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Elke U. Weber

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## 45. Individual and collective behaviour change

by  
Elke U. Weber

*Negative consequences normally lead people to change their behaviour, but the timelag between behavioural cause and many environmental impacts makes it hard for people to see the connection. Other barriers to change include lack of a fear response and habits. To promote change, new behavioural routines need to be established using default options and social imitation. Existing goal conflicts need to be minimised by better communication of the co-benefits of environmental goals. Since many people in developing countries aspire to a western lifestyle that adversely affects the global environment, different models of human happiness need to be explored.*

Successful responses to global environmental challenges such as climate change will require enormous individual and collective behaviour change, on a timescale far more rapid than evolutionary change. Reluctance to change has been documented as status quo bias (Samuelson and Zeckhauser, 1988). The familiar has been tested over time, whereas change involves uncertainty and risk. Routine behaviours, including those that impact environmental resources, are automatic and require no attention, whereas change requires effort. This means that behaviour change needs to be motivated by providing positive incentives for the change, a credible threat to business as usual, and information about both the need and the means to align current reality with a desired target state.

### Learning to change

Reinforcement learning (Sutton and Barto, 1998) – a form of learning from personal experience through the consequences of one's actions – is an effective way to shape behaviour, and is commonly used by parents and animal trainers alike. In the environmental domain, personal experience with the adverse consequences of climate change appears to increase people's willingness to change their behaviour (Mozumder, Flugman and Randhir, 2011), especially for those without strong prior beliefs about climate change (Weber, 2013a). People prefer, and find it easier, to make decisions when they receive information about the consequences of their potential options through personal experience rather than statistical description (Hertwig et al., 2004; Marx et al., 2007). Unfortunately for many environmental challenges, the lag times between behaviour and its consequences are long and the process is non-linear, making the relationship difficult to detect (Weber, 2013).

In addition, adaptation to slowly changing environments itself reduces the perceived need for behaviour change; this is referred to as shifting baseline syndrome (Pauly, 1995). Reinforcement learning may also be too slow in this domain, as widespread personal experience of negative consequences will only come at a time when behaviour change may no longer be able to prevent serious impacts.

Rational economic models of choice assume an ideal decision-maker. Yet human decisions are constrained by finite attention and processing capacity, making them at best boundedly rational (Simon, 1982). Cognitive and emotional limitations make humans myopic as decision-makers, with short time horizons or present bias (Hardisty et al., 2009; Laibson, 1997) and with a narrow focus on the self rather than collective well-being. Benefits of changing behaviour so that it becomes environmentally more sustainable tend to accrue over longer periods of time, but not primarily to the decision-makers themselves, and thus are not very effective motivators.

### Barriers to change

Different types of barriers to behaviour change have been identified. Kollmuss and Agyeman (2002) contrast external (such as structural) and internal (such as psychological) obstacles. Lorenzoni, Nicholson-Cole and Whitmarsh (2007) distinguish between individual-level (such as uncertainty and lack of knowledge) and social-level barriers (such as social norms and expectations). Gifford (2011) lists limited cognition, ideologies, social comparisons, miscredence (distrust, reactance and denial) and perceived risks.

Weber (2013) classifies barriers by three qualitatively different processing modes that decision-makers use to arrive at an environmentally relevant decision, namely calculation-, affect-, and rule-based decisions. Risk and loss aversion (Kahneman and Tversky, 1979) as well as present bias (Laibson, 1997) discourage behaviour change when people calculate the costs and benefits of different actions, whether formally or by means of heuristic shortcuts. Affect-based processing fails to change people's behaviour, when people do not naturally worry about a hazard, for example the gradual and future risks of climate change (Slovic, 1987; Weber, 2006). Other feelings, including the impression that personal behaviour change is ineffective in the face of collective challenges that require coordinated change, also play important roles (Böhm, 2003).

Even when it is effective, behaviour change motivated by a negative affect can result in single-action bias (Weber, 1997), the propensity for a single action in response to a threat, even in situations where a broader set of remedies is called for. This is because the first action seems to remove the worry and with it the motivation for further actions. Response patterns consistent with the single action bias have been identified. In the context of changes in energy behaviour, these are often called psychological rebound effects (Ehrhardt-Martinez and Laitner, 2010). Moral balance theory (Merritt, Effron and Monin, 2010) also explains such rebound effects, where one behaviour change (such as switching from carbon to renewable electricity) provides a moral licence to decrease other energy-saving behaviour (Monin and Miller, 2001).

Instilling behavioural routines or rules that are consistent with people's personal values, and that get triggered when the decision-maker's social role or self-identity is activated, may offer the most promising route towards behaviour change (Whitmarsh and O'Neill, 2010). Role-consistent behaviour can be demonstrated and encouraged in the first

instance by prominent trusted and admired sources that will be imitated until repetition turns the behaviour into a habit that no longer requires conscious attention (Weber, 2013).

Widespread social observation of new behaviours or the communication of descriptive norms by other means can lead to tipping points (Griskevicius, Cialdini and Goldstein, 2008). See Article 46 in this Report.

Barriers to behaviour change are responsible for the widely documented gap between attitudes and observed behaviour (Gifford, Kormos and McIntyre, 2011). Other predictors of behaviour, as well as attitudes in models, such as Ajzen's (1991) theory of planned behaviour, point to barriers to change and also to solutions that promote behaviour change. This includes behavioural intentions, which translate the goals provided by a decision-maker's attitudes into the means of achieving those goals. Construal-level theory (Trope and Liberman, 2010) predicts the attitude-behaviour gap, in the sense that plans for behaviour change (such as more environmentally sustainable food consumption) are initially construed on an abstract goal level that emphasises their benefits. As the time for implementation approaches, however, the construal becomes more concrete and moves to a means level, where structural and psychological barriers to change are encountered. Gollwitzer (1999) shows that it helps to anticipate and circumvent at least the structural barriers, so as to have decision-makers consider and articulate the implementation of their intentions – the specific “when”, “where” and “how” of achieving their goals – at an early stage.

In the context of the global environment, attentional, cognitive and motivational limitations and material constraints are more important barriers to behaviour change than knowledge deficits about environmental challenges and their relation to human behaviour (Weber and Stern, 2011). An important exception is the lack of sufficient information about what is most effective in modifying behaviours to achieve sustainability goals (Attari et al., 2010; Gardner and Stern, 2008). This lack of knowledge is not restricted to the general public. Most social science studies of how to reduce barriers to behaviour change in the environmental domain examine high-frequency but low-impact behaviour (such as recycling or refusing plastic bags in shops) rather than high-frequency, high-impact behaviours (such as food choices or travel behaviour) and low-frequency, high-impact behaviour (like buying a car or insulating one's home) (Gifford et al., 2011).

### Goal conflicts

Individuals and collectives have a wide range of often conflicting goals (Krantz and Kunreuther, 2007). The cultural context and decision-specific physical and social environment influence decisions through selective goal activation (Weber and Johnson, 2006). However, goal conflict is a barrier to change. Most individuals would endorse fighting climate change or species depletion as a goal, even when their collective action has large negative global environmental consequences, because existing behaviour patterns originate in other, widely endorsed, goals such as comfort or physical security at the individual level, or economic development at the collective level. Change designed to achieve environmental sustainability goals is seen as detracting from these more immediate and personal goals. Better communication of the associated benefits of actions that achieve environmental goals (for instance, health benefits at the individual level, or energy security and job creation at the collective level) contributes to a more accurate benefit-cost analysis of environmental policies. It is also a way of allowing

people to align multiple goals, reducing the perception of losing certain, immediate and personal benefits in return for uncertain, distant and collective ones.

### Tools to change behaviour

Most studies of behaviour change focus on the actions of citizens or consumers: for example, purchase or consumption decisions that affect water use or carbon emissions. While this is an important target group by virtue of its prevalence, behaviour change in other segments of the population (such as politicians, or designers of building and transportation infrastructure) may have larger impacts. Their decisions shape the regulatory, economic and physical infrastructure, which in turn influences the decisions of the general public. A better understanding of the fact that preferences are often constructed at the time a decision is made, and therefore behaviour is malleable (Lichtenstein and Slovic, 2006), has provided additional tools to achieve behaviour change. Previous tools were restricted to regulation, a paternalistic intervention that prohibits choice options that reduce individual or public welfare; policies that materially incentivise desirable behaviour by offering material rewards, thus changing the cost-benefit calculation; and information and persuasion campaigns designed to shape active decisions through facts and arguments.

Recent advances based on understanding how choices are made have suggested ways to change decisions and behaviour without conscious awareness by shaping people's choice environment (Thaler and Sunstein, 2008; Johnson et al., 2012). This includes the priming or activation of important but possibly under-attended goals, for example legacy concerns or moral imperatives (Weber, 2013). It also includes tools that guide people's attention and choices towards actions that typical processing (and myopia) would ignore, but that have greater long-term individual and social utility (Johnson and Goldstein, 2003).

### Behaviour change and happiness

Research on affective forecasting shows systematic biases in people's predictions of what will make them happy (Wilson and Gilbert, 2003). Adaptation to new increases in material welfare at the individual level and in economic development at the collective level put people on a hedonic treadmill. However, positive psychology and other social sciences have been working on reconceptualising human happiness and its drivers in a more sustainable way (Seligman, 2004). As Western consumption behaviour and lifestyles serve as aspirations to the large proportion of the human population living in developing economies, widespread significant and observable behaviour change by citizens in developed countries on dimensions that impact environmental outcomes may be a very important first step towards global sustainability.

### Bibliography

- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50, pp.179-211, [www.sciencedirect.com/science/journal/07495978/50/1](http://www.sciencedirect.com/science/journal/07495978/50/1).
- Attari, S. Z., DeKay, M. L., Davidson, C. I., & Bruine de Bruin, W. (2010), "Perceptions of energy consumption and savings", *Proceedings of the National Academy of Sciences*, Vol. 107, pp. 16054-16059.
- Böhm, G. (2003), "Emotional reactions to environmental risks: Consequentialist versus ethical evaluation", *Journal of Environmental Psychology*, Vol. 23, pp. 199-212, [www.sciencedirect.com/science/article/pii/S0272494402001147](http://www.sciencedirect.com/science/article/pii/S0272494402001147).

- Ehrhardt-Martinez, K. and J. A. Laitner (2010), "Rebound, technology and people: Mitigating the rebound effect with energy-resource management and people-centered initiatives", in American Council for an Energy-Efficient Economy, *Summer Study Proceedings*, pp. 76-91. [www.garrisoninstitute.org/.../613-breaking-out-of-the-economic-box-ehr](http://www.garrisoninstitute.org/.../613-breaking-out-of-the-economic-box-ehr).
- Gardner, G. T. and P. C. Stern (2008), "The short list: The most effective actions U.S. households can take to curb climate change", *Environment*, Vol. 50, pp. 13-24, [www.environmentmagazine.org/Archives/Back%20Issues/September-October%202008/gardner-stern-full.html](http://www.environmentmagazine.org/Archives/Back%20Issues/September-October%202008/gardner-stern-full.html).
- Gifford, R. (2011), "The dragons of inaction: Psychological barriers that limit climate change mitigation", *American Psychologist*, Vol. 66, pp. 290-302, [www.ncbi.nlm.nih.gov/pubmed/21553954](http://www.ncbi.nlm.nih.gov/pubmed/21553954).
- Gifford, R., C. Kormos and A. McIntyre (2011), "Behavioral dimensions of climate change: Drivers, responses, barriers, and interventions", *WIREs Climate Change*, Vol. 2, pp. 801-827, [http://pics.uvic.ca/sites/default/files/uploads/publications/kormos\\_wires\\_2011.pdf](http://pics.uvic.ca/sites/default/files/uploads/publications/kormos_wires_2011.pdf).
- Gollwitzer, P. M. (1999), "Implementation intentions: Strong effects of simple plans", *American Psychologist*, Vol. 54, pp. 493-503, [www.psych.nyu.edu/gollwitzer/99Goll\\_ImpInt.pdf](http://www.psych.nyu.edu/gollwitzer/99Goll_ImpInt.pdf).
- Griskevicius, V., R. B. Cialdini and N. J. Goldstein (2008), "Peer influence: An underestimated and underemployed lever for change", *Sloan Management Review*, Vol. 49, pp. 84-88.
- Hardisty, D. J. et al. (2009), "About time: An integrative approach to effective environmental policy", *Global Environmental Change: Human and Policy Dimensions*, Vol. 22, pp. 684-694, [www.journals.elsevier.com/global-environmental-change/](http://www.journals.elsevier.com/global-environmental-change/).
- Hertwig, R. et al. (2004), "Decisions from experience and the effect of rare events", *Psychological Science*, Vol. 15, pp. 534-539, [http://library.mpib-berlin.mpg.de/ft/rh/RH\\_Decisions\\_2004.pdf](http://library.mpib-berlin.mpg.de/ft/rh/RH_Decisions_2004.pdf).
- Johnson, E. J. and D. Goldstein (2003), "Do defaults save lives?", *Science*, Vol. 302, pp. 1338-1339, [www.sciencemag.org/content/302/5649/1338.short](http://www.sciencemag.org/content/302/5649/1338.short).
- Johnson, E. J. et al. (2012), "Beyond nudges: Tools of a choice architecture", *Marketing Letters*, Vol. 23, pp. 487-504, <http://link.springer.com/article/10.1007%2Fs11002-012-9186-1#page-1>.
- Kahneman, D. and A. Tversky (1979), "Prospect theory: An analysis of decision under risk", *Econometrica*, Vol. 47, pp. 263-292, [www.hss.caltech.edu/~camerer/Ec101/ProspectTheory.pdf](http://www.hss.caltech.edu/~camerer/Ec101/ProspectTheory.pdf).
- Kollmuss, A. and J. Agyeman (2002), "Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Research*, Vol. 8, pp. 239-260, [www.tandfonline.com/doi/abs/10.1080/13504620220145401#.Udrgn6wUxL4](http://www.tandfonline.com/doi/abs/10.1080/13504620220145401#.Udrgn6wUxL4).
- Krantz, D. H. and H. C. Kunreuther (2007), "Goals and plans in decision making", *Judgment and Decision Making*, Vol. 2, pp. 137-168, <http://journal.sjdm.org/jdm7303b.pdf>.
- Laibson, D. (1997), "Golden eggs and hyperbolic discounting", *Quarterly Journal of Economics*, Vol. 112/2, pp. 443-477, <http://qje.oxfordjournals.org/content/112/2/443.abstract>.
- Lichtenstein, S. and P. Slovic (2006) (eds.), *The Construction of Preference*, Cambridge University Press, New York.
- Lorenzoni, I., S. Nicholson-Cole and L. Whitmarsh (2007), "Barriers perceived to engaging with climate change among the UK public and their policy implications", *Global Environmental Change*, Vol. 17, pp. 445-59, [www.sciencedirect.com/science/article/pii/S0959378007000209](http://www.sciencedirect.com/science/article/pii/S0959378007000209).
- Marx, S. M. et al. (2007), "Communication and mental processes: Experiential and analytic processing of uncertain climate information", *Global Environmental Change*, Vol. 17, pp. 47-58, <http://socialscience.focusonfloods.org/2013/>.
- Merritt, A. C., D. A. Effron and B. Monin (2010), "Moral self-licensing: When being good frees us to be bad", *Social and Personality Psychology Compass*, Vol. 4/5, pp. 344-357, <http://wat1224.ucr.edu/Morality/Monin%202010%20Compass%20on%20Moral%20Licensing.pdf>.
- Monin, B. and D. T. Miller (2001), "Moral credentials and the expression of prejudice", *Journal of Personality and Social Psychology*, Vol. 81, pp. 33-43, [www.ncbi.nlm.nih.gov/pubmed/11474723](http://www.ncbi.nlm.nih.gov/pubmed/11474723).
- Mozumder P., E. Flugman, and T. Randhir (2011), "Adaptation behavior in the face of global climate change: Survey responses from experts and decision makers serving the Florida Keys", *Ocean and Coastal Management*, Vol. 54, pp. 37-44, [http://academia.edu/856848/Facilitating\\_Adaptation\\_to\\_Global\\_Climate\\_Change\\_Perspectives\\_From\\_Experts\\_and\\_Decision\\_Makers\\_Serving\\_the\\_Florida\\_Keys](http://academia.edu/856848/Facilitating_Adaptation_to_Global_Climate_Change_Perspectives_From_Experts_and_Decision_Makers_Serving_the_Florida_Keys).
- Pauly, D. (1995), "Anecdotes and the shifting baseline syndrome of fisheries", *Trends in Ecology and Evolution*, Vol. 10, p. 430, [www.seararoundus.org/researcher/dpauly/PDF/1995/JournalArticles/Anecdotes%26ShiftingBaselineSyndromeFisheries.pdf](http://www.seararoundus.org/researcher/dpauly/PDF/1995/JournalArticles/Anecdotes%26ShiftingBaselineSyndromeFisheries.pdf).

- Samuelson, W. and R. Zeckhauser (1988), "Status quo bias in decision making", *Journal of Risk and Uncertainty*, Vol. 1, pp. 7-59. [http://dtserv2.compsy.uni-jena.de/\\_C125757B00364C53.nsf/0/FOCC3CAE039C8B42C125757B00473C77/\\$FILE/samuelson\\_zeckhauser\\_1988.pdf](http://dtserv2.compsy.uni-jena.de/_C125757B00364C53.nsf/0/FOCC3CAE039C8B42C125757B00473C77/$FILE/samuelson_zeckhauser_1988.pdf).
- Seligman, M. E. P. (2004), "Can happiness be taught?", *Daedalus*, Vol. 133, pp. 80-87. [www.gobookee.net/can-happiness-be-taught-seligman](http://www.gobookee.net/can-happiness-be-taught-seligman).
- Simon, H. A. (1982), *Models of Bounded Rationality*, Vol. 1–2, MIT Press, Cambridge, Mass.
- Slovic P. (1987), "Perception of risk", *Science*, Vol. 236, pp. 280-285, <http://heatherlench.com/wp-content/uploads/2008/07/slovic.pdf>.
- Sutton, R. S. and A.G. Barto (1998), *Reinforcement Learning: An Introduction*, MIT Press, Cambridge, Mass.
- Thaler, R. H. and C. R. Sunstein (2008), *Nudge: Improving Decisions about Health, Wealth, and Happiness*, Yale University Press, New haven, Conn.
- Trope, Y. and N. Liberman (2010), "Construal-level theory of psychological distance", *Psychological Review*, Vol. 117, pp. 440-463, [www.ncbi.nlm.nih.gov/pmc/articles/PMC3152826/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3152826/).
- Weber, E. U. (1997), "Perception and expectation of climate change: Precondition for economic and technological adaptation", in Bazerman, M. et al. (eds.), *Psychological Perspectives to Environmental and Ethical Issues in Management*, Jossey-Bass, San Francisco, Calif., pp. 314-341.
- Weber, E. U. (2006), "Experience-based and description-based perceptions of long-term risk: Why global warming does not scare us (yet)", *Climatic Change*, Vol. 70, pp. 103-120, [www.rsmas.miami.edu/users/agriculture/pubs/papers/Full\\_versions/Weber\\_2006.pdf](http://www.rsmas.miami.edu/users/agriculture/pubs/papers/Full_versions/Weber_2006.pdf).
- Weber, E.U. (2013a), Seeing is believing. *Nature Climate Change*, Vol. 3, pp. 312-313.
- Weber, E. U. (2013b), "Doing the right thing willingly: Behavioral decision theory and environmental policy", in Shafir, E. (ed.), *The Behavioral Foundations of Policy*, Princeton University Press, Princeton, N.J., pp. 380-397.
- Weber, E. U. and E. J. Johnson (2006), "Constructing preferences from memory", in Lichtenstein, S. and P. Slovic (eds.), *The Construction of Preference*, Cambridge University Press, New York, pp. 397-410.
- Weber, E. U. and P. Stern (2011), "The American public's understanding of climate change", *American Psychologist*, Vol. 66, pp. 315-328, [http://sciencepolicy.colorado.edu/students/envs\\_4800/weber\\_2011.pdf](http://sciencepolicy.colorado.edu/students/envs_4800/weber_2011.pdf).
- Whitmarsh, L. and S. O'Neill (2010), "Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours", *Journal of Environmental Psychology*, Vol. 30/3, pp.305-314, <http://psych.cf.ac.uk/home2/whitmarsh/Whitmarsh%20O%27Neill%20J%20Env%20Psych%202010.pdf>.
- Wilson, T. D. and D. T. Gilbert (2003), "Affective forecasting", *Advances in Experimental Social Psychology*, Vol. 35, pp. 345-411, [http://homepages.abdn.ac.uk/c.n.macrae/pages/dept/HomePage/Level\\_3\\_Social\\_Psych\\_files/Wilson%26Gilbert%282003%29.pdf](http://homepages.abdn.ac.uk/c.n.macrae/pages/dept/HomePage/Level_3_Social_Psych_files/Wilson%26Gilbert%282003%29.pdf).

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**Elke U. Weber** is the Jerome A. Chazen professor of international business at Columbia Business School, and professor of psychology and Earth Institute professor at Columbia University in the United States. She is an expert on behavioural models of decision-making under risk and uncertainty.