

NUDGING PRO-ENVIRONMENTAL BEHAVIOR

How can behavioral insights help identify and remove barriers to pro-environmental behavior?

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THE CHALLENGE

As Tunisia has been facing a major economic and political crisis, the environmental situation is being radically overlooked. In fact, regulations implemented by the government aimed at addressing short-term macro-economic factors and disregard policies of environmental conservation.

To that effect, issues range from pollution to unsustainable consumption. Tunisia is the most affected Mediterranean country by the climate change phenomenon and it is on the front line of global warming. Furthermore, overcrowding and poor sanitation represent a threat to a healthy lifestyle and give rise to health risks. The concentration of the population in the large urban centers generates inextricable environmental infrastructure challenges and major atrophy of urban and rural environments owing to the lowered maintenance. The textile industry that encompasses workshops for making jeans, and the exploitation of phosphates in the Gafsa region are extremely polluting.

Added to that, the limited local natural resources are also subject to intense pressure from human activities concentrated in the coastal areas. Agriculture, for instance, brings about pollutants that imperil Tunisia's limited water supply.

Consequently, the pressure on the resource to satisfy demand is considerable, particularly in the irrigated areas, which use almost 80% of the mobilized resources. On this account, only 58% of citizens in rural areas have access to pure drinking water.

THE CHALLENGE

The over-consumption of energy is also one of the major problems faced by the country. Although it is one of the growing economies in North Africa, the undersupply of energy cannot cater to the growing demand.

This collapsed environment has to be protected and green practices have to be urgently adopted as this matter affects each and everyone of us. Inevitably, major health risks, a failing tourism sector, and decreased investment opportunities can take place and persist if no serious measures are taken. Being a high-priority matter, It is utterly important to act.



THE RESEARCH OBJECTIVES

The purpose of this research is to study Tunisians behaviors toward sustainable consumption, green behaviors, and pro-environmental behaviors, identify and remove barriers to sustainable consumption, design nudging interventions to encourage sustainable behaviors, and bring forth a guide tailored to organizations, workplaces, and universities.

As the environmental situation is deteriorating, taking the needed measures is utterly needed. This does not mean acting abruptly and promptly, but rather, following small steps that would be lasting and sustainable.

This is when behavioral science interferes to effectively promote durable pro-environmental behaviors. Duly, the United Nations Environment Program (UNEP) is now incorporating it to achieve the Sustainable Development Goals by contending with climate change, ensuring energy efficiency, and protecting nature.

A simple nudge that readjusts default options or turns to good account peer pressure can create an eco-friendly environment. Besides being worthwhile, nudges are not costly and time-consuming, as they address new behaviors instead of new materials and replace actual systems instead of just creating new ones. In that aspect, nudges are not the sole fix but should serve as a complement to policies and regulations.

If you strive to be part of a better world and a more sustainable environment, this report is tailored to organizations, campuses, and workplaces and is designed to shed light on this matter from a behavioral perspective. A simple nudge can represent a thoroughfare towards long-lasting green behaviors.

WHY BEHAVIORAL SCIENCE?

Behavioral science spectates human behavior and the process of decision-making with the factors affecting it. It mainly studies the irrational behaviors and decisions we adopt and take.

According to Nobel Memorial prize winner Daniel Kahneman, our brain is working with reliance on two systems: system 1 of thinking which is 'fast, automatic, and intuitive. It englobes passive decisions that are taken with minimal effort and no thorough consideration. On the other hand, system 2 of thinking is slow, controlled, and laborious. It is based on a logical and reasonable stream of thoughts that require full attention and extensive effort. However, this system is lazy. Therefore, our brains always tend to make use of mental shortcuts that opt for the easiest option and follow others' actions. Social influence is one of the most powerful drivers of our actions.

Having recourse to behavioral science is effective when it comes to encouraging certain practices like the pro-environmental ones. Inevitably, there exist a plethora of measures that can promote sustainable behaviors including environmental laws and regulations issued by policymakers or awareness campaigns implemented by organizations.

These tools are based on the assumption that individuals are rational decision-makers, as they consider beliefs and attitudes to be catalysts for any behavior. If people are more cognizant of the damage and the benefits of their actions or that if they are more adherent to their values, this would bring about a change in their behavior.

Undeniably, these procedures can work, but they remain bounded by cognitive biases that can represent an obstruction to achieving the set goals. Furthermore, due to the exhaustive and negative content, we are exposed to every day, campaigns can deepen our cognitive overload. This can make us unable to process the available information.

Consequently, engaging in the continuous understanding of human behavior, ascertaining the decision-making process, and spotlighting the mental shortcuts and biases should be a cardinal focus of any campaign or tool that aims at changing habits and building better ones. The focus should not be just on raising awareness but also on addressing a behavioral change by harnessing the choice environment, which is found to be more effective in reaching the desired goals.

This can be ensured by implementing nudges. Considered the foundation of behavioral science, the nudge theory aims at influencing people to predictably change their behavior while maintaining all the options and choices they already have.

Therefore, nudging exploits our biases and heuristics to direct our decisions without us even being cognizant that we are being nudged. Nudges are proven to make an impact on people's lives. They accord their daily decisions to the values they aspire to adopt. On top, they are cost-effective. Instead of resorting to new equipment or new processes, they just replace existing ones by re-presenting the available choices. Nudges are effective to translate our intentions into sustainable actions.

RESEARCH METHODS AND TECHNIQUES

Research Approach	Inductive reasoning based on qualitative research methods
Data collection	Individual interviews, expert interviews, focus groups, observations.
Sampling	Simple random sampling criterion sampling
Sampling Size	Data saturation was considered to be attained when no new themes appear and no new information or ideas related to the study objectives and questions.
Data Analysis	Thematic analysis method

THE REPORT CONTENT

Qualitative Research



What are the barriers and drivers of our desired behavior?

Behavioral Insights



What Behavioral science concepts could help us in designing effective nudges?

Intervention Design



What low-cost interventions could help us create a sustainable behavior change?

RESEARCH FINDINGS



*It's not my
fault*

many of the participants heap the blame on the government and the corrupt leaders for the deteriorated environmental situation. Accordingly, policymakers are considered the ones responsible for unraveling this challenge and finding solutions to it, not the citizens.



*I can't do
anything
about it*

Participants expressed their impotence in front of the actual situation. They believe that their actions are useless if not supported by laws and policies. Since only a minority is acting sustainably, their efforts can not lead to a significant change.



*I want to live
more sustainably,
I just don't know
what happens*

People intend to be more sustainable by opting for recycling, consuming sustainable products, and reducing energy use, especially after being exposed to awareness campaigns. They try to build these new habits for a few days, then end up with their old habits and routines. Others intend to act on the environmental issue but find themselves reluctant and never do. They usually forget about the matter and procrastinate implementing these new changes as they get too busy.



*It's not
convenient*

Participants claim that it's not always simple to be sustainable. For example, sustainable products are not available everywhere, and it takes time, money and effort to find them. They expressed that it's not easy to find recycling bins or to reduce plastic use which is abundantly used everywhere.

RESEARCH FINDINGS



It's costly

Sustainable consumption requires more resources. Since it is not always available, delivery fees or transportation costs are added to the expenses, likewise for sustainable energy, which is not easily accessible and afforded by everyone.



*I really don't
know how to
do it*

Some participants expressed that they get confused and don't know the difference between sustainable and unsustainable products. Consequently, they are not aware of the difference their actions can make and their impact on the environment.



*Here, it's
different*

People act differently when the environment they are in changes. For example, when they live in a polluted and dirty city, they don't hesitate to throw garbage on the street. However, when they visit a clean city or a place, they don't pollute it. This is also relevant in schools and workplaces; if the culture embraces and encourages green behaviors, people tend to adhere to it and act more sustainably.

BEHAVIORAL INSIGHTS

What behavioral insights could help us create cost-effective interventions?

1. Intention Action Gap

The intention action gap can be detected in the environmental context, as individuals do not accept to give up their pleasure, profit, and ease to be sustainable, although it has been proven that this does not require mighty and tremendous action steps to be accomplished. According to Kollmuss, Anja; Julian Agyeman (2002), the barriers that hinder us from acting more sustainably, even if we would like to, can be classified into many categories.

INTENTION ACTION GAP

The intention action gap broaches the contrast between what we plan to do and what we actually end up doing. It refers to the non-fulfillment of conveying our intentions to actions

The categories including practical and psychological barriers which encompass procrastination, bounded motivation, high expenses, and or any minor friction that restrain our action.

These are the internal factors that exert influence on our behavior. Social factors as well do impact the way we act, imposing social and cultural barriers, as we get affected by our surroundings. Furthermore, not having access to funds can represent an obstacle to reaching sustainability. Finally, external agents like the absence of pro-environmental laws are uncontrollable.

Our solutions aim at helping people overcome and repress these barriers including inconvenience, forgetfulness, and procrastination.

2. The Framing Effect

Negative framing draws attention to the loss and obstructive feelings of an option or an event. Accordingly, it can be used to promote green behaviors by emphasizing the emotions of guilt and shame. On the other hand, positive framing is the viewpoint that any negative repercussion is also accompanied by a positive outcome.

FRAMING

Framing is a cognitive bias which refers to one's choice of an option on the basis of the positive or negative undercurrent related to it.

It is the emphasis that there is a benefit to be derived from every event. Consequently, the forward-looking prominence of messages when encouraging individuals to be more sustainable positively impacts their brain boosts their motivation, and forms rewarding and constructive patterns of thinking that can be maintained.

3. Identities and Interests

Identities represent the unique attributes we hold from thoughts and beliefs that make us who we are. These also include our values which direct the actions we take and form our perceptions regarding wrong or right. Interests, in addition, represent what we find intriguing and worth discovering.

People act sustainably if that goes per their values and interests and if it is part of their identity. It is then important to consider that when tackling the environmental matter, as individuals hold in high regard their identities and the society they are part of; one would obviously abide by sustainable behaviors if that is encouraged and followed by the social group they belong to. Opting for messages that accentuate this green behavior and that come from people we can relate to would be effective in implementing it.

4. The Status Quo

The status quo encompasses our tendency to hold to inaction as well as our preference to stick with our previously made decisions. That is, we favor that things remain unchanged.

The default refers to our tendency to take actions without active thinking and prior consideration. This way, the course of action will always be followed and adhered to unless a new choice is presented.

People like to keep everything around them the way it is including their shopping places and their consumption, eating, and work habits. Changing the default would require them to make a cognitive effort and take away their safety feeling.

5. Social Proof

People believe that they are unable to determine the appropriate mode of conduct. Thus, they recur to the assumption that the surrounding people hold more knowledge about the current situation than them.

SOCIAL PROOF

Social proof describes people's tendency to follow others' actions and to rely on their opinions in a given situation.

Individuals are highly influenced by the behavior of their peers as they tend to act more sustainably when surrounded by people who adopt green behaviors, as they will think of that as the right course of action. If people recycle or avoid using plastic in the workplace, their colleagues will follow their lead. This will help in establishing the new norm, which is green behaviors, as it is accommodating to diverge from admissible actions.

INTERVENTION DESIGN

What low-cost interventions could help us create a sustainable behavior change?

1. Positive Framing

People are found to be more responsive when the message is positively framed. Implementing positive wording that fosters pride and gratitude is the key to promoting green behaviors.

Organizing campaigns that advance favorableness and give guilt a miss are proven to be effective in engaging people with environmental matters. This can be fulfilled by the availing of the sense of group identity and by promoting the beauty of the city to accentuate pride and delivering messages during cheerful moments.

2. Social Norms

Social norms refer to the behaviors of social groups that are considered allowable and admissible. We are highly influenced by the courses of conduct of the people surrounding us, especially the ones we find ourselves relating to. We think of their behavior to be the right and the safe option to follow since the majority are adhering to it. Furthermore, we face adversity when not abiding by this norm.

To put into effect sustainable behaving we can:

- Emphasize the sought norm with regard to green desirable behavior. This will encourage others to do the same as they will not think of that to be extraordinary. Additionally, it will help in overcoming fatalism which is the consideration that their sole actions will not make any difference.
- Always call attention to the worthwhile behavior even if it is new or getting to be more normative by sharing simple and catchy success stories.
- Opt for social comparison to induce the competitiveness spirit.

3. Reciprocity

We can refer to reciprocity to encourage sustainable behavior by:

- Giving employees or students gifts like discounts to encourage them to adopt new behaviors and incite them to reciprocate.
- Sharing the experiences of their group members with regard to sustainable behavior to evoke helpful disposition in return.

RECIPROCITY

Reciprocity states that people tend to repay what someone has done for them in kind. That is, they feel obligated to return the favors of others.

4. Changing the Default

Defaults are extremely powerful and effective in guiding our behaviors as we always tend to stick with the status quo. This is because we regard them as a safe and recommended option, and we would like to avoid any risk that can arise from the unknown alternatives.

On this account, making sustainable behavior the default option and modifying its correspondent environment can nudge people and encourage them to follow it. This can be ensured by:

- Prioritizing the sustainable option in a list.
- Emphasizing important qualities of the sustainable option by adding and removing other options from a list.
- Add recycling bins and make them salient.
- Remove plastic utensils from the workplace like cups and opt for mugs instead.
- Update the norm within restaurants and cafes by instituting that people should bring their own reusable utensils.

Another idea is to change the parameters of electronics to support sustainable consumption, for instance, by picking out moderate temperatures for air conditioners, printing double-sided pages, and setting different devices to be eco-used.

5. Incentives

INCENTIVES

Incentives are what encourage and induce our actions. Intrinsic incentives encompass the motivations that come from within one's self like doing something because we simply enjoy. While extrinsic incentives are the external rewarding motivations that lead our actions.

Intrinsic motivations are found to be more powerful than extrinsic ones with regard to green behaviors. For that, non-monetary rewards can be more effective than monetary ones in achieving that, because they bring about social approval, generally always sought by individuals.

It is thus important to boost students' and coworkers' recognition, to frequently recompense them, and to reward them with badges or other symbolic honors for their pro-environmental acts. This would encourage them to maintain their sustainable behavior and to urge their colleagues to follow their lead.

6. Reducting friction

Eliminating some frictions can urge people to act sustainably, while confounding them can dissuade unenviable actions.

FRICION

Frictional costs encompass the small details that end up representing barriers when performing any task.

This can be ensured by:

- Forwarding and simplifying sustainable options by making them easy to attain and within reach; putting them on the top of a list and ensuring that sustainable products are located at eye level or in the center of displays are ways to achieve that.
- Shaping the environment around us by simply making certain options more prominent.
- Opting for timely prompts, reminders, deadlines, and feedback to easily implement plans and to keep getting people's attention.
- Educating people about the energy-matter by bringing forth recommendations with regard to how to save it. This can be fulfilled through energy-saving campaigns to encourage people to turn off computer monitors and unplug chargers. In addition, highlighting the costs of the wasted electricity when putting reminder messages on computers and powerstrips can ensure that people will follow through saving energy.
- Providing guides to inform people about how to make more sustainable decisions. This can be implemented in students' accommodations or employees' offices. How to use leftover food and avoid food waste, how to obtain secondhand or shared items on campus, and how to reduce energy consumption, can all be included in this checklist.

7. Commitment

The commitment represents a powerful force when fighting unsustainable behaviors. We tend to stick to what we do and try harder if we make a public announcement or have accountability partners.

COMMITMENT

Commitment refers to people's tendency to behave in a way that goes in accordance with their previously made decisions and past behaviors.

This can be ensured by:

- Push leaders to pledge and to make a public commitment regarding sustainable behaviors. They would try to avoid the social cost of not abiding by their engagements.
- Opt for small changes at first instead of directly making major changes that cannot ultimately be maintained.
- Give prominence to the immediate benefits of pro-environmental behavior and keep the costs for the future. This way, commitments are easier to be made and to be maintained.
- Bring forth clear advice about the small habits that need to be followed.
- Invite people to organize and plan their upcoming action steps and ensure they are tracking them.

8. Self Interest

Self-interest refers to the consideration of one's well-being and doing what is convenient for them over others'. Based on this, people care more about their welfare and comfort than the nature and environment. They would not regard green behaviors if they find that they do not go in accordance with their interests.

Consequently, referring to messages and campaigns that target the interests of individuals by highlighting the impacts of the pro-environmental behaviors and their role in saving money, improving health, and aligning with cultural beliefs.

REFERENCES

Abrahamse, W. (2019, January 23). Encouraging Pro-Environmental Behaviour - 1st Edition. Elsevier. <https://www.elsevier.com/books/encouraging-pro-environmental-behaviour/abrahamse/978-0-12-811359-2>

Abrahamse, W., & Steg, L. (2013, December 1). Social influence approaches to encourage resource conservation: A meta-analysis. ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S0959378013001362?via%3Dihub>

Allen, M. (2016). Understanding Pro-Environmental Behavior: Models and Messages. SpringerLink. https://link.springer.com/chapter/10.1007/978-3-319-18005-2_4?error=cookies_not_supported&code=d8be6401-d880-49db-8639-761a229b30a6

Balundė, A. (2019). The Relationship Between People's Environmental Considerations and Pro-environmental Behavior in Lithuania. Frontiers. <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.02319/full>

Barr, S. (2007). Factors Influencing Environmental Attitudes and Behaviors. Environment and Behavior, 39(4), 435–473. <https://doi.org/10.1177/0013916505283421>

Blankenberg, A. A. (2019, February 2). On the determinants of pro-environmental behavior: A literature review and guide for the empirical economist. IDEAS. <https://ideas.repec.org/p/zbw/cegedp/350.html>

Burger, J. M., & Caldwell, D. F. (2010, June 7). The Effects of Monetary Incentives and Labeling on the Foot-in-the-Door Effect: Evidence for a Self-Perception Process. Taylor & Francis. https://www.tandfonline.com/doi/abs/10.1207/S15324834BASP2503_06

Chawla, L., & Cushing, D. (2007, September 21). Education for strategic environmental behavior. Taylor & Francis. <https://www.tandfonline.com/doi/abs/10.1080/13504620701581539?src=recsys&journalCode=ceer20>

Chen, M. (2016, January 20). Extending the theory of planned behavior model to explain people's energy savings and carbon reduction behavioral intentions to mitigate climate change in Taiwan—moral obligation matters. ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S0959652615009324?via%3Dihub>

Duffy, S., & Verges, M. (2008). It Matters a Hole Lot. *Environment and Behavior*, 41(5), 741–749. <https://doi.org/10.1177/0013916508323737>

ENVIRONMENTAL EDUCATION RESEARCH. (2018, January 26). Promoting pro-environmental behaviour: collection of used batteries by secondary school pupils. NAAEE. <https://naaee.org/eeopro/research/library/promoting-pro%E2%80%90environmental-behaviour>

Evans, L. (2013, January 29). Inducing green behaviour. *Nature Climate Change*. https://www.nature.com/articles/nclimate1662?error=cookies_not_supported&code=244608a6-cf71-4554-b402-c7c70fde0a53

Farrow, K., Grolleau, G., & Ibanez, L. (2017, October 1). Social Norms and Pro-environmental Behavior: A Review of the Evidence. ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S0921800915301543?via%3Dihub>

Fatemi, M. (2020, May 11). Sociological factors influencing the performance of organic activities in Iran. *Life Sciences, Society and Policy*. <https://lssjournal.biomedcentral.com/articles/10.1186/s40504-020-00098-z>

Fatoki, O. (2019, November 27). Employees Pro-Environmental Behavior in Small and Medium Enterprises: The Role of Enjoyment, Connectedness to Nature and Environmental Knowledge. *Academy of Entrepreneurship Journal*. <https://www.abacademies.org/articles/employees-proenvironmental-behavior-in-small-and-medium-enterprises-the-role-of-enjoyment-connectedness-to-nature-and-environmenta-8739.html>

Felonneau, M. L., & Becker, M. (2008, April). Pro-environmental attitudes and behavior: Revealing perceived social desirability. *CAIRN.INFO*. <https://www.cairn.info/revue-internationale-de-psychologie-sociale-2008-4-page-25.html>

Gatersleben, B., Murtagh, N., & Abrahamse, W. (2012, May 31). Values, identity and pro-environmental behaviour. *Taylor & Francis*. <https://www.tandfonline.com/doi/full/10.1080/21582041.2012.682086>

Geng, L., Cheng, X., Tang, Z., Zhou, K., & Ye, L. (2016). Can Previous Pro-Environmental Behaviours Influence Subsequent Environmental Behaviours? The Licensing Effect of Pro-Environmental Behaviours. *Journal of Pacific Rim Psychology*, 10, e9. <https://doi.org/10.1017/prp.2016.6>

Gershon, R., Cryder, C., & John, L. K. (2019). Why Prosocial Referral Incentives Work: The Interplay of Reputational Benefits and Action Costs. *Journal of Marketing Research*, 57(1), 156-172. <https://doi.org/10.1177/0022243719888440>

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290-302. <https://doi.org/10.1037/a0023566>

Gifford, R. (2014). Environmental Psychology Matters. *Annual Review of Psychology*, 65(1), 541-579. <https://doi.org/10.1146/annurev-psych-010213-115048>

Gifford, R. (2015, July 11). The road to climate hell. ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S0262407915307442?via%3Dihub>

Grilli, G., & Curtis, J. (2021). Encouraging pro-environmental behaviours: A review of methods and approaches. *Renewable and Sustainable Energy Reviews*, 135, 110039. <https://doi.org/10.1016/j.rser.2020.110039>

Han, H. (2014, December 1). The norm activation model and theory-broadening: Individuals' decision-making on environmentally-responsible convention attendance. ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S0272494414000942?via%3Dihub>

Han, H., Hwang, J., Kim, J., & Jung, H. (2015, May 1). Guests pro-environmental decision-making process: Broadening the norm activation framework in a lodging context. ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S027843191500050X?via%3Dihub>

Hines, J., Hungerford, H., & Tomera, A. (2010, July 15). Analysis and Synthesis of Research on Responsible Environmental Behavior: A Meta-Analysis. Taylor & Francis.

<https://www.tandfonline.com/doi/abs/10.1080/00958964.1987.9943482?src=recsys>

Hungerford, H. R., & Volk, T. L. (2013, October 21). Changing Learner Behavior Through Environmental Education. Taylor & Francis.

<https://www.tandfonline.com/doi/abs/10.1080/00958964.1990.10753743?src=recsys>

Jonsson, A., & Nilsson, A. (2014, June). Exploring the Relationship Between Values and Pro-Environmental Behaviour: The Influence of Locus of Control on JSTOR. JSTOR. <https://www.jstor.org/stable/43695150?seq=1>

Kahneman, D. (2012). Accueil. AbeBooks.fr.

https://www.abebooks.fr/Thinking-Fast-Slow-Daniel-Kahneman-PENGUIN/11988865982/bd?cm_mmc=ggl-_FR_Shopp_TradeStandard-_naa-_naa&gclid=Cj0KCQjwpdqDBhCSARIsAEUJ0hP2aG0CdOqg7qClIB5QHEx45vikTkNc-P9YK7IveASQAqRD1GkvPr4aAjFhEALw_wcB

Klockner, C. (2013, October 1). A comprehensive model of the psychology of environmental behavioural meta-analysis. ScienceDirect.

<https://www.sciencedirect.com/science/article/abs/pii/S095937801300099X?via%3Dihub>

Kollmus, A., & Agyeman, J. (2010, July 1). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? Taylor & Francis.

<https://www.tandfonline.com/doi/abs/10.1080/13504620220145401>

Krajhanzel, J. (2010, January). Environmental and Pro-environmental Behavior. ResearchGate.

https://www.researchgate.net/publication/265508352_Environmental_and_Pro-environmental_Behavior

Mathies, E., Selge, S., & Clockner, C. (2012, September 1). The role of parental behaviour for the development of behaviour specific environmental norms – The example of recycling and re-use behaviour. ScienceDirect.
<https://www.sciencedirect.com/science/article/abs/pii/S0272494412000266>

Onwezen, M., Antonides, G., & Bartels, J. (2013, December 1). The Norm Activation Model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour. ScienceDirect.
<https://www.sciencedirect.com/science/article/abs/pii/S0167487013000950>

Palupi, T., & Sawitri, D. R. (2018). The Importance of Pro-Environmental Behavior in Adolescent. E3S Web of Conferences, 31, 09031.
Pro-Environmental Behavior - an overview | ScienceDirect Topics. (2015). ScienceDirect. <https://www.sciencedirect.com/topics/social-sciences/pro-environmental-behavior>

Runhaar, P., Wagenaar, K., Wesselink, R., & Runhaar, H. (2019, April 25). SAGE Journals: Your gateway to world-class research journals. SAGE Journals. <https://journals.sagepub.com/action/cookieAbsent>

Sawitri, D. R., Hadiyanto, H., & Hadi, S. P. (2015). Pro-environmental Behavior from a SocialCognitive Theory Perspective. Procedia Environmental Sciences, 23, 27–33. <https://doi.org/10.1016/j.proenv.2015.01.005>

Scannell, L., & Gifford, R. (2011, October 20). Personally Relevant Climate Change: The Role of Place Attachment and Local Versus Global Message Framing in Engagement. SAGE Journals.
<https://journals.sagepub.com/action/cookieAbsent>

Sia, A., Hungerford, H., & Tomera, A. (2010, July 15). Selected Predictors of Responsible Environmental Behavior: An Analysis. Taylor & Francis.
<https://www.tandfonline.com/doi/abs/10.1080/00958964.1986.9941408?src=recsys>

Steg, L., & Vlek, C. (2009, September 1). Encouraging pro-environmental behavior: An integrative review and research agenda. ResearchGate.
https://www.researchgate.net/publication/222679311_Encouraging_pro-environmental_behavior_An_integrative_review_and_research_agenda

Stern, P. C. (2000, January 1). SPSSI Journals. Society for the Psychological Study of Social Issues.

<https://spssi.onlinelibrary.wiley.com/doi/abs/10.1111/0022-4537.00175>

Tamar, M., Wirawan, H., Afrah, T., & Putri, R. (2020, October 27). Predicting pro-environmental behaviours: the role of environmental values, attitudes and knowledge | Emerald Insight. Emerald Insight.

<https://www.emerald.com/insight/content/doi/10.1108/MEQ-12-2019-0264/full/html>

The Decision Lab. (2021, February 5). Sustainability and Consumer Behavior | Behavioral Science Case Studies. <https://thedecisionlab.com/case-study/carbon-pricing-in-canada/>

Thøgersen, J. (2009, July 7). Simple and Painless? The Limitations of Spillover in Environmental Campaigning. Journal of Consumer Policy.

https://link.springer.com/article/10.1007/s10603-009-9101-1?error=cookies_not_supported&code=44f1fe67-0463-4c0b-8be3-2e3d3e49acab

Toth, N., Little, L., Read, J., Fitton, D., & Horton, M. (2013, June 1).

Understanding teen attitudes towards energy consumption.

ScienceDirect.

<https://www.sciencedirect.com/science/article/abs/pii/S0272494412000722>

Turaga, M. R. R. (2010). Pro-environmental behavior: rational choice meets moral motivation. PubMed. <https://pubmed.ncbi.nlm.nih.gov/20146771/>

Van der Werff, E., Steg, L., & Keizer, K. (2013, March 18). I Am What I Am, by Looking Past the Present: The Influence of Biospheric Values and Past Behavior on Environmental Self-Identity. SAGE Journals.

<https://journals.sagepub.com/doi/10.1177/0013916512475209>

Wallen, K. E. E. D. (2018, April 25). The challenge and opportunity of behaviour change methods and frameworks to reduce demand for illegal wildlife. Nature Conservation.

<https://natureconservation.pensoft.net/article/22725/>

Wan, C., Qipeng Shen, G., & Choi, S. (2021, June 1). The place-based approach to recycling intention: Integrating place attachment into the extended theory of planned behavior. ScienceDirect.
<https://www.sciencedirect.com/science/article/abs/pii/S0921344921001567>

Wells, V. K. (2018, June 29). Research Handbook on Employee Pro-Environmental Behaviour. Edward Elgar Publishing. <https://www.e-elgar.com/shop/gbp/research-handbook-on-employee-pro-environmental-behaviour-9781786432827.html>

Whitmarsh, L. (2009, March 1). Behavioural responses to climate change: Asymmetry of intentions and impacts. ScienceDirect.
<https://www.sciencedirect.com/science/article/abs/pii/S0272494408000431?via%3Dihub>

Willuweit, L. (2019). Promoting Pro-Environmental Behavior An Investigation of the cross-cultural environmental behavior patterns. The Case of Abu Dhabi. Stockholm University. Published.