

Effectiveness of Nudge Techniques in Promoting Green Behaviours

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Abstract:

Human behaviour poses a large threat to the world's biodiversity by direct actions such as harvesting of living natural resources, and indirectly, as a result of habitat destruction, pollution, introduction of invasive species, and climate change. This report aims to discuss the effectiveness of using Nudge theory to promote sustainable human collective behaviour, the methods that can be used and the challenges that arise when using the Nudge Theory approach to tackle climate change.

Introduction:

People's everyday behaviour is actively or passively the root cause of most conservation problems such as air and water pollution, land degradation and soil erosion, deforestation, species extinction, fishery depletion, water resource losses, and climate change. It is the small individual actions, when done collectively by a large chunk of the world's more than 7 billion population, that put enormous pressure on the world's ecosystems (Karen Akerlof, 2013).

People feel motivated to maintain consistency with others across many domains in life. When our beliefs diverge from others in our social network, we often become motivated to address that inconsistency, as there is fear that different opinions might result in the deterioration of social bonds. Same applies to the opinions on climate. For example, when it comes to climate change many people are sceptical of climate change in order to cohere with their friends' and neighbours' beliefs. This has resulted in the derailing of the discussions on climate change and addressing the causes behind that, even in developed countries (Hunter Gehlbach, 2018).

Behavioural change by consumers is needed at many levels (Stern, 2000). Some of these behaviours are the result of a one-time decision with long-term consequences i.e. investment decisions of various kinds. Other behaviours are very frequent and repeated many times and relate to the day-to-day life of a person such as daily purchases of consumer goods, daily use of equipment and machines i.e. the car, home appliances, and electronics etc., waste disposal, and so on (Folke Ölander, 2014).

The paper answers the question to how the prosocial nature of humans can be harnessed to encourage populations to voluntarily reduce their carbon footprints. For an environmental conservation policy to be effective, it is imperative that it caters to affecting the human behaviour and decision making in a subtle and constructive way (Clayton & Myers, 2009). Research in behavioural economics can help to provide us with an understanding of the mechanisms at work in human actions and decision-making, and offer lessons that can be included in public policy to bring forward a positive change (Dorning, 2010).

Traditional Approaches:

Up until now, public policy relating to changing population behaviour have relied on either direct regulation i.e. legal regulations on product or resource use, limited access to protected sanctuaries/ national parks, or financial incentives i.e. tax subsidies; under the assumption that people and organizations primarily act on self-interest and are motivated by financial benefits or material rewards (Tyler, 2011). The incentives are usually placed in order to rationalize regulations through the recognition that regulations often induce changes in behaviour. Another method in trying to bring about behavioural change is the provision of information to the masses and creating awareness on key environmental issues.

Some examples of traditional approaches include the ban on harvesting or selling of endangered species or protection of sensitive habitats through allowing restrictive access. The US has initiated several programs to preserve wildlife and ecological habitats through incentive-based methods. Germany has imposed taxes on electricity produced from fossil fuels due its

huge carbon emissions. Similarly, several Pigouvian taxes are placed all around the world.

Environmental conservation agencies such as the World Wildlife Federation also constantly run awareness campaigns to educate people about their responsibility towards nature.

Government ministries pertaining to the conservation of the environment are also working to create consciousness amongst masses for the preservation of the climate.

Despite all the efforts and mass funding by governments, the results achieved by the traditional methods are not very promising (Karen Akerlof, 2013). For example, the effectiveness of an information campaign to promote the purchase of energy-conserving devices is limited by many obstacles, including the availability and affordability of good alternatives, lack of experience with the technology, doubts about its efficiency, anxiety about installation and maintenance, etc (Folke Ölander, 2014). Generally, what emerges about the possibilities to achieve behavioural change in the environmental field by means of mass communication is not very heartening and environmental problems persist in both developed and developing nations (Folke Ölander, 2014).

Environmental degradation primarily occurs due to the seemingly-innocent yet collectively devastating actions of common individuals. Hence, even after strict regulations are in place or several incentives are being provided, it is difficult to monitor and control individual behaviour (Karen Akerlof, 2013). The factor of cost in providing the incentives also plays a major role in the effectiveness of such techniques as governments and organizations struggle to enforce the methods for a longer period of time. Institutional incapacities, corruption, and problem of oversight is also persistent in under developed countries (Clements et al., 2010). Moreover, the behavioural change induced through regulation and incentives is likely to cease

once these motivations are removed (Stern, 2000). For example, Figure 1 shows the “Do-It-in-the-Dark” energy conservation competition conducted at Princeton University in 2014. The data shows that, although the competition produced a substantial decrease in energy consumption, once the competition ended, consumption quickly returned to previous levels.

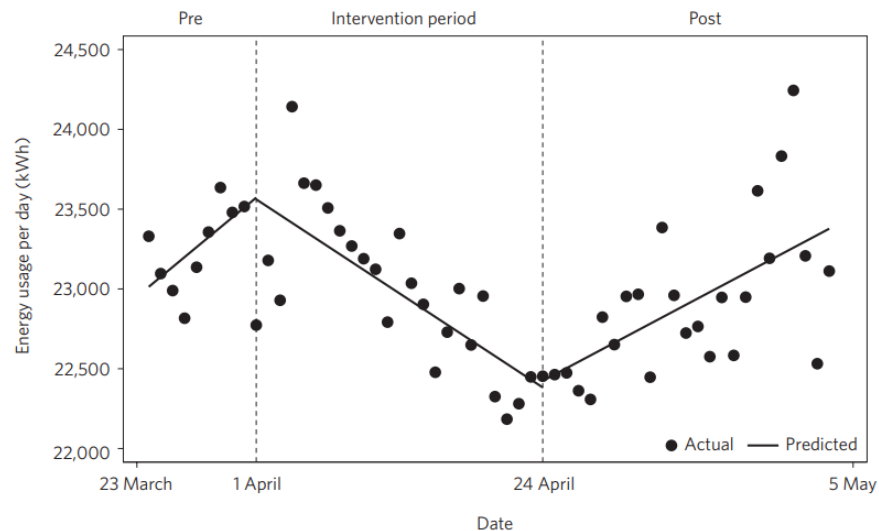


FIGURE 1: DAILY ENERGY CONSUMPTION BEFORE, DURING, AND AFTER THE DO-IT-IN-THE-DARK ENERGY CONSERVATION (LINDEN, 2015)

“Soft” Techniques:

Evidence from psychology, the neurosciences, and behavioural economics can be useful for both restructuring traditional policy interventions and thinking about novel policy instruments that, while not limiting the choices of citizens directly or targeting monetary incentives, are still effective in changing behaviour (Karen Akerlof, 2013).

Making choices exacts mental and physical costs (Vohs et al., 2008); thus, people rely on external prompts such as portion size, to reduce the quantity of information they consider, and the number of conscious decisions that must be made (Todd & Gigerenzer, 2012).

A nudge is defined as a “helping hand” that will lead someone to make better decisions both for oneself and for the greater good. The concept of nudges (Thaler and Sunstein, 2008) suggests a policy of libertarian paternalism, favouring simplicity, effectiveness and a relatively low cost of implementation. As suggested by Sunstein and Thaler (2004), ‘libertarian’ aspect refers to the necessity of respecting everyone’s freedom to act, decide or even change their minds as it suits them.

“Green nudges”, in particular, have been suggested as a promising new tool to encourage consumers to act in an environmentally benign way, such as choosing renewable energy sources or saving energy, food choices or farming practices (affecting soil, water and biodiversity).

The behavioural science foundation for these types of “soft policy” approaches is an understanding that the rational, analytical processing assumed by traditional economic models of human cognitive behaviour (termed “Type 2”) does not account for the majority of decisions people make every day. In contrast, “Type 1” processing is part of our cognitive thinking automatically and swiftly processes environmental stimuli, and registers information from the environment in terms of frequencies and associations (Sloman, 1996). This explains why we often rely on simple heuristics when making decisions, rather than methodically examining choice options, and can provide a theoretical basis for the power of environmental context and choice design (Karen Akerlof, 2013).

How to Nudge?

Much research has been conducted in order to devise the best practices to bring about behavioural change. Recently, the editors of *Perspectives in Psychological Science* put out a call for scientists to write articles in which they would summarize the best behavioural science solutions for various problems and propose example policies that might follow. Sander van der Linden of Princeton University, Edward Maibach of George Mason University, and Anthony Leiserowitz of Yale University took on the responsibility of getting people moving on climate change and proposed some points to remember while making nudge techniques for environmental conservation.

According to new research, appealing to people's experiences rather than charts and plain data is one of the most effective methods to boost their sense of urgency about climate change. Environmental campaigns should emphasize the increasing intensity of extreme weather events, such as the recent hurricanes and droughts (Linden, 2015).

Secondly, the behaviour of other people influences our own and tells us about what is normal and provides a model for our own actions. It might be better to emphasize polls showing strong majorities concerned about climate change. Also, keeping people aware of their norms around them i.e. neighbours' power consumptions and encouraging or discouraging their own consumption accordingly can also be used to affect their individual behaviour (Linden, 2015).

Thirdly, showing people potential threats according to their geographic location can also help create a sense of urgency. For example, showing the residents of a coastal city the impact of global warming on sea levels in their area and showing them the drastic effects of potential floods and hurricanes can help bring a change in their behaviour towards environment (Linden, 2015).

Fourthly, one of the most important findings of behavioural economics is that people hate paying even more than they like receiving money. In the case of climate, the paying comes now, and most of the benefits come much later. Showing people the cost of fighting environmental change as reduction in future gains instead of potential losses (and other similar techniques) can help nudge them in the direction of environmental action (Linden, 2015).

Lastly, to bring about behavioural changes, it is important to make people feel good about the actions they take. Unlike incentive-based methods where conservation actions stop after incentives are stopped, highlighting the intrinsic, feel-good rewards of saving the planet is a more productive and sustainable strategy (Linden 2015).

Effectiveness of “Green” Nudges:

Several studies show that the nudges are an effective technique in bringing a long-lasting behavioural change amongst populations. Two of the examples are provided below as case studies to demonstrate the promising results that nudge theory has shown.

Example 1:

A study was performed on primary data from a field experiment conducted among university students in Pisa over a 60-day span. Researchers collected data on 1849 instances of plastic cup recycling at a coffee vending machine. Recycling behaviour was measured by the number of plastic cups disposed in the proper dustbin, observed at the end of each day. Results of the experimental treatments showed a significant improvement in the number of recyclable cups when a combination of nudges was applied (Ajla Cosic, 2018).

For treatment 1, signs such as “70% of Harvard students recycle; do you want to lag behind?” and “Be different! Be better! RECYCLE! Choose the right bin, it is very easy” were placed soliciting participation in the recycling program. For treatment 2, researchers used the ‘easy to do’ nudge in combination with the social norm. In this way, we made it is easier for subjects to recycle plastic cups by changing the recycling-bin-to-garbage ratio and placing larger bins for recycling and smaller bins for garbage.

Figure 2 shows the results:

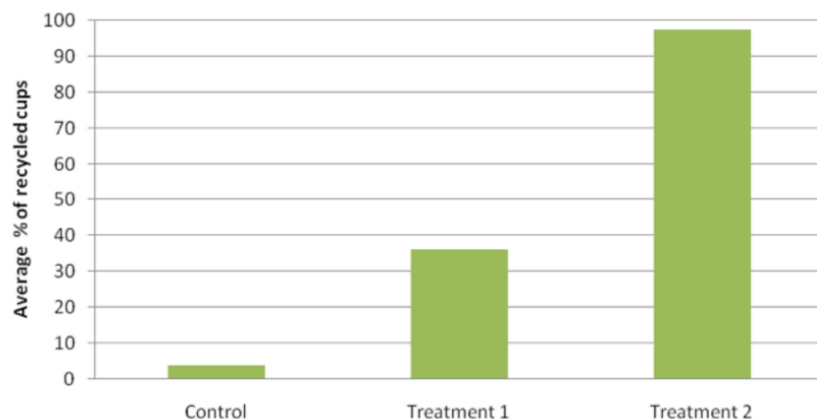


FIGURE 2: AVERAGE OF PERCENTAGE OF RECYCLED CUPS (AJLA COSIC, 2018)

The results showed that the students threw the cups blindly in the largest bin and placing the larger bin for recycling increased the percentage of cups thrown in the recycling bin. Hence, without any treatment only 3.96% of the cups were being thrown in the recycling bin. This amount increased to 36% for the first nudge technique whereas the 'easy to do nudge' triggered the greatest behavioural change and the percentage of cups soared to an almost 100%. The effect of nudges was also long-term and the behaviour stayed for three months even after the nudges were removed (Ajla Cosic, 2018).

Example 2:

Researchers at Kibera, Kenya's second-largest informal settlement, were confused by the low uptake of a water purifying method. The residents did not buy a straightforward, inexpensive solution to a chronic health danger in a place where water-borne infections were already very common and often fatal.

Not much change was observed after residents were given discount coupons for the remedy. As a result, the researchers began to focus on the behavioural components of the process. They pondered upon what happened on the route from the source of water to the resident's homes?

Even while the benefits were generally recognised, it was discovered that with homes making daily journeys to a water source, an extra journey to the shop for the

chlorine solution felt inconvenient. Behavioural science research reveals that even minor inconveniences can make it difficult to adopt a programme or product (Nudge to action: Behavioural science for sustainability, 2017).

The researchers then make the solution more accessible, visible, and convenient at the place it was most needed. The chlorine solution was transported to the water source itself. They put it in huge containers that dispensed just the proper amount for a normal, regularly used jug with the turn of a valve. Now, everyone could see how others were utilising the chlorine solution, and habits began to form. This resulted in the increase in uptakes from 10% to a soaring 60% (Nudge to action: Behavioural science for sustainability, 2017).

Challenges:

We as humans make thousands of decisions each day, but many of these may be habits or choices that are not the most environmentally-friendly. Despite knowing that we need to adapt our behaviours to combat climate change, we may still not take the actions needed in our daily lives to be impactful. This is called the 'intention-gap'. It helps explain why we may intend to save more money, conserve more energy and water, or buy sustainable products, but ultimately fall short (Nudge to action: Behavioural science for sustainability, 2017).

Also, sometimes political identities play a stronger role in determining peoples' point of view on climate change than their world view as people tend to want to adhere to the notions

in their political identities (Cohen, 2003). Motivation for social consistency drives a substantial amount of climate scepticism and people are reluctant to changing their views against the ones common in their social circle (Kahan, 2013).

There is a need for additional studies for better identifying which groups are most sceptical of climate science and which interventions might work best for them seems pivotal (Hunter Gehlbach, 2018). Without common terms and protocols for nudge techniques addressing specific types of behavioural change, developing the empirical basis for furthering theory and practice is difficult (French et al., 2012).

Conclusion:

Collective human behaviour has been the cause many sustainability problems. A change in our day-to-day behaviour is needed in order to curb the impacts posed by individual activity of 7 billion people on the planet. This is why a sustainable policy is very essential which improves mass behaviour in an indirect yet very decisive way keeping the operation costs low.

Understanding how we process information and how context affects our behaviour can help policymakers design more robust and cost-effective interventions to ensure sustainable consumption behaviours. Collaboration among social scientists, conservation biologists, and program managers remains challenging due to academic conventions and historical trends. However, progress is being made.

Conservation organizations—both governmental and nongovernmental—should collaborate with social science researchers to build research designs into their programs, and

make resulting data available for analysis and public dissemination online and in academic publications so that future developments can be made.

References

- Ajla Cosic, H. C. (2018). Can nudges affect students' green behaviour? A field experiment. *Journal of Behavioral Economics for Policy*.
- Clayton, S., & Myers, G. (2009). *Conservation psychology: Understanding and promoting human care for nature*. Oxford: Wiley-Blackwell.
- Clements, T., John, A., Nielsen, K., An, D., Tan, S., & Milner-Gulland, E. J. (2010). Payments for biodiversity conservation in the context of weak institutions: Comparison of three programs from Cambodia. *Ecological Economics*, 69(6), 1283–1291.
- Cohen, G. L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *Journal of Personality and Social Psychology*, 85(5), 808-822. doi:10.1037/0022-3514.85.5.808
- Dorning, M. (2010, June 24). Obama adopts behavioral economics. *BusinessWeek*. Retrieved from http://www.businessweek.com/magazine/content/10_27/b4185019573214.htm
- Folke Ölander, J. T. (2014). Informing Versus Nudging in Environmental Policy. *Springer*, 37. doi:<https://doi.org/10.1007/s10603-014-9256-2>
- French, S., Green, S., O'Connor, D., McKenzie, J., Francis, J., Michie, S., ... Grimshaw, J. (2012). Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework. *Implementation Science*, 7(1), 38.
- Hunter Gehlbach, C. D. (2018). Leveraging cognitive consistency to nudge conservative climate change beliefs. *Journal of Environmental Psychology*, 21. doi:DOI: 10.1016/j.jenvp.2018.12.004
- Kahan, D. M., Peters, E., Wittlin, M., Slovic, P., Ouellette, L. L., Braman, D., & Mandel, G. (2012). The polarizing impact of science literacy and numeracy on perceived climate change risks. *Nature Climate Change*, 2(10), 732-735.
- Karen Akerlof, C. K. (2013). *Nudging Toward A Healthy Natural Environment*.

Nudge to action: Behavioural science for sustainability. (2017, July 18). From UN environment program:
<https://www.unep.org/news-and-stories/story/nudge-action-behavioural-science-sustainability>

Stern, P. C. (2000a). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407–424.

Slovic, S. A. (1996). The empirical case for two systems of reasoning. *Psychological Bulletin*, 119(1), 3–22.

Thaler, R. H., & Benartzi, S. (2004). Save More Tomorrow: Using behavioral economics to increase employee saving. *Journal of Political Economy*, 112(S1), S164–S187.

Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: improving decisions about health, wealth, and happiness*. New Haven, CT: Yale University Press.

Todd, P. M., & Gigerenzer, G. (Eds.). (2012). *Ecological rationality: intelligence in the world*. New York: Oxford University Press.

Tyler, T. (2011). *Why people cooperate: the role of social motivations*. Princeton, NJ: Princeton University Press.

van der Linden, S., Maibach, E., & Leiserowitz, A. (2015). Improving Public Engagement With Climate Change: Five “Best Practice” Insights From Psychological Science. *Perspectives on Psychological Science*, 10(6), 758–763. HYPERLINK "https://doi.org/10.1177/1745691615598516" <https://doi.org/10.1177/1745691615598516>

Vohs, K. D., Baumeister, R. F., Schmeichel, B. J., Twenge, J. M., Nelson, N. M., & Tice, D. M. (2008). Making choices impairs subsequent self-control: A limited-resource account of decision making, self-regulation, and active initiative. *Journal of Personality and Social Psychology*, 94(5), 883–898.

Zakaria Babutsidze, A. C. (2017). Look at me saving the planet! The imitation of visible green behaviour and its impact on the climate value-action gap. *Ecological Economic*, 43. doi:DOI: 10.1016/j.ecolecon.2017.10.017