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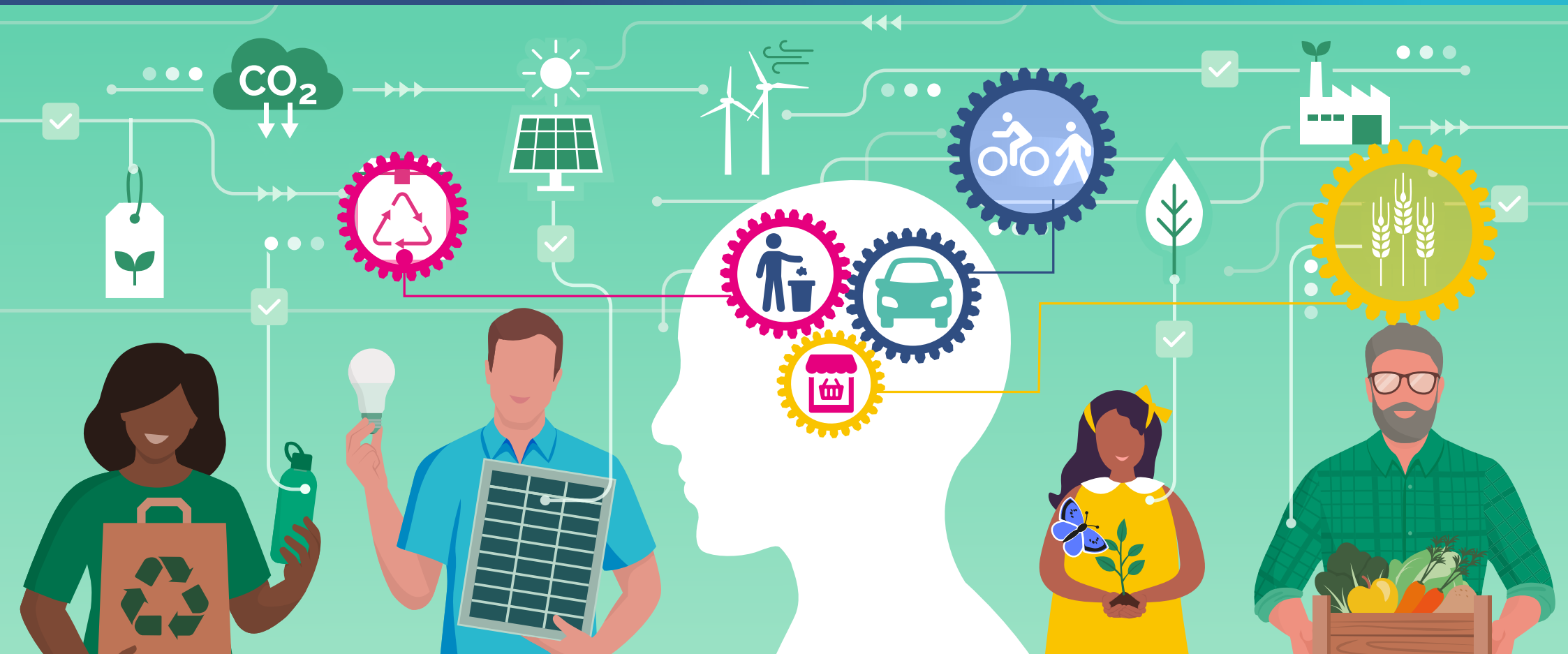
Responding to the climate crisis: applying behavioural science



Responding to the climate crisis: applying behavioural science

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Behavioural Science Unit:
The Public Health Wales Behavioural Science Unit was launched in May 2022 to provide specialist expertise on behavioural science, and develop the application of it, to improve health & wellbeing in Wales. The Unit is part of the World Health Organisation (WHO) Collaborating Centre on Investment in Health and Wellbeing.

For further information, or support around the application of behavioural science to improve and protect health and wellbeing in Wales please get in touch.

Mae'r ddogfen hon ar gael yn Gymraeg /
This document is available in Welsh

Some tools in this guide have been previously published, and are owned by others. Their content has been translated, with retention of some of the originally published language and design.

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2 minute quick read

Responding to the climate crisis: applying behavioural science

Introduction

The climate crisis presents a persistent and growing environmental burden of disease with significant public health consequences. Addressing the crisis via mitigation and adaptation methods requires changing our behaviour. This guide is for professionals/practitioners working on policy, services or communications to tackle the climate crisis, offering useful tips on incorporating behavioural insights and increasing the likelihood of a change in behaviour being adopted.

Behavioural Intervention Planning[3]

1. Decide on target behaviour(s) and target group
2. Conduct 'behavioural diagnosis' using COM-B[1] model
3. Select from menu of intervention types
4. Select from menu of implementation options
5. Build intervention
6. Implement, disseminate and evaluate intervention

A Assemble the immediate benefits

Promote the immediate benefits of positive climate behaviours that individuals will achieve: think in minutes, days and weeks, rather than years and decades. Focus on other co-benefits individuals will gain from their behaviour change which are important and relevant to them, in addition to the future climate impacts.

C Commitments and planning

Obtain commitment from the target audience, ideally in public, to adopting a climate positive behaviour in the future.

Plan the change: Encourage the target audience to plan steps to their behaviour change, with prompts along the way.

T Tackle habits

Habits can prevent the adoption of new positive climate behaviours. Tackle habits by making positive climate behaviours NEAR: Normal, Easy, Attractive and Routine[3].

N Never forget COM-B[1]

To perform a positive climate behaviour people need to know how to do it (capability), have the chance to do it (opportunity), and want to do it (motivation).

O Optimistic and relatable actions

Use Positive, emotive language in policy, services and particularly communications, to invoke joy and pride, to foster positive climate behaviours.

Ensure climate behaviour change activity for your target audience is all about them (and people like them) to make it easier for them to relate to and engage with it.

W Windows of opportunity

Windows of opportunity arise for more effective climate-related behaviour change during transitional periods in our lives, such as moving home or changing jobs. This is a prime time for targeted positive climate behaviour interventions.

Introduction

Climate change is regarded by the World Health Organization as the single biggest health threat facing humanity[4]. Changes in weather and climate present a persistent and growing environmental burden of disease with significant public health consequences[5].

In 2019, Wales became the first country in the world to declare a 'climate emergency'[6]. Public Health Wales has published a series of **infographics** highlighting the impacts of climate change on health and wellbeing[7]. The need to **act now** is clear, with the public health benefits of effective mitigation interventions far outweighing their costs[8].

The focus for climate change interventions can be at the system scale of government and industry, but also at the level of communities, households and individuals, which can be of significant value. Individually, whether relating to food purchase choices, walking or driving to work, or setting the temperature on the thermostat, all choices and actions (aka behaviours) have consequences. These behaviours as a global population, create an unsustainable impact on our planet's natural resources.

Addressing the global climate crisis via mitigation and adaptation techniques requires changing human behaviour, with an estimated 62% of actions to reduce emissions relying on behaviour change[9]. This presents a positive opportunity: millions of people making individual behaviour changes can significantly reduce our impact on the planet (mitigation), and the effectiveness of our response to planetary changes (adaptation).

However, climate change related behaviour changes can be particularly challenging. Behaviour changes that could have a positive impact on the climate crisis tend to require actions now for gains later; they may feel insurmountable due to the global scale; and involve the breaking of established habits and widely recognised norms. The consequences of continuing with behaviours that drive the climate crisis on the other hand are often invisible, feel remote, or seem easier to delay a change in. Raising awareness of the climate crisis by presenting people with endless negative facts and data is unlikely to achieve much change. Humans are far more complicated than the countless solutions often designed to influence them, which is where behavioural science can help.

Behavioural science is the study of behaviour, using insights from psychology, economics, and other social sciences to identify what enables it, what prevents it, and how best to elicit and maintain it. The main goal of behavioural science is to understand behaviour in order to develop effective behaviour change interventions, which are cost-effective, feasible, and easily integrated into existing policies and work-streams[3].

If climate change relies on behaviour change, maybe we need to change how we help people change?

This guide is for professionals/practitioners working on policy, services or communications to tackle the climate crisis, offering useful tips on incorporating behavioural insights and increasing the likelihood of getting the change that is aimed for.

"Climate change is a pressing public health issue which will increasingly dominate our lives as it adversely affects the most basic health requirements: clean air, safe water, sufficient food, and adequate shelter"

(Sir Frank Atherton, Chief Medical Officer for Wales, 2022)[5].

Assemble the immediate benefits

In a nutshell

Make it matter to your target audience **now**:

- Promote the **immediate benefits** of positive climate behaviour changes that individuals will see/feel: think in minutes, days and weeks, rather than years and decades.
- Focus on other **co-benefits** individuals will gain from their behaviour changes, which are important and relevant to them, in addition to the future climate impacts.

Immediate benefits

Our minds do not immediately react to future threats, such as the impacts of climate change, as we usually perceive immediate threats as more urgent and relevant[10,11,12,13,14,15,16]. We are also influenced by benefits that occur immediately more than those occurring later[17]. Therefore, the invisible and distant impacts of many of our negative climate behaviours can make it easy for us to rationalise that 'this one time' won't matter. We can often very easily delay 'good' behaviour changes, particularly if the task is even just thought-of as difficult compared to our status quo[10] (such as using active travel to commute to work rather than driving).

Another aspect to consider if promoting the benefits of positive climate behaviours is **gains vs losses** - people's natural tendency to concentrate more on avoiding losses than seeking gains[18]. For example, behaviours aimed at reducing water wastage could be promoted in terms of avoiding a future hosepipe ban (a loss), rather than the perhaps distant and unrelateable gain of reduced water use.

It is important to promote benefits of positive climate behaviours that people will gain (or avoid losing) in the **short-term**. The benefits could be climate related, such as improvements in air quality and reduced traffic if large numbers of people locally switch from car use to active travel, or they could be in the form of co-benefits that may be realised even sooner.

Co-benefits of climate action

Co-benefits are the positive effects that a policy or measure aimed at one objective might have on other objectives[19]. Positive climate behaviours can provide many non-climate **benefits linked to issues that the public are concerned about**[20], but these are not always sufficiently considered or valued in the decision-making and policy process[21]. A large volume of literature exists on the co-benefits of climate action, relating to areas such as public health, the economy and ecosystem services[8,22,23,24]. People can also be driven by desires to save money, have fun, get healthy and be social[17].

Climate change is not a disconnected phenomenon that will only affect the weather and ecosystems, but a change that will have an impact on nearly every human system, including health, the economy, and national security[25]. The framing of climate change as a purely environmental problem can enable ignorance of it or lead to suboptimal policy decisions, as it ignores the benefits that such actions can have on other priorities[26]. If reducing climate change is not something people are motivated by, they will be unlikely to change their behaviours solely to slow climate change. A survey of UK citizens who had adopted lower-carbon lifestyles found that concern for "the environment" was often not their primary motivation[27].

Highlighting, or even focusing-on, co-benefits is likely to elicit increased positive climate behaviour[28,29,30] (for example, physical health benefits from changing diets[31]). Linking the co-benefits of climate action to wider issues that are of concern to the public (or even better, if possible, to your target population segment) can also help with prioritisation of positive climate actions - for example, cities (such as Bristol and Greater Manchester) that have informed of the co-benefits of climate actions reported more than twice as many mitigation actions as cities that did not[32]. The key is to gain an understanding of what is important to your target audience, and then promote positive climate behaviours that have benefits linked to those priorities, such as physical health benefits, cost-savings or mental wellbeing.

Commitments and planning

In a nutshell

- **Obtain commitment** from your target audience, ideally in public/social ways, to adopting a climate positive behaviour in the future.
- **Plan the change:**
  Encourage, and/or support your target audience to **plan steps** to their behaviour change, with prompts along the way.

Commit to it

Behaviours in the present can be shaped by setting goals and plans for the future[33]. The likelihood of people engaging in a future positive climate behaviour can be increased by enabling them to **commit** to changing their behaviour, particularly in public/social ways (such as signing a pledge and sharing on their social media channels) and starting with **small changes**[17,34,35,36,37,38,39]. The theory is that when people overtly commit to a certain behaviour, they tend to stick to their commitment, and this can fuel the change[35]. For example, hotel guests were more likely to reuse towels when they committed to do so at check-in[40].

Research also suggests that adherence to a commitment is more likely if the new behaviour brings enjoyment and is fun[41]. People who had maintained active recycling for over 2 years were more likely to have found enjoyable co-benefits to recycling, such as seeing their children's enthusiasm for recycling and learning about the recycling process[42], and people were more likely to change their modes of transport if they made the journey productive or enjoyable by reading or listening to music[43].

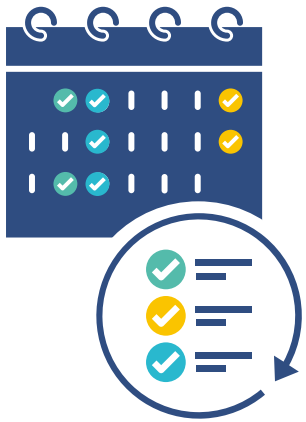
Plan the change

Intentions do not always lead to actions; the **intention-action gap**. Another approach, alongside commitment devices, can be to prompt people to identify their barriers to action, and support them to develop a plan to address them. The plan should include the steps required along the way and contain set actions, along with factoring in reminders and **prompts** at key stages[17].

Tackle habits

In a nutshell

- Habits can prevent the adoption of new positive climate behaviours.
- **Tackle habits** by making positive climate behaviours **NEAR**: Normal, Easy, Attractive and Routine.



What are habits?

Everyone's daily lives involve consistent repetitive actions, which can lead to the formation of habits[44]. Habits are a learned sequence of actions that have become automatic, unconscious responses to specific cues around us[45]. They can cause us to do things without conscious intention regardless of our normative beliefs[46,47,48,49,50], and are difficult to stop or change[51,52]. Research by academics at Duke University discovered that over 40% of the actions that we take every day are habits, and therefore not actually conscious decisions[53].

Many climate-impacting behaviours which occur regularly and repetitively (such as commuting, waste disposal, and shopping), have become ingrained habits for many, and are hard to change with simple traditional approaches[54]. When new positive climate behaviours are not adopted, it's often not because of a lack of awareness or knowledge on the part of the individual, or even a lack of motivation or intention, but the failure to adequately **disrupt or replace existing climate-impacting behaviours**[55,56]. Many interventions, such as stand-alone information campaigns, are ineffective because they are not strong enough to disrupt pre-existing habits[57].

The expected costs and benefits of climate related behaviour changes are often not as powerful in predicting the behaviours as the previous/established frequency of habit performance[58,59], and people are less likely to even consciously consider other options, if there is a familiar habit to continue with[57]. It's clearly useful to explore these issues early on, to optimise your outcomes.

NEAR[60]

NEAR is a useful mnemonic when considering trying to enable, encourage and elicit new positive climate behaviours.

It stands for **Normal**, **Easy**, **Attractive** and **Routine**.

Normal

What?

People are more likely to do things that they see being done by others whom they identify with[60].

There are two norms to consider in behavioural interventions: descriptive norms and injunctive norms[61]. Descriptive norms are people's current and common behaviour and what is commonly done, while injunctive norms refer to behaviours that should be done. A common error when aiming for behaviour change can be the focus on the descriptive norm when there is a negative behaviour (such as littering in an area, or car use) – for example stating 'many people are doing this negative climate behaviour' suggests/ reinforces that it is the norm, which could lead to people replicating (or not changing) the unwanted behaviour[61].

How?

Modelling: Provide examples of positive climate behaviour that others have adopted for people to aspire to or imitate[60]. Personalised Normative Feedback (PNF) involves providing individuals with information about themselves in relation to their peers in order to highlight deviations from the norm[62].

If a negative climate behaviour is common in an area, behavioural change messages should focus on the injunctive norm of the desirable behaviour[61]. If a positive climate behaviour is the frequent behaviour, it would be effective to promote this descriptive norm to encourage others to do the same[61].

Environmental restructuring: Introduce, remove or alter objects in the physical environment or shape the social environment to prompt, facilitate or prevent positive and negative climate behaviours[60]. Present options so that positive climate behaviour choices are integrated within the other available options[17].

Examples

High-consuming electricity customers reduced their usage after receiving reports comparing them to their more efficient neighbours, and those already using less than their neighbours stayed that way after being given a smiley face on their report as positive feedback[63].

Informing people that growing numbers of other people had started eating less meat led to greater interest in cutting down their own meat consumption[64].

Diners who received a menu with a separate "vegetarian" section were 56% less likely to order those dishes compared to those who received a mixed menu. Providing diners with a choice architecture that did not stigmatize vegetarian options, but normalized them, increased the ordering of plant-rich meals that have a lower carbon impact[65].

Easy

People are more likely to adopt positive climate behaviours if they are simple, require little time or effort, and are within their capabilities[60].

Our automatic decision-making is influenced by the availability and presentation of choices: we're more likely to choose what is more available, easier to reach or first on a list[17].

Even when individuals prefer the positive climate behaviour option, we can be disproportionately affected by small frictions or 'hassles' that obstruct the behaviour[17,66]. Whether they are real ("planning a journey using public transport timetables is difficult") or just perceived ("planning a journey using public transport timetables seems difficult") they can prevent actions from happening, even when there are good intentions[66].

People usually stick with the default choice (the status quo) as we don't engage consciously with many of our daily decisions[17]. If the easy and/or default choices are not the most sustainable and climate friendly[67] – how can this be switched up?

Education: Informing, explaining and showing in order to boost knowledge and understanding of positive climate behaviours[60].

Training: Demonstrate, supervise, provide feedback and support practice in order to improve mental or physical skills for positive climate behaviours[60].

Restriction: Create boundaries around what behaviours are acceptable/desirable and what are not by setting rules[60], or default people to the positive climate behaviour.

Enablement: Provide or improve psychological, social or physical resources to support enactment of a positive climate behaviour[60]. Remove hassles and frictions[17], framing choices in a way that guides towards the positive climate behaviour[68].

Environmental restructuring: Introduce, remove or alter objects in the physical environment or shape the social environment to prompt, facilitate or prevent positive and negative climate behaviours[60]. Facilitate climate-friendly choices by making them more accessible and available[17].

Defaulting customers onto a renewable electricity tariff resulted in a 10x increase in numbers on that tariff[69].

Changing the default printer option to double-sided saved 7,391,065 sheets of paper (roughly 620 trees) in a single term at Rutgers University[25].

Attractive

People are more likely to do things if they think they will be enjoyable, serve a purpose or avoid something bad happening[60].

Humans have selective and limited attention, seeking information that confirms existing beliefs whilst ignoring new information that goes against it[70].

Education: Informing, explaining and showing in order to increase knowledge and understanding of positive climate behaviours[60].

Persuasion: Highlighting, arguing, discussing, and helping to imagine in order to influence attractiveness of positive climate behaviours[60].

Incentivisation: Introducing payment or some other extrinsic reward for a positive climate behaviour[60].

Coercion: Introducing a cost or negative outcome to prevent a negative climate behaviour or to induce someone to enact a positive climate behaviour[60].

Introduction of a 5p charge for single-use plastic carrier bags in shops in Wales resulted in an increase in people using their own bags and reduction in single-use bag use[71].

An incentive scheme in the Netherlands for e-bike use rather than car use saw an increase from 0% to 73% in the share of commute trips by participants using an e-bike[72].

Routine

People more likely to do things that are part of their routine, so they don't have to think about them[60].

Our brains have limited resources for making sense of a complex and uncertain world, which means that we use mental shortcuts. A lot of our behaviour is automatic[67]. For example, someone following a set routine may not consciously decide to commute by car or by train each day, so to get them to switch from car to train an intervention to change their routine could be powerful.

However, many people thrive on routines, and they can be advantageous by allowing people to exert less energy thinking about daily, repetitive decisions, which can then be utilised elsewhere[67]. The key is to make the positive climate behaviour the routine.

Training: Demonstrate, supervise, provide feedback and support practice in order to improve mental or physical skills for positive climate behaviours[61].

Environmental restructuring: Introduce, remove or alter objects in the physical environment or shape the social environment to prompt, facilitate or prevent positive and negative climate behaviours[60]. Consider removing the negative climate behaviour option altogether. Policymakers can leapfrog years of slow changing habitual behaviours by applying outright bans capable of changing routine behaviour overnight[73].

Banning plastic bags in Kenya caused the habitual behaviour of plastic bag use to switch to the sustainable alternative. The reusable bag became the new norm within days, not decades[73].

Designed to Smile is a national programme in Wales to improve the oral health of children by providing families with advice and resources to create good habits, including the routine brushing of teeth in the morning and evening and toothbrush recycling[74].

"Make it 20 steps less to do the right thing, not 20 steps more" [73]

Never forget COM-B[1]

In a nutshell

- To perform a positive climate behaviour people need to know how to do it and have the right skills (**Capability**), have the chance to do it and feel others like them are doing it too (**Opportunity**), and want to do it, because they believe it will 'work'(**Motivation**).

What is COM-B[1]?

The COM-B model[1] is a widely adopted framework for understanding behaviour, and stands for **C**apability, **O**pportunity and **M**otivation *(Figure 1)*.

When planning an intervention to change a climate-behaviour, a critical first step to success is assessing if your target population has the capability, opportunity and motivation to perform the new behaviour. If any of these criteria are lacking/weaker than the others, it can provide a focus for the intervention.

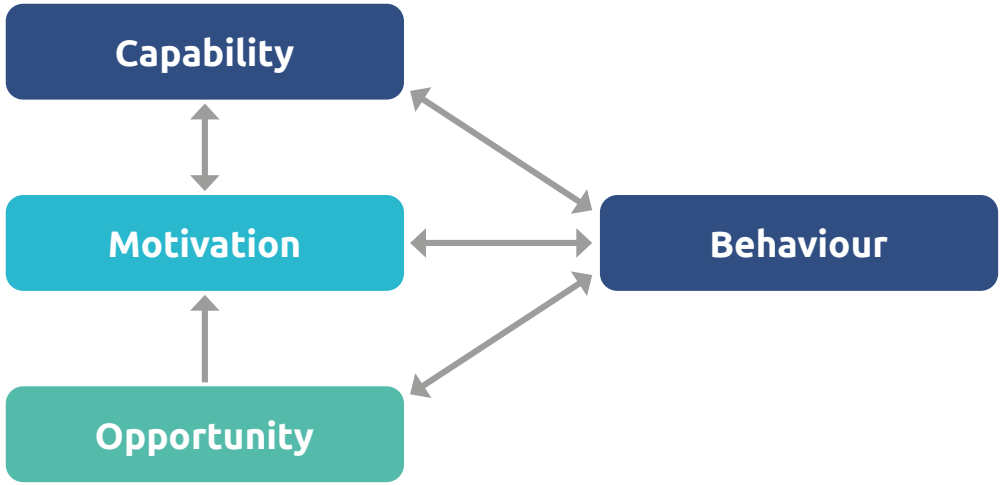


Figure 1: The COM-B model and interaction[1].

Capability

Capability refers to an individual's **psychological** and **physical** capacity to engage in the behaviour ***(Table 2)***, including having the required understanding, knowledge and skills[1]. In other words; ***do they know how and why to do it?***

Table 2: Aspects of capability to enact a behaviour[3]

Physical capability	Psychological capability
Having the physique needed for the behaviour	Knowing how to perform the behaviour
Having the co-ordination and timing needed for the behaviour	Understanding why the behaviour is important
Having the physical strength needed for the behaviour	Having the mental skills (e.g. reasoning ability, memory capacity) to perform the behaviour
Having the sensory abilities needed for the behaviour	Having the mental resilience to perform the behaviour
Having the physical stamina needed for the behaviour	Having the self-control needed to perform the behaviour

'**Boosts**' are interventions that target competences in order to enable behaviours[75]. For example, boosting a populations' knowledge of local fruit and veg providers and how to access them, along with their awareness of the benefits of shopping locally (local economy, reduced carbon footprint, fresher produce), could give them the competencies needed to choose to shop locally. However, it is important to bear in mind that informational approaches alone are not always effective[36,81,82].

Opportunity

Opportunity refers to all of the **physical** and **social** factors ***(Table 3)*** that lie outside the individual that make the behaviour possible or prompt it[1]. This could include things such as having the time, resources, tools, money, and access to enact the desired behaviour, as well as seeing/feeling the behaviour is normal for someone like them. In other words; ***do they have the chance to do it?***

There can be a tendency when judging why people do things to assume that it is because of something special about them, rather than something in their environment that is driving the behaviour. For example, we might overemphasise individual traits when trying to understand why people do not recycle. These individual traits are important, but they are shaped by, and interact with, the person's environment and the wider system in which they live.

Table 3: Aspects of opportunity[3]

Physical opportunity	Social opportunity
Having enough time to enact the behaviour	Social support for the behaviour
Having access to the physical resources needed for the behaviour (e.g., money, equipment, materials, infrastructure)	Social norms and formal and informal rules relating to the behaviour
Having enough physical space for the behaviour	Social cues that prompt the behaviour
Having physical cues that prompt the behaviour	The linguistic environment

Motivation

Motivation refers to an individual's **reflective** and **automatic** brain processes *(Table 4)* that energize and direct behaviour, including habitual processes, emotional responses, and decision-making[1]. In other words; ***do they want to do it more than not wanting to do it?***

People must be motivated to perform a behaviour, and the motivation to perform that behaviour must outweigh other competing behaviour options, which is particularly difficult if other behaviours have become habits. For example, you may be motivated to walk to the local shop, but to do so this must outweigh your motivation to drive there.

Table 4: Aspects of motivation[3]

Reflective motivation	Automatic motivation
Forming, remembering and enacting plans	Feelings of desire (subjective wants and needs)
Consciously evaluating options	Habits and instincts
Making conscious decisions	Impulses and inhibitory processes

Motivation should always be analysed 'in the moment': it does not matter what a person wanted a week ago, or a day ago, what matters is what they want now[3]. Not anticipating the situations your target group will be in, that will drive their behaviour in the moment, will cause a behavioural intervention to falter. For example, a person may decide as a New Year's resolution not to eat meat in order to reduce their carbon footprint, but if a week into January they go out for a friend's birthday meal at a steak restaurant and everyone else is having a steak, the impulse to also have a steak may outweigh their motivation to abstain.

Action to increase positive climate behaviour changes need to include an anticipation of situations that your target population is likely to encounter, and design ways of shaping their motivation at the precise moment a change is required.

Optimistic and relatable actions

In a nutshell

- **Positive,** emotive language in policy, services and particularly communications, that invokes joy and pride, is generally more likely to foster positive climate behaviours than pessimistic burdensome output.
- Ensure interventions (policy, services and communications) about climate behaviours for your target audience **are all about them (and people like them)** to make it easier for them to relate and engage.

Positive

Emotions can be a lot more powerful than reasoned-thought when it comes to decision-making. There are certain behaviours that humans are motivated to do because they are **enjoyable**[78], and research suggests that even anticipation of a future emotional state can play a powerful role in shaping behaviour, especially when emotions of **pride** are involved[79].

A lot of climate behaviour-change activity focuses on causing fear and other negative emotions in an attempt to scare people into positive climate behaviours. We are often told things that we must lose or give up: don't drive our cars, buy less, no flying on holiday, give up meat etc. Terms such as 'crisis', 'threat' and 'emergency' are used to promote a sense of urgency and need for action, but without careful use they may cause the opposite by overwhelming people, which can lead to disengagement[80]. Climate change is dire—but the way we talk about it doesn't always have to be[81]. Taking a different approach with a more **optimistic** and **positive** tone, such as highlighting emotions of pride or joy as a result of positive climate behaviours, can invoke stronger behavioural intentions[79,82,83,84,85]. According to the "broaden and build" theory, whereas negative emotions can narrow our attention, positive emotions can help us broaden and build our capacity to learn and gain skills[82]. Messages invoking pride, fun and humour can be more effective than those based on guilt, so try to encourage enjoyable positive climate behaviours by using positive messages, and recognise/celebrate 'achievements' that your target audience will feel good about and can relate to[17].

All about them

Any interventions to increase positive climate behaviours need to be focused on your target population; make the content all about them and what **matters to them**.

Research shows that although people may think that climate change is happening and is something important, they can perceive it as happening somewhere else to someone else, reportedly due to not witnessing any direct impacts of climate change to themselves, friends or family[25,86,87,88,89].

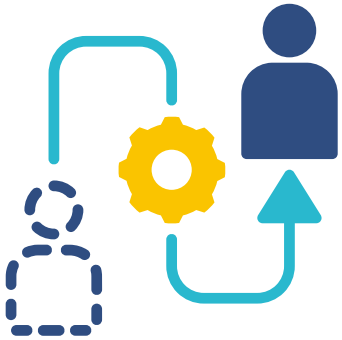
People have a finite attention capacity and so are attracted to things that **stand out** and are **relevant** to them. Using content that is relevant and **personalised** to your target audience can draw attention to positive climate behaviours[17]; the more customised and personal the information/service/policy, the more likely an individual will identify with it and respond. Seeing our names in a message, for example, can help form a connection, along with information about the **local** and current impacts of climate change and tailoring to audience values and beliefs to make it personally relevant[25,90,91,92]. All of these things can help reduce the perceived psychological distance of climate change impacts.

If your intervention is a communications one - it is also important to consider **who is giving the message** about positive climate behaviours and cultivate a desirable social identity. People value their social identity, so receiving messages from people and groups they relate to, feel are like them, and want to be part of, can be powerful social influences[93,94,95,96]. This can help with making the positive climate behaviour the normal behaviour.

Windows of opportunity

In a nutshell

- Windows of opportunity arise for more effective climate-related behaviour change during **transitional periods** in our lives, such as moving home or changing jobs. This is a prime time for targeted positive climate behaviour interventions.



Target transitions

A lot of our daily activities are performed frequently and in stable circumstances; in particular locations, at specific times, in particular moods[44], which leads to them becoming habits. The same intervention made at different times can have very different outcomes, so it can be extremely useful to target activity at times/in places when people are most receptive[17]. The most effective time to target a change in habits, and encourage more climate positive behaviours, can therefore be when stable circumstances change and **habits are disrupted**[44,97].

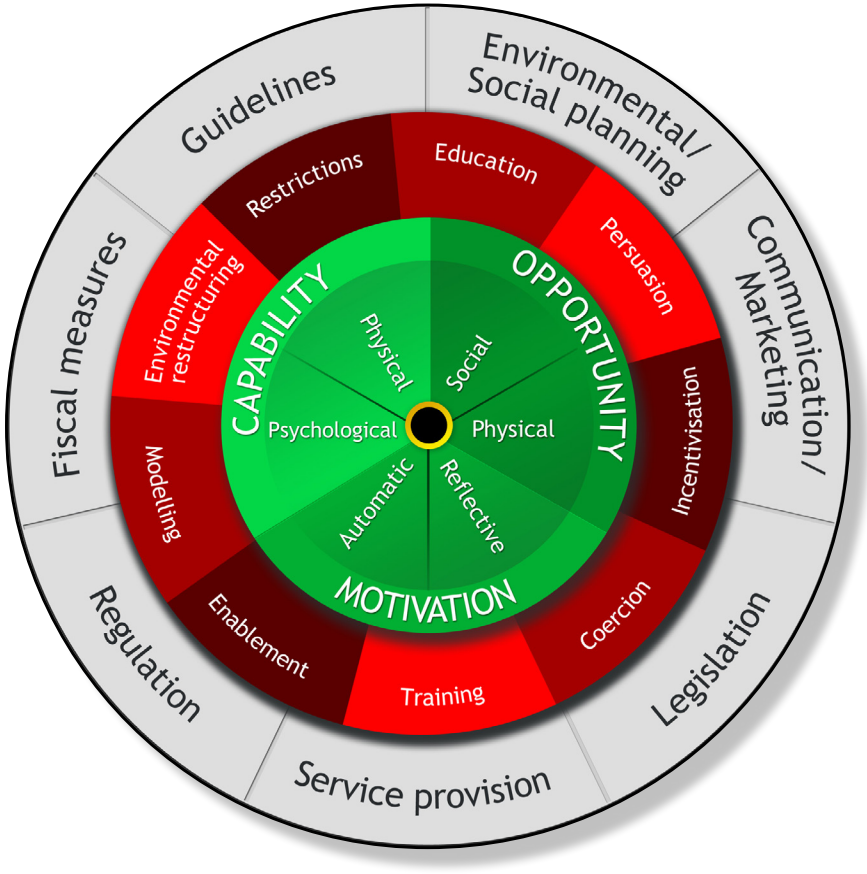
Transitional periods such as moving home, changing jobs, and extreme events can weaken habits, presenting windows of opportunity to effectively change behaviours[98,99,100,77,101,102,103]. We could therefore usefully plan to run positive climate behaviour campaigns and interventions during these times, or encourage people to try something new during a dedicated day, week or month[17], as part of a wider programme of activity.

For example, positive climate behaviours such as public transport use/active travel, waste reduction, and home energy efficiency have been found to be more effectively changed in the periods following transitions in life events[104,105,106,107].

Behavioural intervention planning

The **Behaviour Change Wheel**[2] is a framework of behaviour change that can be used for developing interventions for the adoption of positive climate behaviours. Following the steps below can help create an overall vision for the climate-behaviour change strategy for implementation. The **APEASE** criteria should be used throughout the process in order to consider the target groups' perspective[2]. It is also often necessary to go back a stage throughout the process as new information or obstacles arise[3].

The i-frame refers to a focus on individuals, whilst the **s-frame** refers to the systems of rules, norms and institutions by which we live[108]. Interventions to change individuals' behaviours (i-frame) can be effective but are not always sufficient for the significant transformations needed in our lives to respond to the climate crisis, with system-level (s-frame) legislation, policy and infrastructural interventions also being required[109,110,111,112]. When developing climate-behaviour interventions it is therefore important to consider both i-frame and s-frame options.



1. Decide on target behaviour(s) and target group
Who do you want to adopt a positive climate behaviour? What positive climate-behaviour do you want them to do? Be as specific as possible.

2. Conduct 'behavioural diagnosis' using COM-B model[1]
Why are they not doing the positive climate behaviour already? Can they do it (Capability)? Do they get chance to do it (Opportunity)? Do they want to do it enough (Motivation)?

3. Select from menu of intervention types
What is the best approach for changing the climate-impacting behaviour? Different interventions suit different target groups and behaviours better or worse.

4. Select from menu of implementation options
How will you implement the chosen interventions to achieve the greatest effectiveness? Multiple options may be needed, along with different approaches for different target groups and behaviours.

5. Build intervention
Once decided on your course of action, you can then build the intervention.

6. Implement, disseminate and evaluate intervention
Once built, you can then implement your intervention. Evaluation is a key part of the process to identify effectiveness and guide future improvements.

APEASE[2]:

- Acceptability
- Practicability
- Effectiveness
- Affordability
- Spill-over effects
- Equity

For a more detailed guide to using behavioural intervention planning, click HERE.

APEASE[2]

Criterion	Description	Example of use
Acceptability	How far is what is proposed acceptable to important stakeholders, e.g., the target group, those delivering the intervention, funders?	Legislation to completely ban the use of log-burners may not be acceptable to those who own them.
Practicability	How far is what is proposed able to be implemented at the required scale, with the required quality for as long as will be required?	A subsidised scheme for the installation of solar panels on homes may be difficult to deliver at the required scale and maintain.
Effectiveness	How far will what is proposed achieve the policy objectives?	Will focusing on increasing active travel achieve significant emission reduction to limit climate change?
Affordability	How far can what is proposed be achieved within reasonable budgets and will it be worth it?	Can a social marketing campaign to promote recycling in a local authority be undertaken within the budget of the communications department?
Spill-over effects	What effects, good or bad, what is proposed beyond the target behaviour?	Will policies to make vegan meals compulsory for health organisation events lead to increased importation of ingredients with high carbon footprints?
Equity	What impact will what is proposed have on health and social inequalities?	Will focusing on promoting attempts to consider e-vehicles increase health inequalities given that people from more deprived areas may not be able to afford to switch?

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