loss and mourning, we are fighting a battle that people will avoid to protect their feelings of safety and security. This is in direct opposition to the notion of information-based engagement, and informs any awareness building program with sensitivity to people’s emotional dimensions.

The first event known to connect psychoanalysis and climate change was held in 1991 at London’s Freud Museum, followed by a period of relative dormancy. Climate change hit the public radar in the mid 2000s, and psychologists mobilized. A series of events and gatherings began to take place, along with new courses offered on eco-psychology in select counseling and clinical programs, e.g., at Lewis and Clark College in Portland, Oregon. A few media pieces appeared to feature this new intersection; notably “Shrinking the climate” in the *New York Times*’s “*Dot Earth*” (2011) and a piece in the *New York Times Magazine*, “Is there an ecological unconscious?” (2011). Recent publications in this field include *Engaging with Climate Change: Psychoanalytic and Interdisciplinary Perspectives* edited by Sally Weintrobe (2012), based on the two-day conference at the Institute of Psychoanalysis in London; *Vital Signs: Psychological Responses to Ecological Crisis* edited by Mary-Jane Rust and Nick Totten (2012), and Rosemary Randall’s “Loss and Climate Change: The Cost of Parallel Narratives” (2009). A new international alliance, the “Climate Psychology Alliance” based in the UK, is composed of primarily practicing psychologists.

“If you want people to change, you’ve got to listen to them. You’ve got to understand what stops them from making changes or engagement with issues. And you find that happens through starting conversations.”

Rosemary Randall

The terms “emotion” and “affect” are often used interchangeably in social science research, however the distinction is critical in the psychodynamic and psychosocial context. Those influenced by advances in neuroscience (like Westen, Haidt, and some of the ‘nudge’ theorists) discuss affect in terms of ‘the quick and dirty route’ for information processing (via the amygdala). While this is technically accurate, it limits our understanding of affect to the “preconscious,” and by emphasizing the physiological foundation, it disconnects affect from power and politics, a key interest for psychosocial researchers in relation to climate change (Hoggett, 2010).

For example, anxiety and melancholic loss can consider ‘affects’ that strongly inform how and why people group and align to particular ‘cultural cognitions,’ values, worldviews, beliefs and practices. One way of understanding affect is as energetic, often unconscious feelings or moods that accompany certain issues, topics, objects, or places. Affect is often experienced as a felt sensation in groups (i.e., feelings of anxiety or excitement in a room, gathering, or project). Affect matters for psychosocial researchers because climate change arouses extremely charged ‘affects’ (i.e., anxiety, loss, etc.). How we work with this is central to any effective engagement strategy. How ‘affect’ is engaged in social sciences (i.e., Leiserowitz, forthcoming) extends Slovic’s concept of affect as a sense of “goodness” or “badness,” and is not particularly psychodynamic.

Through this lens, engaging people with climate change means acknowledging and addressing how they *experience* these threats at multiple levels: identity, attachments, fears, concerns, desires, hopes and aspirations. To do this effectively, the emphasis is on *listening, dialog, conversation* and use of such tools as motivational interviewing, ‘smart questions’ (Lesser), and conversation-based platforms.⁵ This style of engaging, informed by clinical psychotherapy, recognizes that in the act of sharing in a safe and supportive environment, people are far more likely to bring conflicts, dilemmas or contradictions to light, work through them, and find pathways to creative solutions.

One of the more significant features of this approach is the recognition that people need a ‘safe space’ to successfully address underlying concerns and anxieties. In absence of this ‘safe space,’ the likelihood of guilt, despair and apathy can arise and cause withdrawal, outright avoidance or denial. At a recent workshop convened at University College London’s Energy Institute, several leading climate scientists and researchers were brought together with a few established psychosocial researchers to explore the implications of this approach. One of the key insights was the importance of this ‘safe space,’ which can be achieved not only in physical spaces, but also through how we communicate about the issues.⁶

Regarding public engagement with climate change, much of the research has a cognitive sciences or Social Psychological orientation, and does not explore deeper dynamics of how we manage potentially difficult information. But there have been a few notable contributions. For example, Susanne Stoll-Kleeman and her team at the Ernst Moritz Arendt University of Greifswald in Germany conducted focus groups, and found that people tend to rationalize their inaction, creating arguments that blame others, under-emphasize the importance of personal action, and over-emphasize the costs of shifting from a comfortable lifestyle (2001). In a related study, sociologist Kari Norgaard (2011) found that denial of

5 It’s interesting to note that Fischhoff (1981) acknowledged that social interaction and discussion as just as important for changing practices as raising awareness about issues; this point somehow was dropped from much of the subsequent research in risk psychology. Use of interaction for behavioral changes is well known; most visible is the work of AA and 12-step groups, whose primary efficacy is the social/group interactivity.

6 For example, Rosemary Randall discussed Churchill’s capacity to provide a sense of safety and containment in his ‘We Shall Fight on the Beaches’ speech. As Randall writes, his “truth-telling about the scale of the defeat, accompanied by a refusal to blame, that allowed him to argue with conviction that the British people remained able to face and overcome the crisis before them. Whatever one thinks of Churchill as a politician, his psychological sure-footedness is worth studying” (2013; see “The Id and the Eco,” <http://www.aeonmagazine.com/being-human/rosemary-randall-climate-change-psychoanalysis/>).

climate change in a Norwegian skiing community was ‘socially produced’ and a complex expression of the capacities to both know and “not know” (and not engage) with the acute issues facing their region, populations, and ecosystems as temperatures rise.

In terms of engagement strategies and applications, psychological/psychosocial work is in its early stages. Perhaps the most well-known engagement project informed by this work is Rosemary Randall’s “Carbon Conversations.” Randall, a practicing psychotherapist, researcher and founder of the organization Cambridge Carbon Footprint, developed a program to take people through the “carbon footprint calculator” using motivational interviewing as a way to negotiate defense mechanisms.

Problem

- How can we best support people negotiating the difficult implications of climate change threats?
- What do people experience and find most challenging in responding to climate change?
- Where are people most conflicted or experience dilemmas?
- Where are the dilemmas or conflicts that may make it hard to engage more fully in response?

Worldview

- Climate change can bring up difficult emotional experiences for people, such as anxiety, uncertainty, and loss.
- This usually triggers defense mechanisms that can thwart engagement efforts.
- The better we understand these underlying dimensions and work with them skillfully, as psychologists are trained to do, the more effective our engagement work can be.
- We need to support people to move them through to action, interaction, conversation, or good messaging campaigns.
- Unconscious motivations inform people’s values, beliefs and opinions.

Methods

In-depth interviews; focus groups; mixed methodologies (ethnography, participant observation); qualitative, narrative-based research; psychodynamic survey design.

Strengths

Attending to emotional experience and the psychodynamic dimensions of climate change risks can offer access to the underlying resistance and difficulties people may have in responding. The use of group and social interaction, experience and dialog recognizes that behavior-changes emerge from listening to people and providing social supports. Such work has the potential to inform and powerfully leverage existing tools in messaging, framing and engagement efforts to achieve deep traction and lasting change.

Weaknesses

It is clearly challenging to translate emotional experience dimensions into measurable outcomes. There is the issue of scale, which can be addressed when this approach is integrated and combined with others, whether research design or how outreach is conducted to incorporate empathy, listening and dialog. This work requires piloting and the willingness to experiment/iterate. It also requires partnership with trained professionals. Bridging the disciplines can be challenging.

Implications

Taking a psychodynamic approach to engagement reframes how engagement is approached, from something we do *to* people, to a process done in conversation and collaboration *with* people. It is often assumed psychodynamic means “therapy for everyone,” but examples abound of how this approach can inform almost any initiative. Incorporating listening, acknowledgement and empathy, recognizing how social interaction informs practices and change, and designing surveys and research tools to go beyond conscious-level top of mind responses are keys to successful implementation. The psychosocial orientations offer a platform for integrative work across social-cultural and psychological domains of engagement, and a chance to revolutionize the efforts that lead to large-scale, long-lasting change.

The centerpiece of CCF's engagement work was the Carbon Conversations (a conversation-based platform), run by volunteer facilitators to support people adapting to a lower carbon lifestyle. While the impact of those conversations has not been fully measured and evaluated, recent research has begun to explore its success (see Howell, 2013), and it is anecdotally acknowledged as being hugely effective. This platform is also an excellent (and rare) example of an *integrative approach*, where the psychodynamic focus is combined with behavior-change (providing people with resources, tools for change, a context for meeting and discussing), and addresses people's underlying values and identities.

Examples of applying this work to research design and tools include creating more 'lateral' questions (particularly for charged issues, i.e., carbon tax, energy usage, flooding, food shortages, etc.) that do not trigger defenses and capture more complexity; and incorporation of mixed methodologies to engage with the less conscious, yet arguably powerful, dimensions of how we engage with these issues.



influences and debates

As discussed, the four central orientations to engagement—Behavioral, Socio-Cultural, Emotional/Experiential and Systems—reflect profound influences, cross-fertilizations, and surprisingly divergent views.

It is very important to stress that the four general orientations discussed in this report are not fixed, “true” categories. The identification of four central orientations reflects distinct emphases, historical roots and contexts, rather than characteristics of real-world programs that often draw from multiple disciplines. That is to say, there is deeper integration and complementarity among approaches than may be apparent. However, in creating these constructs as a heuristic, we can begin to identify leading frameworks that tend to be implicit and rarely acknowledged. Specifically, much current research in the field of climate change engagement tends to draw from cognitive sciences than other, arguably strong areas of emphasis, such as social movement theory or clinical psychology. The reasons for this are complex and beyond the scope of the report; however, the ways in which certain orientations come to dominate a field of practice and research do require our attention as we develop the most effective available resources to inform our work.

We have reviewed how behavioral sciences and the paradigms, informed by behavioral economics, have informed ideas of ‘change,’ and a particular way of thinking about behavior, with the focus on finding the right levers to engineer behavior from the outside. Most behavior-change approaches are about engineering behavior, defining (as Shove points out) our worldviews regarding humans and nature/environment. behavioral engineering offers the potential to create quick and measurable changes—primarily through the use of external drivers (stimulus-response). We know behavioral economics can achieve short-term results. The task is to find the right contexts, and the right amount of traction for each situation.

We can also see how this levers-and-drivers orientation has influenced how we think about the role of values, beliefs and frames as tools to inform effective messaging. For example, understanding people’s values can help to design messages that can tap into these values. As Lakoff has acknowledged—and which WWF-UK’s *Common Cause* elaborated on—people tend to experience their world through ‘frames’ that both construct and validate meanings. Thus, values (self-interest, intrinsic or extrinsic) can be used as tools and levers. We know such an approach, with a focus on messaging, has efficacy in some contexts (i.e., getting people to respond quickly to an immediate crisis), but perhaps not in others (i.e., creating systemic change across many behaviors, not only discrete ones).

In contrast, we can see how emotional experience and psychodynamic approaches to climate change engage values, beliefs—even behavior—in a different way. From this perspective, values and beliefs are not fixed, nor things to ‘target,’ but rather to understand and seek to transform through interactivity or experience. For example, the Cape Farewell project (ecological field research with scientists in the Arctic, and involving artists, culture-makers, and creators) allows people to view first-hand the melting ice. This experience often initiates personal transformation, changing perspectives and even values. As opposed to designing targeted messaging, experience operates both at the cognitive and the affective levels.

If we look at how systems-focused engagement works, we see signs of both behavioral economics (how to get people to do x in the most expedient way), and design thinking (new forms of collaboration across cultures and disciplines). What we find in many social innovation projects, for example, is the familiar spirit of solving problems, but accomplished through listening, engaging actively with the context (and community or end users), and designing and piloting prototypes. However we also find a lack of attention to the affective dimensions of emotional experience. Social innovation focuses more on the doing than the feeling, but offers an opening for emotional-experience influences for greater traction.

While the need for collaborative and cross-disciplinary engagement to support innovation and to bring these ideas to market seems obvious, the epistemic and ideological differences among the schools of thought researchers and thought-leaders have to date slowed that collaboration.

Specific areas of divergence include:

- The relative value/efficacy of short-term (superficial or shallow) vs. long-term (depth or systemic) approaches
- Approaches; focused on individuals vs. large populations or policy
- Approaches; focused on conscious vs. unconscious dimensions
- Rational vs. emotional factors; objective (quantitative) vs. subjective (qualitative)

One current debate is between social practices scholars and behavior-change advocates. Another is between marketing professionals (i.e., Futerra, Sustainable Brands, Ogilvy Earth, Saatchi S) and values-based framing advocates and NGO professionals (i.e., Tom Crompton, WWF-UK's Common Cause, Tim Kasser). A third is between behavioral advocates and those advocating psychoanalytic engagement with climate change. These tensions across all three reflect significant ideological, methodological and epistemological differences.

Another difference is happening between those who are interested in measuring psychological dimensions of climate change engagement (i.e., public opinions, values, attitudes, beliefs), and those who view such measures as superficial and potentially misleading fictions concerning human experience (psychosocial researchers, ethnographers, the emerging area of user experience or "UX" highly informed by social theory). That is, psychological dimensions are highly contextual (social, cultural, biographical, economic, etc.) and what drives us tends to be highly unconscious; we can only know what is really happening for people in context (on site, in the field, in conversation and dialogue).

Not surprisingly, the most acute debates arise between those focusing on individual behavior-changes or transitions and those focused on systemic and meaning-level transformation. These are ideological differences—but also reflect industries of institutional knowledge production, which are vigorously promoted and defended. These debates concern the scale of change needed (short-term, fast, measurable, observable vs. long-term, systemic and deep), and are symptomatic of both the sense of urgency and crisis we face ("we don't have time!") and ideological investments ("we must change our entire way of thinking and being"). So much time and energy is spent on these debates that opportunities for collaboration are overlooked. It seems critical to recognize that our best work will likely require elements that target *both* short and long-term impacts and engagement.

Methodologies can function as a quick route to understand the underpinnings and assumptions of any study. If a study is using a survey or a poll, there is interest in capturing a 'hit' of concern or level of engagement, but it is likely 'top of mind' and at best a snapshot. Surveys are commonly used for large-scale studies. However, emerging methodologies incorporate mixed methods including video ethnographies, in-depth interviews, "UnFocus groups," field work and Q-studies (using images and free association), used in combination with surveys. These represent new research tools, and are applicable to exploring the human dimensions of climate change. A question for us to consider is what approaches or methods are most visible, and where there are spaces for new thinking and research design.

toward integration

We are at a critical juncture in how we think about, conceptualize, strategize and design engagement. Over the past decade we have seen a proliferation of research studies, reports, projects and initiatives addressing human responsiveness to our global climate change threats. We need to determine what tools and approaches are appropriate for our current contexts, as we are caught between demand for both evidence-based work and the need to accelerate innovative, emerging approaches.

We are also caught between disparate worlds of practice, research, contexts and innovations, often with little knowledge sharing. While new initiatives have emerged to address this, including the Garrison Institute's Climate, Mind and Behavior program, the BECC conference (Behavior, Energy and Climate Conference), and ClimateAccess, we still need more efficient coordination and flow amongst disciplines and projects, and we need to work out best practices for a wide range of situations.

While there exists tremendous need for coordination and evaluation of existing work, it's critical to support creative and innovative approaches to engagement. That is, to radically rethink engagement platforms, to create new ways of measuring impacts that can include longer-term, less-immediately-measurable evidence, and to encourage integrative approaches.

Going forward, the value of these schools of thought lies in how capable and skillfully they can combine with others. The most important determining factor in funding initiatives would be in assessing the configurations of teams, attention to best practices from whatever source.

This requires the following:

Form interdisciplinary, integrative research design and teams. We are starting to see evidence of wider scopes, connecting behavior, social norms, values and policy (e.g., a recent paper by Kinzig, Ehrlich et al., 2013). For truly integrative work, there needs to be greater support for those seeking to create interdisciplinary, collaborative teams and initiatives. This is one area where the social innovation focus, under the systems approach, has demonstrated that academic researchers can learn from.

Have flexible notions of “engagement.” It is not enough to be collaborative. Flexible ideas of “engagement” will help. Is engagement about supporting policy? Or might it also include arts-based projects that give newcomers a taste of involvement? Or projects that address identity by creating big-tent opportunities for those who may never attend a climate rally, but would consider engaging in respectful dialogue?

What does integrative engagement look like? The following are examples of different levels of scale and experience, and offer specific requirements that demand integration.

1. Tenant/Occupancy Engagement

To create an effective tenant engagement program to meet aggressive goals for resource efficiency, emissions and waste management, an integrative approach would involve an interdisciplinary team, including people from behavioral sciences, technology, psychosocial, and design. The team would develop an engagement platform to address discrete tenant practices, and systems-level change at the cultural and emotional levels. An integration of behavior (feedback systems and signage), socio-cultural (the ‘story’ or

narrative of the space and being part of a culture), experiential (listening/interviews, understanding tenant experiences, providing contexts for discussion, knowledge sharing to support behavioral shifts), and systems (tenants co-creating the tools and culture of engagement) creates a program that can deliver both immediate and lasting impacts, and demonstrates capacities to use diverse tools.

2. Water conservation during a draught

To encourage people to use less water during a localized water shortage, an integrative approach would require a cross-disciplinary team to design a behavior change program targeting both discrete actions and the meanings and contexts surrounding water usage. Use of incentives or rewards (behavioral) can be combined with ‘branding’ water-conserving practices to resonate with particular values (socio-cultural/framing), all supported through media for people to share their stories and experiences (emotional experience). The team would draw from social psychology, communications, psychosocial studies and resource management. All insight and learning from the project informs materials that are then shared across disciplines, ideally in an open-source platform designed for collaboration.

3. Designing platforms to support behavior change

The objective is to ramp up and support full engagement at the behavior-change level, particularly following on an event, film or experience that raises and triggers awareness. Conversation-based platforms for behavior change draw from multiple approaches. (This is currently a radically under-utilized tool.) Creating small discussion groups (i.e., Carbon Conversations) that are led by trained facilitators, across contexts such as organizational, community, school, etc. can combine the behavioral-change (information, literacy, access to resources) with conversation (dialogue) and social support (socio-cultural). In addition, having the group create or design a solution draws on social innovation/systems insights.

Perhaps most important, we need to support research demonstrating capacities to take our understandings further (deeper). We need to incorporate and support research that includes the systems and emotional experience dimensions and takes our understandings further. Priorities should be on how well a research project demonstrates innovative and entrepreneurial capacities to include frameworks beyond behavioral and socio-cultural. Psychosocial research that incorporates affect and unconscious dimensions of how people respond to threats (anxieties) and uncertainties, as well as negotiates profound shifts in behavior, represents a leading edge and is beginning to emerge as the next frontier of climate change psychology.

Next Steps

Each approach advocated by the different schools of thought, taken on its own, has limitations. To meet Skoll Global Threats Fund’s climate initiative mandate, the capacity to support integrative initiatives is essential. That capacity directly informs our ability to assess tools and practices for different contexts, and includes how we understand “engagement,” addressing psychosocial dimensions of climate change and adapting lessons learned in iterative design—iteration, piloting, prototyping, and iteration—in real-world contexts. This can be done at various scales, but it means that we take a more systemic approach.

Full integration requires full recognition of all aspects and dimensions of climate change engagement—not only the pieces, such as values, behaviors, emotions or political contexts. At present, the role of affect, experience (non-cognitive) and emotion is largely missing from social science research, despite what we know from clinical psychology. This needs to change.

The first step is to define the framework regarding integrative engagement work. This can be achieved through a primer, guide, or “manifesto” that distills the essence of this report, and integrates our diverse

views of engagement and how we research it. This will include creating an “open-source” platform to support integration (organized by impact or situation, not disciplinary bucket).

As a second step, to incorporate the latest breakthroughs in engagement and program design, we will start with supporting and designing **research** that reaches far deeper into subjects’ hearts and minds, and engages concepts of dialog, listening and empathy more than we see today. The results will bring us a deeper understanding of how we can design programs in which people find themselves compelled—from the inside—to think and do things differently. This can then be presented as findings, best practices, case studies, and tools, and disseminated effectively across communities, through the creation of a dynamic network reflecting the actual spectrum of engagement work.

Third, to test how to apply those deeper results, we will develop several implementation paths, which will likely include elements of dialog and experiments with targeted groups. These efforts will be closely monitored, observed for what’s working and what’s not, and refined along the way to make them as effective as possible. A key component of this effort is to establish a process that will enable long-term change and continuous improvement as part of a culture.

These pilot efforts will provide learning, refinements, and new evidence for improving best practices across many disciplines, with continuous refinement driven by participants from theory, practice and implementation. Ideally, the first pilots will inform follow-up rounds of pilot testing in different kinds of programs, and will offer existing programs new things to try. The program-design process, and the implementation phases, will offer further chances to refine and modify approaches for specific situations, to reach more people, and for their new ways of thinking to reach farther into the future.

In Summary

1. Create platforms that support integrative thinking and work, including sharing of best practices across sectors;
2. Support research teams aspiring to connect between sectors (while social innovation currently does this, they lack the integration with psychosocial and socio-cultural work);
3. Develop a capacity to conduct evaluation of what works and what doesn’t, that is inclusive of longer-term, systemic impacts;
4. Reward those who demonstrate capacities to work integratively;
5. Encourage and reward work that moves beyond one-directional thinking (acting-on, engineering behavior from the outside-in) to interactive and participatory models of engagement.

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