Enabling grassroots climate recovery: drawing on drug recovery tools to support climate behaviour change.

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Contents

List of Figures

List of Tables

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Abbreviations

AA	Alcoholics Anonymous
AR	Assessment Report
CBT	Cognitive Behavioural Therapy
CGT	Constructivist Grounded Theory
CIRT	Centre for Innovation in Research and Teaching
COM-B	Capability, Opportunity, Motivation-Behaviour
COP	Conference of the Parties
CO_2 (CO2)	Carbon Dioxide
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
FG	Focus Group
G-20	Group of Twenty
GHG	Green House Gas
GMCA	Greater Manchester Combined Authority
GT	Grounded Theory
I	Interview
IEA	International Energy Agency
IMD	Index of Multiple Deprivation
IPCC	Intergovernmental Panel on Climate Change
JSO	Just Stop Oil
LSE	London School of Economics
MCA	Mindful Climate Action
MCC	Manchester City Council

NA	Narcotics Anonymous
NASA	National Aeronautics and Space Administration
NET	Negative Emission Technology
NGO	Non-Governmental Organisation
NVDA	Non-Violent Direct Action
P	Participant
PGCE	Post Graduate Certificate of Education
POV	Point of View
R	Researcher
RAP	Reasonable Adjustment Plan
RCT	Randomised controlled trial
SR	Special Report
SLE	Systemic Lupus Erythematosus
TCTC	Tomorrow's Climate, Today's Challenge
TPB	Theory of Planned Behaviour
UN	United Nations
UNCS	United Nations Climate Summit
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WWF	World Wide Fund for Nature
XR	Extinction Rebellion

Glossary

12-step fellowships/programmes	International mutual aid programmes supporting people in recovery from substance and behavioural addictions that are based on an original programme developed for alcoholics called Alcoholics Anonymous (AA)
Addiction recovery	A process of change through which people improve their health and wellness, live self-directed lives, and strive to reach their full potential.
Clean	The addictive substance is no longer in the body, or the addictive behaviour is no longer active.
Climate action	Action that is intended to directly or indirectly reduce the amount of GHGs in the atmosphere and rebalance climate.
Climate behaviour change	Process of changing behaviour that is contributing to unbalancing the climate.
Climate influencing	Attempting through conversation, campaigning, or other means of communication to inform others on climate change and encourage action.
'Dangerous' climate change	Climate change resulting from a 2º C or above rise in global average temperature on preindustrial levels leading to catastrophic conditions for humanity and all biospheric life.
Experience, strength, and hope	The knowledge we have gained and are taking forward, our current fortitudes and endeavours, and our future aspirations.
Just for today	A focus and prioritising of being and acting within the day that is unfolding (as opposed to pre-occupation with past and future at the expense of the day that is unfolding).

Abstract

We have only a short window of time to radically reduce carbon emissions; the General Secretary of the United Nations in his closing statement at COP28 said ‘The world cannot afford delays, indecision, or half measures’ (Guterres, 2023 para 26) and public concern has never been higher. Perhaps individual climate action if mobilised could make a considerable difference.

Some analysts equate the climate problem with addiction, with the drug of choice being fossil fuels and the consumption that they enable. If addiction were to be the problem, could the tools of successful addiction recovery have something to offer to the field of climate solutions? Addiction recovery groups that follow the 12-step programme such as Alcoholics Anonymous have long been popular; evidence is now growing of their benefits and that they do work for many people. As a result, this study set out to explore the extent to which addiction recovery tools might be useful when applied to individual climate behaviour.

Several key tools were identified from the 12-step approach and integrated into a fifty-seven-day qualitative study of nine participants and one participant researcher. A constructivist grounded theory leaning approach was adopted in an abductive analysis of the data which suggested that the tools were significantly helpful. The main findings demonstrated that the participants took deliberate and committed actions to change their climate behaviour, including attempts to uproot deep-seated habits that specialists consider notably difficult to change. Furthermore, they did not sidestep discussion of stressful climate scenarios, suggesting that the tools supported immersed climate engagement, and they continued with their chosen climate goals even when obstacles made this difficult. Finally, they reported co-benefits such as feelings of being pleased with their progress or of enjoying tasters of mindfulness.

The limitations of this study render the results, though promising, only applicable to the data and not generalisable to the wider population. However, they do provide valuable insights and point to the possible benefits of the application of addiction recovery tools to climate behaviour change. Follow-on studies of interest might be longitudinal, with a larger sample, perhaps using mixed methods to quantify any carbon reduction and capture any co-benefits.

Chapter 1 – Introduction

Some equate the climate problem with addiction, with the drug of choice[1] fossil fuels (Aquarius2Zeitgeist, 2010; McCammack, 2018; Open Democracy, 2014; Suranovic, 2013; University of Manchester, 2016). If addiction is the problem, might successful addiction recovery offer solutions? This study will assess the extent to which tools of successful addiction recovery might engender engagement with climate issues and climate action.

This first chapter will describe the context of current climate science and consider whether international behaviour change via national climate agreements and policy developments is sufficient to meet the climate challenge. After that, the importance of individual climate action within this scenario will be explored along with the potential of the tools of addiction recovery to be one of the approaches supporting that action.

The psychology of climate action and inaction are covered in detail in Chapter 2. The literature uses a wide range of terminology due to the different lenses applied to studies and the resulting jargon can be confusing in nature. Therefore, it was deemed important at this point to clarify that in this study the terms ‘climate action’ and ‘climate behaviour change’ have been used to mean a person engaging with (rather than ignoring or avoiding) the issue of climate change and that the chosen action might include:

- personal carbon emission reduction
- climate influencing of others, such as family, friends, work colleagues, and wider communities
- climate campaigning locally, nationally, and internationally, as well as attempting to influence decision makers
- any combination of the above

[1] In 12-step addiction recovery groups, recovering addicts refer to their ‘drug of choice’ as the primary substance they use (Narcotics Anonymous, 2018).

1.1 Science and politics of climate change

In this section, the gravity of the current climate crisis will be gauged by exploring the timeline that led to this point: from the first alarm bells of more than thirty years ago (Gillis, 2018), through three decades of international negotiations (Niggol, 2017), to the current period as reported by the Intergovernmental Panel on Climate Change (IPCC) (Gilbert, 2022; Intergovernmental Panel on Climate Change, 2022a, 2022b). Also, future scenarios and our preparedness for them will be considered given current evidence – 2024 – that the climate problem is significantly more serious than at the start of this study; at time of writing, Copernicus (2024a) is reporting twelve consecutive months of temperatures 1.5º C above industrial levels.

The words ‘ … the evidence is pretty strong that the greenhouse effect [2] is here’ are not a recent statement, but one made thirty-six years ago by the National Aeronautics and Space Administration (NASA) scientist Jim Hansen (Gillis, 2018, p. 11; Jain, 1993). At a special United States Senate meeting on 23 June 1988, Hansen testified that the world was warmer than at any other time in recent history, that there was ninety-nine per cent certainty the cause was anthropogenic, and that more extreme weather events were occurring as a result (United Nations Foundation, 2018). For the first time, the alarm was raised at governmental level on the serious nature of planetary warming from industrial greenhouse gas emissions (GHGs), yet thirty-six years on, behaviour has little changed, as evidenced by continuing high emissions and continuing investment, exploration, and extraction of new oil and gas (International Energy Authority, 2020; Jackson et al., 2018; Kenner & Heede, 2021).

[2] The terminology ‘greenhouse effect’ was current at that time to express the enhanced greenhouse effect, that is the build-up of greenhouse gases in the atmosphere above the norm (Jain, 1993).

Indeed, some experts estimate that global emissions are more than sixty per cent higher than they were thirty-five years ago (Statista, 2023) and that more carbon dioxide (CO_2) and other GHGs, have been emitted over these thirty-five years than in the entire preceding history of humanity (Stainforth & Brzezinski, 2020). Moreover, as noted above, in the course of writing this thesis, the situation has sharply deteriorated with a May 2024 recording of 1.52º C above the monthly average (Copernicus, 2024b). As a result, it cannot be overstated that radical GHG emission reduction is long overdue.

In 2018, the IPCC repeated the alarm first raised by Hansen thirty years earlier in a Special Report (SR) on the consequences of a 1.5º C temperature rise on pre-industrial levels (Intergovernmental Panel on Climate Change, 2018). In a departure from previous assessments, the 2018 report forcefully stated that anything above a 1.5º C rise would have catastrophic consequences, and that even a 1.5º C rise would have grave impacts. Following the publication of this game-changing SR, many climate specialists expressed alarm. Among them, IPCC expert reviewer Peter Carter titled a podcast discussion 'We are looking at billions of people not being able to survive' (2020), and, with equally powerful words (thirty seconds into the referenced video), Secretary General of the United Nations (UN) Antonio Guterres, in a speech to the Group of Twenty (G-20), classified climate change as ' … an existential threat to humanity' (United Nations, 2018).

A more recent 6th Assessment Report (AR) (Intergovernmental Panel on Climate Change, 2022a, 2022b), superseding the 2018 SR (Intergovernmental Panel on Climate Change, 2018), alerts that the cumulative data to date indicates the climate crisis is catastrophic, and, expanding on these conclusions, Hoegh-Guldberg et al. (2019) assert that immediate action is needed including a forty-five per cent

reduction in emissions by 2030. According to the 2022 AR, humanity is on course to overshoot the safer 1.5º C threshold (barring a breakneck departure from current emission trends) and unlikely to curb temperatures at 2º C (European Academies Science Advisory Council, 2018; Hausfather, 2020). Indeed, according to some expert sources, an above 2º C, or even an above 3º C rise, is possible if inaction continues (European Academies Science Advisory Council, 2018; Intergovernmental Panel on Climate Change, 2022a; Jackson et al., 2017).

Evidently, since fossil fuels are the primary cause of climate change, their consumption must decrease for emissions to fall (mitigation), yet moves to phase out fossil fuels are resisted by many powerful financial actors and policy makers (Extinction Rebellion (XR) UK, 2020; International Institute for Sustainable Development, 2022; Jackson et al., 2018; Kenner & Heede, 2021). Instead, future trajectories rely heavily on technologies that extract carbon from the atmosphere (Negative Emission Technologies – NETs), banking on their future development enabling the restoration of atmospheric balance. But these technologies are at a pilot stage of development with no guarantee of being scaled up in time to avert catastrophic temperature rises (European Academies Science Advisory Council, 2018; Gasser et al., 2015); ‘ … putting a hypothetical technology into a computer model of future scenarios is rather different than researching, developing, constructing and operating such a technology at the planetary scale required to compensate for inadequate mitigation’ (European Academies Science Advisory Council, 2018, p. iv).

In conclusion, the powerful actors responsible for action on climate have failed to curb emissions over a thirty-five-year period and have instead hedged their bets on offsetting technologies (NETs) that do not currently exist and may never

exist on the scale required. In the words of Professor Anderson, most policy makers **‘**prefer speculative technology tomorrow over deeply challenging policies today’ (2023 para. 9). Clearly, uncharted yet effective approaches to emission mitigation are urgently needed for temperature rises to be kept within safer thresholds.

1.2 Features of ‘dangerous’ global temperature rise

Given that the world is now very likely on course to overshoot the ‘safer’ temperature threshold of a 1.5º C rise on pre-industrial levels (Intergovernmental Panel on Climate Change, 2018; Natural Resources Defense Council, 2023; UNCS News, 2021; United Nations Climate Change, 2022), the consequences of higher temperature rises will now be considered. To the uninformed, the half a degree difference between a global temperature rise of 1.5º C and that of a 2º C or above appears minor, yet a 2º C rise or above is categorised ‘dangerous’ because such a temperature rise would lead to catastrophic conditions for humanity and all life within the biosphere, as demonstrated in Figure 1 (Climate Council, 2020). Furthermore, a 2º C or above temperature rise is highly likely to trigger irreversible tipping points and multiple positive feedbacks (Buis, 2019; Masson-Delmotte et al., 2021; Meyer et al., 2022). Consequently, a 2º C rise must be avoided to minimise human suffering, avoid large-scale loss of life, and prevent biospheric breakdown.

Even below the 2º C ‘dangerous’ threshold, the consequences of a 1.5º C rise are grave. Indeed, life-threatening climate impacts are already being experienced, such as soaring numbers of annual heat deaths and natural eco-systems reaching the limits of their adaptation capacity (Buis, 2019; Intergovernmental Panel on Climate Change, 2018; World Weather Attribution Initiative, 2015).

Figure 1

Impacts of 1.5º C and 2º C Warming Compared

Note. (Climate Council, 2020)

For many years, data has demonstrated that climate change exacerbates patterns of extreme weather, such as heatwaves, droughts, and wildfires (Intergovernmental Panel on Climate Change, 2014), but single weather events could not be directly attributed to climate change (Met Office, 2019). In a step shift, the science of extreme weather attribution now links single extreme weather events directly to anthropogenic GHGs in the atmosphere. Of 260 extreme weather events across the world between 2011 and 2018 investigated by multiple teams of experts, sixty-eight per cent were linked to anthropogenic climate change (Pidcock et al., 2019). In conclusion, even before reaching the lower temperature rise threshold of 1.5º C, life within the biosphere has been experiencing severe climatic stress.

1.3 Positive developments

Among these overwhelmingly negative trends, reported widely by climate science reports, academic groups, and climate campaigning groups (Rainforest Action Network, 2019; Stainforth & Brzezinski, 2020; Statista, 2023), there are positive developments: the decarbonisation of sizeable infrastructure aspects (Grubb, 2018; International Energy Authority, 2021; International Renewable Energy Agency, 2023), international governmental policy shifts (Niggol, 2017; United Nations Framework Convention On Climate Change, 2018), and high levels of citizen climate concern (Funk et al., 2020; Ipsos, 2021). In this next section, these first two developments are examined, and the third is explored in 1.4.2.

1.3.1 Decarbonisation and renewable energy

Of the many elements that make up decarbonisation – insulation of housing stock, electrification of industry and transportation, digitalisation and improved efficiency of the energy infrastructure – the development of renewable

energy to underpin these initiatives is reporting notable advances (Hall, 2024; International Energy Authority, 2021; International Renewable Energy Agency, 2023; Kalkine Media, 2021). Following the Russian invasion of Ukraine, investment in renewables accelerated as nations attempted to increase their energy security (International Energy Authority, 2022). Indeed, a thirty per cent increase of growth in the sector is currently forecast for the period 2022-2027 (International Energy Authority, 2022).

In short, decarbonisation of a significant swathe of the energy sector has become a reality: ‘For its potential future global impact, probably nothing can surpass the solar revolution … ’ (Grubb, 2018, p. 1). Renewable energy accounted for twenty-nine per cent of international electricity production in 2020 (International Energy Authority, 2021) and forty-two per cent of the UK’s national electricity supply (six per cent of total UK energy usage), and its share continues to grow (Kalkine Media, 2021), despite continuing investment in fossil fuels (International Renewable Energy Agency, 2023; Kenner & Heede, 2021).

Evidently, increased provision of renewable energy and down phasing of fossil fuel accelerates the path to net zero and is encouraging; yet, discouragingly, most nations are not currently on course to achieve their decarbonisation targets (Climate Action Tracker, 2024; Kalkine Media, 2021). In addition, as is now explored, certain problems inherent in renewable energy growth are not yet solvable: factors that may engender a deceleration on the path to net zero.

Among the limitations to the growth of renewables are the large land/sea mass needed for installation of wind and solar, the difficulty of storage and transmission to user point, and the high initial investment costs (Halkos & Gkampoura, 2020). An additional problem is the finite supply of necessary minerals

such as lithium, nickel, and cobalt (Collins, 2024; Earthworks, 2019). Furthermore, lithium and other key minerals essential to an alternative-energy infrastructure have been mined in ways that are ecologically and ethically unsound: displacing local populations, exploitative of the workforce, and harmful to sensitive eco-systems, including globally vital systems such as the Amazon basin and rainforest (Collins, 2024; Earthworks, 2019). Furthermore, illegal mining of these minerals is also an increasing threat (Collins, 2024).

For temperature to be limited to a 1.5º C rise on pre-industrial levels and 'dangerous' climate change avoided, current rates of growth of renewables, though impressive, are lacking (Cherp et al., 2021). Also, given the inherent problems of renewable growth outlined above, a focus on energy supply, though useful, is likely to be insufficient without a sharp reduction in energy consumption both industrially and domestically, factors that affect the context for participants of this study as explored in 4.1.3.

1.3.2 International climate agreements and policy shifts

Following a series of voluntary policy approaches, in 2015 a binding accord was reached: the Paris Agreement of 2015 (United Nations Framework Convention On Climate Change, 2018). Previous agreements (United Nations Framework Convention On Climate Change, 2018, 2023) lacked effectiveness. The Paris Agreement differed in three ways. First, Global North and Global South nations were involved; second, participating nations were legally bound to reduce their GHG emissions; third, the approach to the problem of climate change switched from a single focus of reducing GHG emissions to an overarching aim of limiting global temperature rise. In short, via this agreement, the voluntary targets-based approach of global climate talks was replaced by a legal commitment to act and limit

temperature rise. A timeline of key commitments is depicted in **Figure 2**, in addition to which Conference of the Parties 28 (COP28) has made a greater commitment to phase out or phase down fossil fuels and transition to renewables, however only with a loose commitment to do so in line with climate science and a 2050 net-zero target (Divisek, 2023).

Figure 2

Timeline of Several Key International Climate Negotiations

Note. Adapted from European Parliament (2023)

Furthermore, following the Paris Agreement, 2,319 jurisdictions in forty countries declared a ‘climate emergency’ (Climate Emergency Declaration, 2023); the Paris Agreement put climate at the heart of the international political agenda. To demonstrate their commitment to act, member nations calculated their carbon budgets – that is, the maximum amount of carbon to be emitted from fossil fuels and other sources to stay within the agreed temperature thresholds; they also set net-

zero targets – that is the date by which any remaining emissions would be reabsorbed, thus balancing the level of carbon in the atmosphere. In the UK, national, regional, and local budgets were set as well as mechanisms for ensuring that carbon reduced year on year in line with net-zero goals, such as the Tyndall carbon budget tool (University of Manchester, 2022).

The suburb of Chorlton selected for this study is located within two climate-ambitious local government zones – that of Manchester City Council (MCC) and that of the Greater Manchester Combined Authority (GMCA). Both MCC and GMCA have set an ambitious net-zero target date of 2038, twelve years ahead of the national target of 2050 (Climate Change Committee, 2019; Marketing Manchester, 2021). Details of what this specific context offers the participants of this study who are attempting climate action is considered in Chapter 5.

Following this governmental lead, larger companies are also monitoring their carbon emissions. The SCOPE framework has been formulated to help companies determine the emissions they are responsible for and are able to act on (Carbon Trust, 2023; Greenhouse Gas Protocol, 2023; National Grid, 2023).

Table 1

Explanation of Scope 1, 2, and 3

Scope 1	Direct emissions of gas and fuel
Scope 2	Indirect emissions from the purchase of electricity, steam, heat, and other energy sources
Scope 3	Indirect emissions, primarily of electricity but also other forms of energy, either downstream (from components or products produced elsewhere by third parties) or upstream (future emissions that will result from the sale of their goods, products, or services) that fall into 15 categories.

In a follow-on to the Paris Conference, ninety-two per cent of Fortune-listed companies responded to a call for action based on the Greenhouse Gas Protocol (Greenhouse Gas Protocol, 2023). However, many companies' net-zero plans and claims of carbon neutrality appear more cosmetic than structural, due to the widespread use of offsetting. Rather than significantly reducing their own emissions, many contract another body to reduce emissions for them – arguably, the equivalent of paying for somebody else to go on a (carbon) diet rather than consuming less oneself (Friends of the Earth, 2020; Ghussain, 2020).

In summary, carbon budgets, net-zero target dates, and Scope GHG emission accounting are positive developments flowing from policy agreements and commitments made as part of the Paris Agreement of 2015. On the one hand, these frameworks and mechanisms aim to transform pledges from mere words to concrete realities, but, on the other, emissions remain high when steep reductions are needed. In conclusion, despite the governmental and corporate shifts triggered by the Paris Agreement, progress is too slow, and the current climate situation is increasingly critical. 'Dangerous' climate change arising from a 2º C or above rise on pre-industrial temperatures is still highly probable, and even the lower threshold of a

1.5º C rise would engender serious consequences for human societies and the biosphere, and furthermore is now an improbable outcome.

1.4 Individual climate action

1.4.1 Need for all to act

In the previous sections, the roles and actions of the most powerful actors – international governmental policy makers and heads of global corporations – were considered and it was concluded that, despite the alarm first raised by Hansen in 1988 and over thirty-five years of intergovernmental negotiations, the leading actors have failed to curb global emissions of GHGs and instead allowed them to rise by sixty per cent (Kenner & Heede, 2021). Due to this inaction, the world is on target to reach temperatures that will cause immense human suffering and death and threaten the viability of the biosphere (Ripple et al., 2023).

Accordingly, to leave the future largely in the hands of these same powerful actors is to repeat the approach of the past, and so it would be logical to expect the same results: continued rising emissions and rising temperatures. Clearly, new approaches are needed. Indeed, the summary for policy makers of the IPCC 6th AR (Intergovernmental Panel on Climate Change, 2022a) recognised this by calling for everyone to come together and pull together – all societal groupings, all individuals; not just these most powerful actors, but all actors – to reduce emissions, limit temperatures, and avoid climate catastrophe.

1.4.2 Public awareness of climate change

A vast array of climate campaigning groups have continually attempted to track and influence the behaviour of the powerful actors; in a historic moment, thousands of non-governmental organisations (NGOs) met at the sister conference of the 1988 Earth Summit

in Rio de Janeiro (Hass et al., 1992) and, more recently, prominent groups such as Extinction Rebellion (XR) and Just Stop Oil (JSO) have adopted non-violent direct action (NVDA) to draw attention to the climate emergency (Extinction Rebellion, 2019). Yet such is the economic and governmental power of the main actors that the influence of these citizen groups has had little impact on the main course of events and though, for example, XR's fame stands at seventy-four per cent, meaning they have successfully drawn attention to the climate issue, the evidence suggests its ability to achieve change may not be as high with thirty-six per cent disliking its tactics (YouGov, 2021).

The popularity of XR aside, global citizen concern has been steadily rising over recent years. Global surveys by Fact Tank Pew Research indicate that an average of seventy per cent consider climate changes are impacting their locality and that their governments are not adequately tackling the issue (Funk et al., 2020). Closer to home, ahead of COP26 in Glasgow in 2021, seventy-five per cent of adults in the UK expressed concern about the impacts of climate change (Ball et al., 2022), and market researcher IPSOS data indicated climate change was the second greatest national area of concern (2021).

Despite this concern, individual carbon footprints in the West remain high, especially those of the richest ten per cent who are responsible for fifty per cent of all emissions (Chancel & Piketty, 2019; Oxfam International, 2015). A focus on tools to support citizens in lowering their carbon footprints and engaging in climate actions, especially this richer ten per cent, has the potential to lead to significant cumulative carbon reductions, climate influencing, and policy campaigning. Indeed, many climate specialists and climate specialist groups now consider that individual climate behaviour change among the higher earners in the leading economies of the world is essential for substantial carbon reductions (Chancel & Piketty, 2019). Environmental

psychologist Whitmarsh (2011) commented that there had been much focus to date on the supply side and technological changes but not enough focus on the demand side and what society (individual citizens) can do and providing a context and dialogue that supports citizen change (Rapid Transition Alliance, 2021).

It is hard for the average citizen to monitor, comprehend, and avoid feeling overwhelmed by international climate developments (Diffy & Batey, 2022; University of Colorado, 2023). In contrast, individual climate action may feel closer to home and more tangible than attempting to influence international climate developments. The concern shown by the adult population of the UK may have great potential if there were effective means to motivate individual action, such as a reduction in personal carbon emissions, carbon influencing of family and friends, or putting pressure on the powerful actors through campaigning (Brock et al., 2023; Whitmarsh et al., 2021). In effect, all the big picture decision making, monitoring, and reporting could be said to have neglected adequate focus on the micro, and this research is an effort to seek to fill part of that gap.

Motivating the high numbers who express concern to engage in climate action, whether that be actual carbon reduction, climate influencing, climate campaigning, or combinations of these, may have the potential to shift humanity's carbon trajectory from one that looks hopeless to one where there is a possibility of radically reducing emissions, triggering political shifts, and thus avoiding 'dangerous' climate change. Scientific studies, expert groups, and specialists that consider the range of approaches to individual climate action are examined in detail in Chapter 2.

1.5 Main aim and objectives of this research study

This pilot study explores individual behaviour change among a group of participants with a very specific approach – the tools of successful addiction recovery applied to climate behaviour change – with the aim:

To critically evaluate the potential of the tools of successful addiction recovery to enable positive climate behaviour change.

Linked to the research aim, the following research questions have been devised:

1. What is the extent to which the participants feel more equipped to bring about positive climate behaviour change in their lives?
2. What difficulties and obstacles do the participants encounter in the process and how do they react to them and/or manage them?
3. Do the participants notice their carbon footprint change over the period of activity? If yes, how do they feel about this? For example, do they feel discouraged, encouraged, ambivalent?
4. Beyond carbon reduction, what general benefits or lack of them do the participants experience when applying the tools of addiction recovery (co-benefits)?

Chapter 2 – Literature review

Introduction

In Chapter 1, the scientific context was presented, with the conclusion that current action on climate has been insufficient to avoid 'dangerous' temperature rise. In summary, despite climate emergencies being declared in jurisdictions covering at least one billion citizens (Climate Emergency Declaration, 2023), global oil corporations and most national governments still support investment in fossil fuels (International Institute for Sustainable Development, 2022; Rainforest Action Network, 2019; United Nations Environment Programme, 2021), emissions are still rising (NASA, 2022), and net-zero targets over-rely on NETs that have no guarantee of being developed and upscaled as projected (Wells, 2022). As a result, it was concluded that radical and urgent emission cuts are needed and innovative approaches for a much wider engagement of concerned citizens (Intergovernmental Panel on Climate Change, 2022a).

This study aims to pilot such an innovative approach that, along with other innovative approaches, might help to foment the citizen engagement so urgently needed at this time. To this end, it proposes: to critically evaluate the extent to which the tools of successful addiction recovery might engender engagement in climate action among a group of participants. If successful, this approach may then become a candidate for further research and be added to the range of techniques being developed for greater public engagement.

This second chapter will consult a broad spectrum of literature on behaviour change, both environmentally specialist and non-specialist. First, it will reflect on the last thirty-two years of public interventions on climate change. Next, it will adopt a multi-disciplinary lens in considering the barriers to and the drivers of

climate action. Finally, it will explore the approach of the anomalous peer-led 12-step fellowships that facilitate the radical behaviour shift of successful addiction recovery – the specific behaviour change focus of this study. The chapter will conclude with a description of the research gap identified by this literature review and the study proposed as a result.

2.1 Thirty years of public interventions on climate change

As covered in Chapter 1, once climate change was clearly on the international agenda following Hansen's 1988 US Senate declaration (Besel, 2013), climate change became headline news. The IPCC began its first assessments in 1990 and 1992 (Agrawala, 1998) and the media of the time – TV, radio, newspapers, and magazines – proliferated layperson-targeted climate information. The *LA Times* predicted 'Global Warming Is Expected to Be the Hot Issue of 1990s … Some scientists studying the greenhouse effect say the sky is falling. Others believe the best advice is to stay cool.' (Landsberg, 1989). While some coverage was glib, much included robust scientific articles and documentaries.

Manchester (home of this study) hosted Global Forum 1994 (Lobban, 1995), a citizen and sustainability follow-on to the NGO sister conference of the Rio de Janeiro Earth Summit (United Nations: Conferences/Environment and sustainable development, 1992). Innovative measures encouraged public involvement, such as a 'Way to go' race of low-carbon vehicles (Whacky-Races style) and young people 'seizing' the council chamber and quizzing local councillors on their environmental policies.[3] In tandem, Manchester City Council launched its version of Agenda 21 (United Nations, 1992), a non-binding action plan that emerged from the Rio Summit.

[3] Organised by this study's researcher.

Agenda 21 aimed to involve all citizens and all sectors in the design and launch of a sustainable plan for the 21st century.[4] The 1990s were also characterised by the need to challenge climate sceptics in the false debate engineered by fossil fuel company disinformation campaigns (Kenner & Heede, 2021; Union of Concerned Scientists, 2022).

In 2005, the Department for Environment, Food and Rural Affairs (DEFRA) (Parliament UK, 2007) via its Climate Change Communications Initiative stepped up its public engagement by awarding substantial grants to community organisations. Local groups and environmental NGOs that received grants attempted to go beyond simple information-based interventions by organising storytelling, theatre, art, and other creative means to reach the public under the slogan 'Tomorrow's Climate, Today's Challenge' (TCTC). Research by Futerra (2004) had demonstrated that the use of such approaches was more effective in fostering climate engagement than information-based approaches and this research underpinned DEFRA's initiative.

However, in 2009, one storytelling approach to climate awareness raising had to be withdrawn. A series of bedtime stories aired by the BBC and crafted by the Department of Energy and Climate Change (DECC) aimed at raising climate awareness among adults, particularly parents, sparked 357 public complaints to the Advertising Standards Agency (ASA). Viewers objected to the dark way in which the information was presented and some also questioned the science. This case demonstrates the difficulties of communicating on an issue that is by nature scary and scientifically complex, even when attempting innovative ways of communicating, such as storytelling (Abrahamse, 2019; BBC News Channel, 2009; Gifford, 2011;

[4] Co-chaired by this study's researcher

Sweney, 2010). Hunter and Röös (2016) suggest that, when scary scenarios are portrayed, it may be less overwhelming and more effective to combine them with motivation and empowerment techniques. The issue of having support for the feelings triggered by scary climate scenarios – an emotive spectrum now commonly termed 'climate anxiety' – is addressed in 4.2.5 Significance of process to participants

Since then, the approach to public awareness raising on climate change, as explored in more detail below, has evolved to become more multi-disciplinary, based on the behaviour models of psychology and the knowledge base of contemporary geography, as well as incorporating the latest climate change science. Unlike in the early days of climate interventions, it is now widely recognised that information alone does not lead to behaviour change; it is an important first step, but not an end-point (Bergquist et al., 2023; Department of Energy, 2020). Now follows an exploration of more recent developments and initiatives on climate behaviour change.

2.2 A multi-disciplinary lens on barriers to climate behaviour change

As noted in 1.4.2, climate concern has risen and reached a peak in current times (Ball et al., 2022; Funk et al., 2020; Ipsos, 2021), yet this is not reflected in individual behaviour change, as demonstrated by high per capita carbon footprints and carbon emissions (The World Bank, 2019; United Nations Environment Programme, 2022; World Wildlife Fund, 2020). On the surface, it is counter-intuitive that governments, other powerful actors, and ordinary citizens have not taken action to avert dangerous temperature rises, from both civil responsibility and human survival perspectives. This phenomenon, referred to by behavioural psychologists as

the intention-action gap, is explored regarding climate change in the first section of this chapter (Faries, 2016; Kilian & Mann, 2021; PEAs Psychology, 2022).

2.2.1 Behaviour-shaping factors

Many disciplines seek to understand this intention-action gap (PEAs Psychology, 2022) including environmental psychologists, behavioural geographers, geographers of climate change, and teams that traverse academic fields. Environmental psychologists suggest there are multi-layered reasons for climate inaction (Abrahamse, 2019; Department of Energy, 2020). To begin, daily life exposes us to a range of behaviour-shaping factors including worldviews, culture, religion, politics, social class, education, community, and family. Add to this value conflicts, such as our desire to be altruistic versus our self-interest (Bouman et al., 2021), and what is clear is that engaging with climate change is complicated, as is explored in detail in this section.

2.2.2 Habit and automaticity

Abrahamse (2019) identifies habit and automaticity as strong determiners of behaviour, citing a study where attachment to habit was such that cinema goers consumed stale bags of popcorn without complaint if they were regular consumers, whereas those with no popcorn-eating habit rejected them. She admits her own behaviour change difficulties (despite being a specialist) when she struggled to switch from being a late to early morning riser when circumstances required (Abrahamse, 2019). So too, social psychologist Klöckner (2013) underlines that many environmental routines are deeply embedded and often unconscious, and he proposes a strengthening of social support to dehabitualise such behaviours (2013).

It seems that, for behaviour change to succeed, unconscious routine behaviours must be uprooted, and the means identified of how to achieve this.

2.2.3 Psychological ‘dragons’ of inaction

Environmental psychologist Gifford (2011, p. 290) expresses the paradox of the intention-action gap in his own words: ‘If so many people are concerned about climate change, the environment, and sustainability, why are more of us not doing what is necessary to ameliorate the problems?’. In answering his own question, he first points out that all citizens attempting behaviour change are affected by shortcomings in the infrastructure on which we all depend, labelled ‘context barriers’ by Bouman (2021): carbon-intensive aviation being cheaper than low carbon rail, an organic ‘veg box' costing more than plastic-packaged supermarket produce, to name just two examples. Then, in addition to context barriers, Gifford refers to our internal barriers, psychological impediments that he groups into seven broad categories called the ‘dragons’ of inaction (Gifford, 2011):

- Limited cognition: our ancient brain struggles to accept that a global problem can affect our daily life, or that ‘little us’ can remedy it if it is so vast. These issues of self-efficacy, along with uncertainty and our desire to be optimistic about our lives, cloud our cognitive processing of the problem.

- Ideological interference: acceptance of the fact that human endeavour is causing this global problem may run counter to ideologies that an individual strongly identifies with and which shape their life choices, such as in political or religious groupings.

- Comparisons with others: why embark on behaviour change if others aren't? Why lose out? Is it even the correct thing to do if others in the community aren't doing it?

- Sunk costs: our efforts, our money, our time may all have been invested in a certain life pathway and so we resent or are unwilling to change course.

- Discredence: There is so much deception and unfairness in society, why should we trust the so-called global warming 'facts' and let the scientists tell us what to do?

- Perceived risks: embarking on radical behaviour change may cost us in terms of our physical health, wealth, happiness, and friendships.

- Limited behaviour: is it worth doing something if it really isn't going to change anything? Is it just 'tokenistic' action or virtue signalling?

Gifford (2011) suggests that, by identifying and understanding these barriers, climate interventions can be better crafted to support well-intentioned individuals, and his 'dragons' have since been further developed and their significance further evidenced (Lacroix et al., 2019). He strongly urges governments and other intervention bodies to consider these 'dragons' and to adopt a multi-disciplinary approach to climate behaviour change, collaborating with psychologists, geographers, and social scientists. Within this study, these 'dragons' are further explored with a lens on the tools of addiction recovery, tools that have facilitated alcoholics/addicts overcoming many comparable 'dragons' and embarking on recovery from active addiction (2.4.2, Chapter 4 and Chapter 5).

2.2.4 Influence of values on behaviour change

Environmental psychologists Bouman (2021) and Hatty in a department seminar (Department of Energy, 2020) explore the intention-action gap from a values perspective, using the value groupings biospheric, altruistic, hedonistic, and egoistic. Since most of us identify more with the biospheric and altruistic groupings, there is arguably a strong personal value base for environmental action (Bouman et al., 2021). However, value conflicts may cloud this: for example, an intention to cycle to work (biospheric) being abandoned due to bad weather and the car taken instead (egoistic). Values are not easy to change (Bouman et al., 2021) and entrenched values may be intertwined with hard-to-uproot unconscious habits, such as – an example cited by Bouman, who is Dutch – the valuing of Dutch cheese as a national product superseding the valuing of the biosphere through eating less dairy.

2.2.5 Conclusion

Whether viewed from the perspective of behaviour-shaping influences, habit and automaticity, psychological ‘dragons of inaction’, or value conflicts, it is clear that individual climate behaviour change is complex and difficult. Were climate change viewed as a clear and immediate threat, our fight or flight instincts might trigger an automatic response (Department of Energy, 2020; Shwartz, 2007), but the perceived non-immediate nature of climate change, combined with the Gordian complexities of human behaviour change, contribute to climate inaction, and therefore multiple levers are needed to address that complexity (Department of Energy, 2020). There is clearly a need for the most effective tools, techniques, and behaviour changing theories to be identified and developed to support climate behaviour change.

2.3 Drivers of positive behaviour change

Now follows an exploration of the theories that have emerged of how to best support pro-environmental behaviour, drawing on psychology's models and theories of behaviour change, and with a particular lens on the growing incorporation of mindfulness practice. Then, standing outside the academic disciplines, the phenomena of the 12-step addiction recovery fellowships is explored, together with the peer-led behaviour change they facilitate.

2.3.1 Targeted and tailored information

As outlined above, information-heavy interventions dominated the early years of climate change awareness raising. In contrast, subsequent climate behaviour change literature acknowledges the weakness of mere information-based approaches (Abrahamse & Matthies, 2018; Axon et al., 2018; Kilian & Mann, 2021). Axon et al. conclude: 'An over-reliance on communication strategies and education and awareness-raising for behaviour change projects illustrates that such projects will likely struggle to achieve sustained or meaningful behaviour changes.' (2018 para 60) and describe them as showcase and transitory in their effect. Bushell et al. (Bushell et al., 2017) propose the need for a coherent strategic narrative to address the intention-action gap. The observations and studies of pro-environmental psychologists demonstrate that behaviour change is difficult and based not just on what one knows, but rather what one feels, believes, desires, needs, and values, all intertwined with the automaticity of routine and habits.

This more recent period (2010s to present) has included targeted and tailored information interventions that aim to provide more personalised climate information rather than generalised climate information aimed at a broad spectrum of the public. The greater functionality of the internet has facilitated a rise in the use of

carbon calculators, thus providing access to tailored personal information. Early European evaluative studies of the use of carbon calculators noted positive effects in terms of climate awareness and slightly reduced CO_2 emissions (Aichholzer et al., 2012; Cimander, 2016). Similar results were found in a longitudinal mixed methods field experiment by the University of Southampton (Buchs et al., 2018). Here, a carbon calculator tool developed and pre-tested by Carbon Conversations (a voluntary climate change engagement initiative)[5] was used along with personalised interviews. Information from an initial interview that gauged the size and shape of each participant's carbon footprint for home energy and travel was relayed through a second individual interview and compared to UK averages. Flowing from this, bespoke carbon reducing actions were suggested. The study ensured rigour by avoiding recruitment of climate motivated participants through a random sample using the Office of National Statistics (ONS) as well as measuring actual energy use rather than relying on self-reported figures. Although climate awareness and climate concern rose significantly among the intervention group compared to the control group, any measurable behaviour change was negligible.

In conclusion, targeted and tailored information is demonstrated to have a greater effect than information alone, but with marginal differences: awareness of the issues and greater climate concern increased, yet with only minor reductions in carbon footprints (Aichholzer et al., 2012; Buchs et al., 2018; Cimander, 2016; Salo, 2021). Nevertheless, it is of note that personalised information was demonstrated to be of greater value than generalised information, thus underlining the benefit of

[5] http://www.carbonconversations.co.uk

targeted information over generic, but highlighting that something extra is needed for concrete carbon-reducing actions to easily flow.

2.3.2 Information plus co-benefits, with a particular focus on mindfulness

At both policy and individual levels, action on climate can bring many co-benefits. At the policy level, structural interventions that reduce emissions, such as insulation of housing stock and investment in active travel, have multiple benefits for individuals, such as lower energy bills, warmer homes, cleaner air, and better health (Jennings, 2020; Jennings et al., 2019). Interventions are increasingly designed to offer co-benefits rather than, as was the case in the early days of climate interventions, demand sacrifice (Bain et al., 2016; Maibach et al., 2010); 'Tackling climate change is not about making sacrifices to our way of life – but actually improving it in ways that really matter to people' (Centre for Climate Change and Social Transformations, 2023, p. 1). Co-benefits, including the usefulness of mindfulness as a beneficial life tool, are now considered, and are also revisited in the discussion 4.2.4.

As outlined above, climate behaviour change is a particular problematic area of the broader behaviour change field. The intention-action gap is difficult to traverse due to the intersection of deeply held values, future concerns, and immediate considerations of cost/benefit. One area where the gap is widest is among frequent flyers who might be ardent recyclers or vocal climate activists, yet allow cognitive dissonance to cloud choice regarding the most carbon intensive of behaviour that is flying (Cohen & Kantenbacher, 2020). Yet even flying, one of the actions most concerned citizens struggle with, can also be presented as a health opportunity where being cramped into a pressurised steel container for several hours

is avoided, local noise and pollution levels decreased, and the adventure of over-ground travel enjoyed (Cohen & Kantenbacher, 2020). Climate action co-benefits are increasingly presented as a health opportunity and a life-enhancing choice rather than a sacrifice (Patz, 2016).

Of interest is Mindful Climate Action (MCA) – a study with an emphasis on co-benefits that promoted sustainable behaviour through the co-delivery of climate change and mindfulness training (Grabow et al., 2018). This mixed method pilot study involving sixteen participants aimed to home the course content and test the feasibility of its dietary and energy carbon measurement tools to later roll out the course on a large scale. It stands out for being well-received by its participants, as demonstrated by a high adherence rate, a high level of participant satisfaction, and a high response rate for completion of course-related tasks. Indeed, it seemed the study enhanced the personal health and happiness of the participants. The success of the pilot study has led to ongoing provision of the Mindful Climate Action course in Wisconsin (Barrett et al., 2016; Grabow et al., 2018; University of Wisconsin-Madison, 2022).

As referred to above, co-benefits can more easily be presented via interventions at local governmental level since the local context is where housing provision, travel options, leisure needs, and grounds maintenance are more closely managed (Jennings, 2020) and the context for this study regarding co-benefits facilitated by the two governing authorities MCC and GMCA is further considered in Chapter 5.

2.3.3 Behaviour change leaning on optimum moments for change

Recently, the world has experienced enormous change due to the Covid-19 pandemic, a global event that triggered universal behaviour change. At a recent London School of Economics (LSE) event entitled 'Leveraging Moments of Change', Professor Lorraine Whitmarsh surveyed the audience on what pro-environmental behaviour changes, albeit unwittingly, they experienced as a result of Covid-19 such as staycations, home-working, and active travel, and asked which of these changes they had integrated into their lives since the end of restrictions (LSE, 2022).

Like Abrahamse (2.2.2), Whitmarsh posits that embedded habits are difficult to shift, even among those who register climate change as of high concern. However, when a crisis disrupts daily life, change happens, as demonstrated by the mass behaviour change during the Covid-19 pandemic or triggered by the bush fires in Australia in 2019 (Department of Energy, 2020). Whitmarsh and Hatty in an Australian Department of Energy Seminar (2020) both suggest that behaviour change intervention designers leverage and profit from these 'moments of change': for example, encouraging new homeowners to switch to green tariffs, or those touched by biodiversity loss to sign up to conservation programmes, thus implementing a major change at a time when big change is happening anyway, and individuals are more open and willing to incorporate change.

2.3.4 Pro-behaviour change theories and models in psychology

Some of the approaches to pro-environmental behaviour change mentioned above draw upon the behaviour change theories and models developed within psychology and the social sciences. As outlined above in the timeline in 2.1, following the failure of climate behaviour change interventions based on purely information approaches, a more cross-disciplinary method was adopted.

Indeed, following a similar evolution, in the last century the field of psychology has developed exponentially from simple mechanical approaches to behaviour to a flourishing panorama of theories and models that is estimated to exceed 100 in number. The scope of this study does not allow for a comprehensive exploration of this extensive range of psychological theories (Davis et al., 2015), but two predominant ones are now considered – the Theory of Planned Behaviour (TPB) and the COM-B model (explained below).

The psychological tool TPB asserts that intention precedes action, and that intention rests on a weighing up of three beliefs: 1) how worthwhile the behaviour is, 2) how socially accepted the behaviour is, 3) one's own ability to carry out that behaviour. Or, as paraphrased by Whitmarsh, 'in other words, what we think and feel, social pressure, and capacity to act drive action' (Whitmarsh et al., 2021, p. 1). But the value dimensions, especially the unprecedented one of concern for future generations associated with climate breakdown, interplay with the theory in ways that disrupt its straightforward applications (Cohen & Kantenbacher, 2020). Indeed, Whitmarsh (Whitmarsh et al., 2021) also addresses limitations of the application of TPB (as well as many other behaviour change theories and models) due to their individualistic nature, perhaps unapplicable to climate behaviour change, which involves interplays with structural elements of society and the economy, as well as spilling over into family, community, work, and other societal relationships.

Another psychology tool adapted by environmental psychologists for use in behaviour change interventions is the COM-B model. COM-B is a condensed version of many of the other models, having arisen from a systematic review and synthesis of a considerable number to provide a comprehensive working framework. It considers three prerequisites, namely, capacity (C) (physical, emotional, cognitive,

economic), opportunity (O) (context, life limitations), and motivation (M) (the motor of behaviour change) that affect whether Behaviour Change (-B) may occur. A clothing repair and repurpose scheme employed the COM-B model to extend the life of clothes (PEAs Psychology, 2022). Three hundred participants answered survey questions, the results of which were triangulated with those of a free text item that had been analysed by thematic coding. The authors of the study identified that lack of knowledge, time constraints, and lack of affordable resources affected capacity (C) and opportunity (O), whereas beliefs about whether repair and re-purpose were possible either negatively or positively affected motivation (M), while a love for their clothes positively affected motivation (M). This analysis drawing on the COM-B model led to more effective interventions, such as repair kits being distributed to enhance opportunity (O) and training being given to increase capacity (C).

To sum up, though these psychological models may be drawn on to design more effective climate behaviour change interventions, their application alone is not sufficient to address the complexities and the level of impact needed at the present time regarding climate change. Their application was intended to be individualistic and their effects incremental, whereas the current climate emergency requires individuals acting in linked-up ways that not only reduce carbon but influence one another and put pressure on decision makers in ways that are transformational rather than incremental (Whitmarsh et al., 2021).

2.3.5 Specific focus on mindfulness

In stark contrast to the complex approaches of the ever-expanding theories and models of behaviour change such as TPB and COM-B, mindfulness meditation dials behaviour down to observation of a simple moment, or as near to that as the human mind can achieve. In previous decades, mindfulness fell into the realm of the

mystical and was considered non-scientific, but now it is widely practised by all layers of society, from business people to school children, from staunch believers to committed atheists, and evidence is growing of its usefulness (Creswell, 2017; Goleman & Davidson, 2017; Khoury et al., 2013; Wamsler & Brink, 2018). Mindfulness blossomed as a behaviour change therapy in the 1990s and has become incorporated into mainstream psychological therapies as well as being taught in schools and colleges to assist student concentration and self-regulation (Harrington & Dunne, 2015; Morone et al., 2017).

The climate emergency is a trigger of stress, as is any emergency, and mindfulness perhaps enables us to think more rationally within the hurry and helps regulate the amygdala and the flight/fight response (Goleman & Davidson, 2017). Bayo Akomolafe quotes a proverb from his home continent Africa: 'The times are urgent: let us slow down' (Akomolafe & Benavides, 2019).[6] Those who practise mindfulness attest that positive behavioural choices are easier within that slowed-down moment where the many chattering voices that inhibit positive behaviour change fall away (Schuman-Olivier et al., 2020).

The increasing popularity of mindfulness is evident, and strong clinical evidence is also emerging to substantiate its benefits. In a mixed-methods randomised controlled trial (RCT) of mindfulness-based stress reduction (MBSR) among systemic lupus erythematosus (SLE) sufferers, evidence emerged of psychological benefits but also some symptom relief (Taub et al., 2021). Others attribute psychological and neurobiological benefits to the practice (Creswell, 2017; Khoury et al., 2013) including reduction in cravings among addicts (Enkema &

[6] Ethno-psychotherapeutic researcher and consultant with United Nations Educational, Scientific and Cultural Organisation (UNESCO)

Bowen, 2017; Turner et al., 2014). Some researchers are now directly exploring links between mindfulness and the ability to acknowledge climate change and take action, as opposed to denialism or fatalism, and finding positive results (University of Wisconsin-Madison, 2022; Wamsler & Brink, 2018). Evidence suggests mindfulness can engender – without drugs or high costs – qualities such as focus, selflessness, and compassion, all of which are useful drivers of climate action. It seems that this is because gamma waves, which play a part in cognitive functioning, learning, memory, and information processing, as well as demonstrating increased compassion, are more frequently found in the brains of mindfulness meditators (Goleman & Davidson, 2017).

Highlighted above as obstacles to climate behaviour change, among other factors, were value conflicts, habit, and automaticity (Abrahamse & Matthies, 2012; Bouman et al., 2021). The increased awareness attributed to mindfulness, as manifested in these neuro-features and self-reported outcomes, is potentially an enabler of climate action (Barrett et al., 2016; Wamsler & Brink, 2018) since it may allow the individual to cognitively function better, to have greater compassion, and transcend the ‘dragons of inaction’ (Gifford, 2011).

2.4 Anomaly of 12-step fellowships and behaviour change

This chapter has demonstrated the need to narrow the intention-action gap regarding climate behaviour change. As is now explored, there is good evidence that the 12-step programmes, and the mindfulness principles on which they are based, may offer useful tools to narrow that gap.

The history of the behaviour anomaly that is the 12-step fellowships, the behaviour change they foster, and the successful addiction recovery that ensues for many members (Kelly et al., 2020) is presented below. It is of note that, unlike the

intervention-style behaviour change initiatives and studies described above, 12-step recovery takes place within purely peer-led groupings with no intervention from or affiliation to outside agencies (Donovan et al., 2013). Indeed, 12-step recovery is a unique form of behaviour change that emerged in a unique way in unique circumstances and exists outside of statutory services, though it may work alongside them.

2.4.1 Brief history of 12-step fellowships

In the United States in 1935, just as prohibition was coming to an end, Bill Wilson and Bob Smith developed a programme to help themselves and others suffering compulsive and obsessive alcohol use: the 12-steps of Alcoholics Anonymous (AA) (Alcoholics Anonymous World Services, 2022b). Both 'Bill' and 'Bob'[7] became sober, and managed to maintain that sobriety, by drawing on psychology specialists, teetotal groups, spiritual strands, and, as the evidence was later to show, each other. Their mutual support sessions became the very first AA meetings, which subsequently developed to become a support and source of sobriety for millions across the globe. In this way, the unique 12-step model of recovery was born, delivered by those who suffered from alcoholism and in entirely peer-run support groups (Alcoholics Anonymous World Services, 1986, 2022b; Donovan et al., 2013).

After it was created, the programme of AA spread rapidly; those in service to the fellowship estimate there are currently more than two million members[8] with groups in 180 countries (Alcoholics Anonymous World Services, 2022b). Add to this

[7] Note, only first names are used in 12-step programmes to maintain anonymity (Alcoholics Anonymous World Services, 2022b)
[8] Since there is no official sign-up mechanism, actual numbers are unknown, and estimates vary significantly.

the numerous ‘sister’ recovery programmes that have adopted the 12-step model to treat substance and behaviour addictions (such as Narcotics Anonymous, Overeaters Anonymous, Sex and Love Addicts Anonymous, Gamblers Anonymous, Debtors Anonymous, Internet and Technology Addicts Anonymous) and the estimated number of beneficiaries of 12-step programmes rises considerably (All Party Parliamentary Group for the 12-steps recovery programme, 2022). Common to all these 12-step fellowships is the adoption of the 12-step programme consisting of twelve steps of recovery and twelve group traditions; the steps guide the recovering alcoholic/addict in their recovery, while the traditions focus on the primary purpose of reaching out to those still suffering active alcoholism/addiction as well as protecting the group as a whole (Alcoholics Anonymous World Services, 2022b; Dekkers et al., 2020).

Despite 12-step fellowships’ growth in numbers and an abundance of inspiring personal testimonies, for many decades the 12-step fellowships lacked rigorous scientific scrutiny due to their principle of anonymity. However, evidence is now accumulating to demonstrate they work as well as, or better than, professionally administered treatment modalities (Donovan et al., 2013; Galanter, 2007). In 2020, researchers from Stanford University, Harvard University, and the European Monitoring Centre for Drugs and Drug Addiction collaborated in a landmark study. Using the gold standard Cochrane Collaboration, they carried out a systematic review of all the accumulated scientific literature in any language on the effectiveness of Alcoholics Anonymous (Kelly et al., 2020). The final meta-analysis included thirty-six reports on the clinical outcomes of AA drawn from twenty-five different studies that included more than 10,000 research participants and involved almost 150 scientists at sixty-seven institutions across the globe. As a result, a

sturdy body of evidence now supports the validity of the peer-led 12-step programmes, since the review demonstrated that those who attend AA are, depending on the study or the sample, about twenty to sixty per cent more likely to achieve abstinence from their addiction than those who do not. In addition, those who attend 12-step meetings experience many co-benefits, such as improved health and well-being, social connection, feelings of inspiration and hope, and enjoyment at helping others within an inter-dependent community (Alcoholics Anonymous World Services, 2022b; Kelly, 2022; Kelly et al., 2020; Tracy & Wallace, 2016).

Nevertheless, there are critics of the 12-step programmes (Dodes & Dodes, 2014). Prior to the landmark study (Kelly et al., 2020), criticisms mainly hinged on the anecdotal nature of testimonies to the success of the 12-step programmes. The spiritual approach of the 12-steps also deters some professionals from working with 12-step groups, an approach that according to Dossett (2013) stems from a misinterpretation of this aspect, which embraces all faiths as well as agnostics and atheists. Criticism also exists of the embracing of the 12-step programmes by health networks to the exclusion of other recovery modalities. Indeed, the low-cost nature of health bodies linking with 12-step programmes may have led to a neglect of other modalities, an undesirable outcome since diversity of recovery options opens the possibility of recovery to a wider community (Mendola & Gibson, 2016). Nevertheless, few can doubt that AA and the 12-steps radically changed the landscape of recovery from alcoholism/addiction and improved prospects of sustained recovery.

2.4.2 Behaviour and recovery in 12-step fellowships explored

As far as this researcher is aware, there are no climate behaviour change groups or interventions that utilise the 12-steps. Hence, this is potentially a first

exploration of what the 12-step fellowships might be able to offer the field of climate behaviour change. As reported above, research into 12-step programmes has advanced and there is now a substantial body of evidence that they can support personal behaviour change. Nevertheless, research on exactly how this is achieved is still in its infancy, but this section will consider what is known, as well as examining how the 12-steps compare to the other pro-environmental behaviour change approaches explored earlier in this chapter.

2.4.2.1 Habit and automaticity

As outlined above, habit and automaticity have proved difficult to uproot in the climate behaviour change field, according to pro-environmental behaviour experts (Abrahamse, 2019; Department of Energy, 2020; Klöckner, 2013), yet the 12-steps have been demonstrated to support radical and positive behaviour change in those with entrenched destructive habits, such as the unmanageability and dysfunctionality of daily addictive behaviour. As Kelly et al. report (2020), 12-step groups are ubiquitous, available each day, every day, and throughout the day. Members exchange contact details so that, even when a group is not available, an individual or individuals will be contactable to whom the recovering addict can reach out. This extensive social network provides a context within which more positive habits become the norm and unwanted habits are uprooted. ‘The protective wall of human community’ report (2022), also by Kelly et al., expands on these conclusions. Such support groups with a climate focus might aid the uprooting of entrenched climate-unfriendly behaviours.

2.4.2.2 Targeted and tailored information

As established above, information on the science of climate change alone is not enough to engender behaviour change (Abrahamse & Matthies, 2012; Axon et

al., 2018; Kilian & Mann, 2021). So too with drug intervention programmes; like climate change interventions, they were once heavily information-based, but this approach was equally found to have limitations. For example, according to testimonials of those seeking recovery, knowing drugs harm the human body does not help an addict find abstinence (Alcoholics Anonymous World Services, 1986). In contrast, targeted and tailored information was more effective, albeit marginally, in the carbon calculator studies (Aichholzer et al., 2012; Buchs et al., 2018; Cimander, 2016; Salo, 2021). Within 12-step groups, members share their experience, strength, and hope; since all share common difficulties in overcoming obsessive and compulsive behaviours, this sharing is tailored information to the listener who identifies with their fellow alcoholic/addict in a way that they would not with their doctor, social worker, or even friends (Alcoholics Anonymous World Services, 1986); role models who have already worked the 12-step programme demonstrate to the newcomer that change is possible.

2.4.2.3 Co-benefits

Co-benefits are found in the 12-step fellowships, as members find sober/abstinent friends that they feel love and care for, establish supportive social circles, exchange information on living happily clean and sober, experience better mental and physical well-being, even securing employment, a home, and the repairing of family breakdown (Alcoholics Anonymous World Services, 1986; Dekkers et al., 2020; Morales, 2020; Tracy & Wallace, 2016). The COM-B model (West & Michie, 2020) posited that motivation is the motor of behaviour change, and extensive research suggests that co-benefits motivate behaviour change and ensure lasting rather than temporary change (Bain et al., 2016; Jennings, 2020; Jennings et

al., 2019); thus the co-benefits those in addiction recovery experience might be helpful if transferable to climate behaviour change.

2.4.2.4 Values

Value conflicts, just as outlined above in relation to climate, present in the life of the using alcoholic/addict. However, once in recovery, behaviour and values more closely align. New values evolve that are linked to each recovery step, such as honesty, responsibility to others, and compassion (Morales, 2020). Since the life blood of the fellowships is one addict helping another, altruistic values permeate the groups where it is stressed that, even if 'I can't', 'we can' (Alcoholics Anonymous World Services, 1986, 2022b; Dekkers et al., 2020).

The 12-step programmes are non-hierarchical collective bodies where decision making is consensual (Robbins, 1992) and where members purport to feel a sense of 'we' where previously they felt themselves to be a solitary 'I' (Dekkers et al., 2020), and often a very selfish 'I' as they sought to find the means to continue using their substance/behaviour/process of choice. It may be that members of the 12-step fellowships who feel individualistic prior to entering recovery, become less so due to experiencing the connectedness of the 12-step fellowships (Dekkers et al., 2020).

2.4.2.5 Mindfulness

The 12-step programmes have as their foundation the principles of mindfulness, of coming into the moment. The first suggestion that a newcomer will hear at their first meeting is that they attempt to 'put down' their drug of choice 'just for today', to take it a minute at a time if needed, and to draw on the help of others without hesitation through a phone call, message, or attendance at a meeting (Dekkers et al., 2020; Narcotics Anonymous, 2008).

Rather than complicated life plans that they might draw up with a well-meaning drug counsellor, the fellowships meet them where and as they are, with uncomplicated suggestions such as ‘keep it simple’ and stay clean ‘just for today’ (Greene, 2021; Narcotics Anonymous, 2008). Studies continue to look for the reasons that the 12-step fellowships work; those with abstinence attest that they achieved it by staying clean through the one day at a time approach (even one minute at a time in early recovery when cravings are strong), and by staying and feeling connected to others (Dekkers et al., 2020; Greene, 2021; Morales, 2020; Narcotics Anonymous, 2008).

Mindfulness and meditation, as explored previously, have become integrated into everyday life and evidence of their benefits is growing. Neuroscientist Harris (2011) suggests that we tend to step over the present moment in our attempts to race ahead to the future, a place we imagine will be better and where our problems will be solved. He suggests, conversely, that we mindfully cultivate our relationship with ourselves in the present moment. The same principles percolate the 12-step programmes, both in a targeted way in the eleventh step that is specifically on meditation and throughout daily practice of the steps where one mindfully considers the effects of one’s actions on oneself, others, and the shared environment (Dekkers et al., 2020; Narcotics Anonymous, 2008).

The international climate agreements, frameworks, and road maps emerging from them (as explored in Chapter 1) are doubtless needed to guide our re-balancing of the climate. Yet there may be a danger that with these policy agreements, with their far reach into the future, we are stepping over the present moment, the only place where climate action can take place, the only place where we physically have the power to divest from fossil fuels, reduce and/or adapt our

energy use, reduce and/or adapt our travel, or any other individual or collective carbon reducing action we choose. If our focus is to define and refine the future roadmaps, the future guidelines, the future road signs, but still step over the present moment where we are emitting at record levels and experiencing record breaking heat (Copernicus, 2024b) then, just as for the addict who continues to use their 'drug' of choice, probably nothing will change.

As demonstrated above, there is sufficient evidence of positive behaviour change associated with the 12-step approach and its mindfulness foundations for a study of their application to climate behaviour change to be of interest. Some pro-environmental behaviour specialists posit that our inability to seize the opportunity that the present moment offers is due to psychologically powerful consumer marketing meaning that non-conscious emotional and neuro triggers blur our ability to make clear and conscious present-moment decisions (Whitmarsh et al., 2011). Mindfulness, it is suggested, can 'offer a pause between thought and action' (Whitmarsh et al., 2011, p. 95) and form part of a multi-levered approach to climate action (Department of Energy, 2020), so the inclusion of the 12-step approach in the field can be considered apt.

2.5 Conclusion/Research gap

Although there is no precedent, as far as this researcher is aware, this literature review has appraised whether the tools of successful addiction recovery might have something to offer the sphere of climate behaviour change and designed this study. Any positive findings will be compared and contrasted with the climate behaviour change theories and approaches explored in Chapter 2, and Chapter 6 will consider how they might be adapted and applied to the wider research and policy field of climate behaviour change.

Although the limited scope of this study does not allow for a systematic literature review across all the disciplines that study behaviour change, it has worked within its limitations to explore existing and current work relating to the core research theme, that of how to engage individuals in climate change issues and support positive climate behaviour change. The latest IPCC reports suggest that the dichotomous debate on whether the priority is structural change or individual change is over and stress the need for all actors, in all settings, to be involved in positive climate action (Intergovernmental Panel on Climate Change, 2022a). The research consulted demonstrates that climate behaviour change is difficult and complex, and that new tools, techniques, and approaches are needed. Since the 12-step recovery programmes have demonstrated that they can bring about radical positive behaviour shifts of entrenched habitual and automatic behaviours that both engender co-benefits and are enduring in nature, this study will explore the extent to which the application of successful addiction recovery tools can support climate behaviour change.

The limitations of this study do not permit the application of all the twelve steps and twelve traditions used by the 12-step fellowships; instead, a selection of addiction recovery tools have been adapted to be available to the participants of this study, including:

- Group support via focus group sessions within a non-judgmental and supportive atmosphere where participants can share honestly and anonymously views on the difficulties and hurdles that they face when attempting climate behaviour change.

- The sharing of experience of successful climate behaviour change where those with more experience may inspire those with less (sharing of experience, strength, and hope).[9]

- A synthesis of the tools of successful addiction recovery drawn from the 12-step ambit that includes:

  - motivational slogans lifted from 12-step literature.

  - tools for positive reflection and gratitude (the essence of step 10 of the 12-step programme)

  - meditation and mindfulness techniques (such as are specifically focused on in step 11 of the 12-step programme and that underpin all twelve steps).

  - suggestions for 'low carbon fun' (a co-benefit of climate action)

The tools of addiction recovery are increasingly used in addiction recovery because they have been shown, to some considerable extent, to have engendered positive behaviour change (Dekkers et al., 2020; Gallagher et al., 2018; Turner et al., 2014). There exists a research gap since these tools have not (as far as this researcher is aware) been trialled in the field of climate behaviour change and this study is interested in the extent to which they are transferable and can support individuals in climate engagement and action.

[9] The preambles read out at 12-step meetings suggest that members share 'Experience, strength, and hope' (Narcotics Anonymous, 2008).

Chapter 3 – Methodology

Introduction

This chapter presents the design of the research study: the philosophical stance that underpinned it, the interpretative framework and methodologies, the methods of data collection, the criteria for the sampling, and the specific local setting – all resulting in the overall final structure. In addition, the wider policy context of Greater Manchester is further outlined.

Then will follow a description of how data collection and the analysis of the resultant data were organised, including the positionality of the researcher to the data and a brief appraisal of her potential biases and influence. A choice was made to apply the term 'the researcher' (R) throughout this thesis when referring to its author: in brief, to delineate the researcher from the data (note, these points are more fully explained in the personal vignette of the researcher).

Finally, the data collection process that ensued is reflected upon, including an evaluation of its successes, shortcomings, and limitations.

3.1 Philosophical stance of researcher: ontology, epistemology, axiology, methodology

It was concluded that various research approaches are valid because they serve distinct purposes. To illustrate this, taking the two main strands of realism and relativism: on the one hand, the body of knowledge on the structure of our bodies, the physical earth, and the wider universe would not have been possible without a realist approach to research and objective (etic) investigation of these physical phenomena viewed as an external reality and as free as possible from the influence of human constructed belief systems (ICE at Dartmouth, 2017); on the other hand, relativism is equally valid and necessary to explore

and understand the rich texture of human behaviour, our complex and interconnected social experiences, and the many realities we create (emic) (ICE at Dartmouth, 2017; Lynette Pretorius: Academic Language and Literacy, 2018; NurseKillam, 2015; Research with Dr Kriukow, 2020; Silverman, 2014).

In terms of this study, climate change is assumed as an objective reality (realist) with the immense accumulation of empirical evidence, the global scientific consensus on its human cause, and the unfolding climate reality confirming the validity of climate models and projections (Intergovernmental Panel on Climate Change, 2022a, 2022b; Masson-Delmotte et al., 2021; NASA, 2022). Indeed, as outlined in previous chapters, the establishment of this reality, the tracking of its growing gravity, and the strong possibility of a ‘dangerous' 2º C or above temperature rise are the motivation for this project (Hausfather, 2020).

At the same time, it is considered that understanding of the human behaviour that is contributing to these excessive levels of GHGs in our atmosphere can only be viewed through a social constructivist (relativist) lens, given that each individual, each community, and each culture has their own unique reasons for their behaviour and choices within a constructed behavioural reality that is also constantly changing and developing (Sutton & Austin, 2015). Equally, the interventions that may modify and transform that human behaviour can best be comprehended through the acquisition of a deep understanding of the diverse human realities that determine climate action, and lack of climate action (Given, 2008; NurseKillam, 2015).

As well as comprehending realism and relativism, this study, which finds its home in the field of geography, also traverses the fields of psychology and health in a multi-disciplinary approach to the question of how to support climate action.

Evidently, these are broad fields and, therefore, a lens is applied within each field that homes in on elements most relevant to this study, and especially on the normally unrelated themes of climate change, drug recovery, and how to support individual climate action.

3.2 Interpretative framework and methodologies, including researcher positionality

The core ontological assumptions – described in 3.1 – guided the research design. What is known is that climate change is an urgent problem, as outlined in Chapter 1, with the world community of climate scientists sharing extensive and rigorous scientific data on the real-world physical situation and collaborating to share that knowledge via the IPCC reporting cycles (Intergovernmental Panel on Climate Change, 2014, 2022a, 2022b; Newman, 2016). What is also known from a relativist perspective is that there are multiple interpretations and lived experiences of this shared objective climate reality. As outlined in Chapter 2, there is an evolving range of interventions, studies, and theories that acknowledge these lived experiences and aspire to encourage positive environmental behaviour change (Buchs et al., 2018; Gifford, 2011; Grabow et al., 2018; Klöckner, 2013; Lorenzoni et al., 2007; Whitmarsh et al., 2011).

In developing a strategy for data collection and analysis to address the research proposition, consideration was given to the specific methodological approach that might be the best fit for this project and its philosophical underpinning as demonstrated in Table 2.

Table 2

Philosophical Stances of Researcher and Choice of Methodology

Philosophical stance	Methodologies Considered	Arguments for	Arguments against	Conclusion
Ontology: realism and relativism both valid — realism explains our physical universe and relativism the rich texture of constructed human realities **Epistemology**: climate science benefits from the accumulation of empirical evidence and the field of climate behaviour change benefits from being viewed through a social constructivist lens to understand diverse behaviours and choices	Mixed methods	Potential to gather: * Participants voices on applying the tools of addiction recovery to climate behaviour change (qualitative) * supporting evidence such as energy bills, travel receipts, food shop receipts (quantitive)	*Thirty days of data collection not sufficient for significant quantitive data to be gathered	Though would be the most apt for the study, not possible within the limitations
	Ethnographaphy	* More naturalistic data might be gathered * The researcher being embedded could bring greater insights * A longitudinal lens would present more of a story and enhance understanding	*Thirty days is a short period for such an approach * Normally would involve at least twenty participants	Does not match the capacity of this study
	Phenomenology	* In-depth interviews where the researcher steps aside would provide unbiased results	* The researcher has a particular positionally due to her personal history not appropriate to a phenomenological approach	Not possible for the researcher to completely set aside her biases due to her particular history, though she will be open to whatever emerges
	CGT leaning approach	* Data speaks for itself, theories emerge	* Theories only applicable to the data and not generalisable	The most appropriate for moving beyond a narrative description to develop explanations of the extent to which the tools of successful addiction recovery are useful when attempting climate behaviour change

Currie in a tutorial (Yale University, 2015b) suggests that it is useful to first take stock of the things that count[10] within the study (are of importance), and also what can be counted (quantitative aspects), and then to consider whether the approach be quantitative, qualitative, or a mixed method study combining both. (Creswell, 2013) describes mixed methods study as a combining of story and statistics: an emerging approach that, he suggests, can provide a deeper insight and understanding than that of story or statistics on their own. He cites Al Gore's climate-themed film 'An Inconvenient Truth' as an illustration of this fusing of personal constructed reality (Al Gore's experiences and memories) with the statistical

[10] Drawing on a quote attributed to Einstein.

scientific data on climate change. An example of how Al Gore achieves this is by contrasting photographs taken of receding glaciers over several decades with a chart statistically demonstrating this apparent rising of temperature; the glacier photos impact visually and the charts substantiate quantitively thus offering more textured evidence of the results of temperature rise.

In a discussion for cross-discipline engagement between a Buddhist monk and theoretical theorist (ICE at Dartmouth, 2017), the two comment on the limitations of subjective truth, that cannot by nature account for the totality of truth, and underline the value they perceive in capturing human lived experiences within measured assessments of our shared outer reality. Silverman (2014, p. 23) refers to the ‘empathetic’ qualitative researcher, yet evidently a stoic approach is more apt for a rigorous gathering of quantitative evidence. A mixed method approach has the capacity to draw on the best approaches for capturing multiple and contrasting aspects of a study topic and increasingly, as posited by Emerald Publishing (2024, p. 1), ‘researchers in both camps [qualitative and quantitative] have begun to see the importance of each other's data’.

For the purpose of this study **–** that of capturing the lived experience of the participants as they attempt climate action using the tools of addiction recovery **–** consideration was first given to a mixed methods approach (Creswell, 2013). Indeed, an approach similar to that used in some of the climate behavioural studies referred to in Chapter 2 seemed a good fit, where quantitative data (such as meter readings, shopping receipts, and travel logs) is collected and considered alongside the lived experience of the participants (Buchs et al., 2018; Grabow et al., 2018). In this way, any significant behaviour change that takes place (such as reduced energy usage, more conscious consumption, or more sustainable holidaying) would be evidenced

by the quantitative data collected, while the interviews and focus groups would provide personal evidence: that is, a window into the participants' lived experience of what supports or impedes their efforts, and, therefore, the usefulness, or not, of the 12-step tools in this process. However, the length of such a mixed methods study exceeded the capacity of this project in which a duration of one month's data collection would not produce sufficient significant quantitative data. As a result, a purely qualitative study was decided upon with no quantitative content.

Next, consideration was given to the interpretive framework and the specific qualitative approach that would be adopted to make sense of the data collected. A pragmatist methodological approach might be useful, as it could draw on applicable aspects of all qualitative research approaches that would work, given that the purpose of the research was to solve a problem transformatively: namely, that of how to engender climate behaviour change among individuals (Bryman, 2016; Given, 2008; Pope & Mays, 1995; University of Nottingham, 2023).

3.2.3 Grounded theory

Grounded theory emerged as a useful interpretative approach for the study to lean towards. Among the reasoning for this was the study's aim to move beyond a narrative description of the participants' experience to the development of a theory or theories on the processes taking place (Strauss & Corbin, 1998). The data would speak for itself and theories on the usefulness, or lack of usefulness, of the application of the tools of successful addiction recovery to climate behaviour change would emerge. Indeed, a grounded-theory leaning approach could be a good influence to draw on for the analytical process with some open coding, some interplay between proposing a theory, or theories, and checking their validity by

revisiting the data (Strauss & Corbin, 1998), reflecting on how codes are decided upon and themes developed (Berger, 2015; Silverman, 2014, 2017).

The decision process informed the adopting of a grounded theory-leaning approach to the research, and particularly a constructivist grounded theory-leaning approach. Admittedly, a limitation of this approach is that any theories developed would be applicable to the data and would not be generalisable to the wider population. However, they would point to the possible benefits, or lack of them, of the application of the tools of addiction recovery to climate behaviour and could provide valuable insights as the basis for further studies.

The researcher, as the axiological instrument gathering the rich data of the participants realities, acknowledged that she was bringing to the study two very strong strands of bias (see personal vignette). This past experience deemed that it would be challenging for the researcher to draw on the original grounded theory approach encouraged by Glazer of creating distance between the researcher and the research (Rieger, 2019). Instead, she was influenced by the more recent constructivist leaning of Chamaz, where the researcher interacts and participates with the participants in the data collection process (Mills et al., 2006) and would aspire to be aware of her biases **–** logging decisions and inferences made in the course of the study **–** to avoid them clouding the data (Silverman, 2014). At the same time, drawing on a constructivist grounded-theory (CGT) approach, she would accept that her particular positionality would to some degree shape what was taking place (Candace Hastings, 2017; Charmaz, 2000). In short, she would accept her potential personal influences, but would observe them via a reflexivity diary, and be aware of them in the analysis of the data.

3.3 Recruitment, sample and rationale for sample

In choosing a population focus, the researcher decided to take a purposeful approach (Centre for innovation in Research and Teaching, 2023) and aim to recruit higher-than-average earners, since they are generally higher emitters.

While data demonstrates that those at the very top of the earnings scale are the highest emitters – with the richest one per cent emitting double the carbon of the bottom half of the world population in the period since the 1990s to the present (Oxfam International, 2023) – this richest-one-per-cent demographic would not be easily accessible to the researcher due to their exclusive lifestyles and social segregation, as demonstrated in particular in education (Green, 2024). At the other end of the scale, those in the UK on low budgets make a much less significant carbon contribution: indeed 'billionaires have carbon footprints that can be thousands of times higher than those of average citizens' (Barros & Wilk, 2021, p. 1). Professor Kevin Anderson (Anderson, 2021) notes that 'a 10% per year cut, if imposed across all adults, would rapidly bring a stark reality to bear on the lifestyles of high-emitting individuals'.

Of these three demographic groupings – the super-rich, higher earners, and low earners – the researcher deemed that those with enough purchasing power to be significant contributors, and at the same time accessible to the researcher, were in the higher-earners demographic, thus this would be the most purposeful and pragmatic demographic for this research. While an exploration of the varying demographics within this economic grouping might also be of interest – such as family status, age, ethnicity, gender, sexuality, faith or lack of faith – a decision was taken that this could detract from the main aim of the research, that of testing the

usefulness of tools of addiction recovery to engender carbon reduction among a sample of participants, a sample with a significant income and carbon footprint.

Manchester as a whole is a low-income city, being ranked sixth out of 326 on the Index of Multiple Deprivation (IMD) (Manchester City Council, 2019), where one is the most deprived and 326 the least. Therefore, finding an affluent geographic context within Manchester was difficult. However, the ward area of Chorlton is anomalous; the population ranks more affluently with residents classed as seventy-six per cent better in terms of income and seventy-nine per cent better in terms of employment than other areas of England, so its residents fitted the sample brief (Ministry of Housing, 2015) as cited in the website of UK Local Area.

Additional reasons and criteria for the sample included:

I. Although socio-economically the sample would be homogenous, in all other respects the aim would be to achieve a varied sample with a mix of family status, age, ethnicity, gender, sexuality, faith or lack of faith (see also 6.2.2). Economic status apart, the aim would be to have a quota sample although, of course, it could not be claimed to be representative of the population of Chorlton (Bryman, 2016).

II. Adopting a convenience approach to sampling, this population was easily accessible to the researcher (Bryman, 2016). Following fifteen years of teaching work in the area, she was a gatekeeper as well as having gatekeeper associates, including housing associations, local community organisations, and social media links, and she was able to use these channels to invite study participants.

III. This pragmatic and purposeful approach to reaching participants was supplemented by a snowball approach (Bryman, 2016). Chorlton is a dynamic and

multi-connected community where participants were likely to naturally spread the word, leading to more potential participants coming forward.

IV. An age range of 18 years and over was decided upon, as providing a sufficient range of ages.

A wide net would be cast through the different organisations, as described above. Beyond that, a criterion in Table 3, (drawing on the transtheoretical model of health behaviour change) would be applied, with the model adapted to address climate behaviour change.

Table 3

Transtheoretical Model (TM) of 'Stages of Change' Applied to Climate Change

Stage according to TM (West, 2006)	'Voice' of individual attempting change	Stance on climate action	Shorthand label
Pre-contemplation	'No'	Not ready, or not even on radar.	*Climate ignorer*
Contemplation	'Maybe'	Starting to engage.	*Climate curious*
Preparation	'Almost'	Starting to research, preparing actions.	*Becoming climate active*
Action	'Yes'	Making change, actively engaged.	*Climate active*
Maintenance	'I'm committed'	Maintaining climate actions and expanding reach.	*Very climate active*

The model asserts that people are most likely to undergo and sustain positive behaviour change only when they are ready for it. The act of volunteering would indicate that potential participants were at least at the 'climate curious' (contemplative) stage, the second of the stages, and therefore open to actively participating in the project and willing to look at changing their behaviour. On the other hand, 'climate ignorers' (pre-contemplative) would not yet be ready to engage and there would be no benefit for them or the project were they to be recruited (Boston University School of Public Health, 2022; Prochaska & Velicer, 1997; West, 2006).

3.4 Particular city context of Greater Manchester

As referred to in Chapter 1, both the municipal authority of the city – Manchester City Council (MCC) – and the authority that governs the wider Manchester zone including neighbouring towns and the city of Salford – the Greater Manchester Combined Authority (GMCA) – have set net-zero carbon targets of 2038, twelve years ahead of the national target of 2050. The UK was the first nation to set legally binding carbon budgets and, within the UK, MCC and GMCA

set out to be a lead authority in translating this into local terms, including being the first authority to replace fossil fuels with low carbon alternatives (Greater Manchester Combined Authority, 2019; UK Government, 2016).

In a multi-pronged approach to carbon reduction, Manchester's ambitions include integrating public transport under public ownership; supporting active transport with a planned 1,800 miles of fully connected cycling and walking routes; planting a tree for every man, woman, and child in the city, in addition to creating a seven acre inner-city park; and retrofitting public buildings as well as considering how the 1.2 million homes across the city might also be retrofitted (Manchester City Council, 2023b; Manchester Climate Change Agency, 2020; Marketing Manchester, 2021).

The ambitious policies of the local government of Manchester and Greater Manchester have to some degree set a supportive context for those who wish to take individual climate action. For example, the development of cycle and walkways enables those wishing to engage in active travel, the improvements to public transport make it easier to not use the car, and the improvements to housing stock facilitate energy reduction (Manchester Climate Change Agency, 2023; Marketing Manchester, 2021). Evidently, co-benefits can be more easily found by those attempting climate action in a city that aspires to high environmental standards.

3.5 Data collection methods and data collection plan

The data collection plan was designed based on the best methods to collect the data required to answer the research questions and to explore the lived experience of the participants in attempting climate behaviour change. To this end, a series of semi-structured interviews and focus groups spanning a thirty-day period were organised in a process imbued with the spirit of the 12-step addiction recovery

programmes: one where participants felt they were in a safe environment within which their thoughts, feelings, actions, and choices would not be judged. Furthermore, a sample of the tools that addicts use to break their daily dependence on their drug of choice would be injected into the interviews and focus groups.

The researcher planned to personally participate in the planned interactions and to transcribe the content of them **–** in this way, she would know the data well before moving into the analytical process. The data would be analysed using an abductive approach combining a line-by-line coding of the data with a categorisation into themes drawn from the research questions. More details now follow on these data collection methods and the data collection plan.

3.5.1 Interviews and focus groups

Since the overall aim of the study was to explore the usefulness of the tools and techniques of successful addition recovery, there was a need in the overarching design to weave into the data collection methods principles from the 12-step programmes. A typical 12-step meeting will include an anonymity statement, a reminder of the core value of non-judgmental positive regard, and aim to facilitate the sharing of ‘experience, strength, and hope’. As a result, the interview and focus group guides included probing questions relating to the key research aims and fused with the spirit of the 12-step principles. The researcher envisaged that, in addition to ‘dropping the pebbles in the pond’ when posing questions, she would also share her own climate behaviour change experience, strength, and hope. Her active participation, about which she would be fully conscious and keeping stock, would be in keeping with a qualitative approach leaning towards constructivist grounded theory.

As demonstrated in Table 4, the methods decided upon for data collection included for each participant:

- two semi-structured interviews with pre-determined but open-ended questions
- three focus groups that would span the thirty-day duration of the data collection process.

The quantity of data thus generated would match the capacity of the study. The rationale for this choice of methods is now presented in the following sections of this chapter and further explored in 4.1.1.

Table 4

A Representation of a Typical Participant's Experience

<table>
<tr><td colspan="7">• Spanning the 30-day period of climate engagement,
• Each engagement lasting approximately 1 hour,
• Using a carbon calculator, a synthesis of the tools of addiction recovery, and the group support</td></tr>
<tr><td>A typical participant's experience</td><td>Personal Interview 1</td><td>Focus Group 1</td><td>Personal Interview 2</td><td>Focus Group 2</td><td>Focus Group 3</td><td>Total hours per participant = approximately 5</td></tr>
<tr><td>Overall data generated</td><td colspan="6">2 interviews for each of the 9 participants = 18 Personal Interviews
3 focus groups for each of the 9 participants (participants divided into 2 groups with 4 or 5 participants in each) = 6 Focus Groups</td></tr>
</table>

The rich detail of how the experience feels, levels of motivation, obstacles encountered, and the outcomes achieved would be captured by means of these semi-structured interviews and focus groups. In addition, the participants would consider their carbon footprint as well as increasing their knowledge on climate issues by using an online carbon calculator and being signposted to other sources of relevant information.

It was planned that all engagements would be face-to-face in a community venue within the locality. However, due to data collection falling mid Covid pandemic, the communication means adopted was online video via Skype, a medium that ensured end-to-end encryption, thus ensuring data security and participant anonymity. At the time of writing, despite the pandemic restrictions being fully lifted, such virtual data collection methods have continued to be used and are even considered advantageous, since they can be economical, time-efficient, and more ecological with travel/fuel savings (Almujlli et al., 2022; Keen et al., 2022).

3.5.1.2 Approach to interviews

Prior to considering how to approach the research interviews, consideration was given to whether indeed interviews would be the best method for capturing the participants' experience of trialling the tools of addiction recovery in action on climate. Silverman (2017) suggests that interviews, despite being the predominant data collection tool used by qualitative researchers, are not necessarily the most reliable method. For him, manufactured data, such as interviews and focus groups, will always be less authentic than naturalistic data, such as field observation and use of public records and documents, since the participant will present in a way that is influenced by the fact that they are being interviewed rather than as they would in a naturalistic setting. In contrast, Charmaz (2000) suggests that we take what interviewees say about themselves and hunt down deviants, and that, by taking the data as a whole, we will have a co-constructed reality that we can legitimately analyse. However, marrying both viewpoints, in the audiovisual series Research with Dr Kriukow (2020) it is suggested that, underlying all research, there is a continuum from denaturised to naturised and that the important thing is to aspire to be a valid representation of the issue under study, regardless of where the research falls on that continuum. Finally, further weight for using the tool of interviews was the decision to draw most heavily on a constructivist grounded theory approach, other methods such as field observation and document consultation being more fitting to phenomenology, ethnography, and other methodological approaches (Charmaz, 2000).

As a result of the above rationale, in-depth interviews were decided upon to capture this aspect of data collection – the rich detail of the participants experience (Gillham, 2003) – so that the two interviews plus three focus groups

would track the participants journey, capturing what emerged along the way (Marshall & Rossman, 2006). However, still to be considered was whether the interviews would be structured, semi-structured, or unstructured. What was certain was that the questions would be open ended to elicit the participants' descriptions, feelings, and opinions of their experience (Creswell & Creswell, 2018; Marshall & Rossman, 2006). Structured interviews would not fit the brief of allowing free flowing discussion and unstructured would be too un-boundaried as well as not apt for capturing specific information pertaining to the research questions. In contrast, semi-structured interviews would provide guiding questions but allow flexibility for participants to lead the discussion where they wished and for as long as they wished (Bryman, 2016). As a result, semi-structured interviews were decided upon and a guide drawn up.

3.5.1.3 Approach to focus groups

Specific to this study was the need to meet two differing but overlapping needs**.** On the one hand, the aim would be to generate discussions that would aim to gather information to address the research questions (Edmunds, 1999; Morgan, 1998). On the other hand, there was a need to go beyond a regular focus group by creating inter-personal encounters that would share commonalities with the 12-step fellowships where participants would feel comfortable and able to share in a deep and honest way their experiences of applying the tools of addiction recovery to their climate actions (Bryman, 2016; Morgan, 1998; Narcotics Anonymous, 2008).

Silverman (2014, p. 411) discourages use of focus groups as 'flavour of the month' for the creation of policy maker 'sound bites' and instead encourages their careful design to meet the research needs and produce reliable findings. To this end, creating a naturalistic setting where participants met independently of the researcher

and followed a 12-step meeting format with the researcher observing at a distance would have been a possibility, but a very difficult one to construct (Silverman, 2017). Furthermore, in such a scenario, there would be no way of ensuring that the research questions were addressed.

Considering all the above, the decision was made to aim for a quasi-12-step format, in which the interviewer and participants would share their experience, strength, and hope regarding climate behaviour change while following a focus group guide that integrated probes relating to the research questions. Just as with the interviews, the questions would be in-depth, open-ended, and semi-structured, and introduced like pebbles in a pond to produce ripple effects (Mod•U, 2016; Yale University, 2015a), prompting group interactions that would offer insights into the participants experience and provide answers to the research questions (Edmunds, 1999; Morgan, 1998).

3.5.2 Facilitation

The researcher would bring to the study her own experience of more than thirty years facilitating groups, her professional training as a teacher (PGCE), extensive experience as an active listener, and specific training with the 'Thinking Environment' mode of facilitation (Time to Think, 2012). While introducing a relaxed atmosphere via an initial ice-breaker and the encouragement of rapport-building exchanges, she would also aim at all times to keep the focus group discussions 'on track' (Edmunds, 1999, p. 80)

The literature on data collection methods within qualitative research would also be drawn on, as well as discussions with supervisors, to ensure the study was rigorous, effective, and ethical. Finally, the researcher would consciously sift out aspects of her previous facilitating experience that would not be helpful to this study

(Astalin, 2013; Brinkmann & Kvale, 2014; Burton, 2000; Mod•U, 2016; Quirkos - Simple Qualitative Analysis Software, 2019; Silverman, 2014, 2017).

3.5.3 Addiction recovery tools offered to participants

The participants would be offered a selection of tools that have been shown to produce positive behaviour change in addiction recovery and therapeutic in general as demonstrated in 2.4. More exploration of these tools follows in the discussion chapters 4 and 5. The tools of addiction recovery covered in 2.5 would be woven into the focus groups and interviews and presented to the participants as:

- A text entitled a 'Synthesis of the Tools of Successful Addiction Recovery' distributed to the participants within which would be condensed various aspects of the 12-steps. The document was written by the researcher and reviewed by three qualified behaviour change professionals.
- Mindfulness taster(s) presented within at least one of the three focus groups.
- The support of the group in a non-judgmental and anonymous atmosphere where who was present would not be revealed publicly (however, differing from 12-step groups in that, due to this being a research study, the content would be shared, albeit anonymously) and within which participants would be encouraged to share their experience, strength, and hope with regard to climate action.

The participants would also be given hand-outs on climate change and be signposted to sources of further information. They would be encouraged to set climate action goal(s), but this would be balanced with ensuring the participants did

not feel pressured to achieve and were informed that it was their unique lens on applying the tools that was of most interest.

3.6 Appraisal of data collection process: successes, shortcomings, and limitations

3.6.1 Recruitment and sample chosen

The recruitment publicity was distributed as described above, using a wide net via the researcher's networks and those of her associates. Using the purposeful approach described in 3.3, a dozen participants presented as interested in the study. They were given a detailed information sheet describing what the study entailed, what their participation would involve, and how long the study would take. They were informed that their participation was confidential, anonymous, and voluntary, and that they could leave the project at any time. Next, online suitability interviews took place and nine were recruited to take part (the other three were keen but had preventative personal circumstances, such as not being available at the likely scheduled time of the focus groups or having to unexpectedly move out of the area). Despite the participants being drawn from the more affluent inner-city area of Chorlton, Manchester, the income level of the group who volunteered did include one low-earner participant and the low-earner researcher/participant, as shown in Table 5.

3.6.1.1 Climate engagement and demographics at time of recruitment

Of the nine participants, six were already engaged in the issue of climate change and open to behaviour change. The other three classed themselves as 'climate curious', the least level of climate engagement suitable for the project since, as explored in 3.3, there would be no purpose in the recruitment of 'climate ignorers'

(Table 3). The full range of their levels of climate engagement is demonstrated in Table 5, which employs the terms, from least to most, ‘climate curious’, ‘becoming climate active’, ‘climate active’, ‘very climate active’. The researcher/participant is also included and classified as ‘very climate active’.

Table 5

Demographics of Participants

Participant No.	Gender	Occupation	Age	Level of 'climate' activity	Above average income bracket?
P1	Female	Housing Officer	38	Becoming climate active	Y
P2	Male	Librarian	59	Climate active	Y
P3	Female	Retired Social Worker	62	Becoming climate active	Y
P4	Male	Teacher/Writer/Film maker	62	Climate curious	Y
P5	Male	Community Worker	43	Very climate active	Y
P6	Male	Doctor	43	Climate curious	Y
P7	Female	Artist	56	Climate active	Y
P8	Female	Nutritionist	31	Climate curious	Y
P9	Female	Student	19	Climate curious	N
10	Female (R)	Teacher	63	Very climate active	N

3.6.2 An unexpected accident

Five days prior to the commencement date, the researcher was involved in a debilitating road accident. Consequently, data collection for this study was delayed by five months and seven days, beginning on 19 April 2021 rather than 12 November 2020. Also, due to resulting scheduling practicalities, final interviews took place fifty-seven days from the start date, rather than thirty as originally planned.

The accident and this delay had consequences that impacted the unfolding of the data collection:

- Despite no attrition directly due to the delayed commencement of data collection, during the interim period, many became closer associates, thus affecting

the researcher/participant dynamic and the social distance that had existed between them. This happened because seven of the nine participants offered to accompany the researcher on therapeutic walks prescribed to improve her impaired mobility. They were keen to ask questions about the research and discuss climate change (in which they now had a keen interest); in this way, it naturally emerged that climate discussions took place prior to the start of data collection. These changed relationships had effects; an example – during transcription the researcher's more intimate knowledge of the participants shaped how meaning was captured, such as knowing their individual use of filler words, the sound of their laughter, the tone of their voice, and the emotions they were expressing by that tone. As Brinkman and Kvale (2018) point out, all transcriptions are interpretative constructions (Brinkman & Kvale, 2018) and, hence, the interpretation of this particular group of participants was affected by the contact and conversations that took place during the interruption to studies provoked by the road accident.

- See also Reasonable Adjustment Plan.

3.6.3 Participation attrition

Given the more than five-month delay to data collection, the level of participation was high. However, some participant attrition took place for other reasons including:

- Following the first focus group, a female participant (P8) received a pregnancy diagnosis. As a full-time working mother, continuing with the research would have been too much for her. Nevertheless, her interest in climate action continued and she voluntarily contacted the researcher two years on to speak of the impact her participation had on her and her family's life. She spoke of climate actions that

she had taken due to discussions with the researcher on her recovery walks and the participation in that one focus group (see Table 15).

- A second participant (P9) only managed one personal interview due to a lack of access to Skype technology.

The two participants who had to leave were 'climate curious' and, therefore, the balancing of levels of climate experience within the group was affected by the loss of these two participants potentially creating some minimal attrition bias (Bankhead et al., 2017). However, despite only attending one focus group and having informal discussions with the researcher, data analysis suggests P8 integrated some of the tools of addiction recovery into her life and, as a result, benefitted significantly from her participation with notable behaviour change.

3.6.4 Data analysis approach

As outlined above, consideration of the analytical approach that would best fit the explorative nature of the research led to a pragmatist approach being adopted, drawing on constructivist grounded theory, but not rigidly aligned to it. Themes were initially developed that were derived from the research questions (deductive) but considerable in vivo coding took place, with themes emerging from the data itself (inductive). As a result, these two processes intercepted in a final coding structure that embraced and interlaced both the deductive and inductive in the adoption of an abductive approach (Webseter, 2023). Also, many more codes were generated than had been envisaged, but they were captured in categories that reflected the research questions as outlined in 1.5, covering the main aim of an exploration of the participants' experience of applying the addiction recovery tools in their attempts at climate behaviour change.

Chapter 4 – Behaviour change process: findings and discussion

Introduction

This chapter focuses on the process the participants experienced in attempting climate behaviour change with the support of tools drawn from successful addiction recovery, as outlined in 2.5 and 3.5.3. Significant participant experiences that emerged in the process are presented, contrasted, and compared with the behaviour change studies and theories highlighted in Chapter 2. In this way, the usefulness of the tools of addiction recovery to climate behaviour change are explored.

The main communications medium, as approved by the university's ethics committee, was Skype technology, aside one Zoom interview with a participant who was unable to install Skype. The number and length of engagements of each of the nine participants was adapted to fit their personal circumstances (anonymised as P1, P2 … P9).

Rather than a one-hour duration, the interviews and focus groups ranged from thirty minutes to one hour sixteen minutes (Table 6). At times, conversation flowed, and participants were willing for the engagements to extend beyond an hour; at other times, their commitments limited the duration to less than one hour. Importantly, the overall data captured amounted to a substantial data set of comparable size to that originally planned and was sufficient to establish a meaningful picture of the processes taking place (Cypress, 2017; Leung, 2015).

Table 6

Details of Engagements

Date	Time	Length	Title
19/4/21	18.00	66 minutes	Focus Group 1a with P1, P2, P3, P4
20/4/21	19.01	70 minutes	Focus Group 1b with P5, P6, P7, P8
29/4/21	16.00	76 minutes	Focus Group 2a with P1, P2, P4
29/4/21	19.00	67 minutes	Focus Group 2b with P3, P5, P6, P7
14/5/21	17:03	67 minutes	Focus Group 3a with P1, P4, P5
18/5/21	19:00	59 minutes	Focus Group 3b with P2, P3, P6, P7
30/4/21	16.00	39 minutes	P1 Interview 1
7/5/21	10.58	57 minutes	P1 Interview 2
4/6/21	12.04	61 minutes	P1 Interview 3
14/5/21	12:32	83 minutes	P2 Interview 1
4/6/21	13.00	25 minutes	P2 Interview 2
29/4/21	11.00	59 minutes	P3 Interview 1
27/5/21	18.01	40 minutes	P3 Interview 2
20/4/21	17:03	40 minutes	P4 Interview 1 (on phone voice memo irretrievable so discarded)
27/5/21	17.03	35 minutes	P4 Interview 2
30/4/21	13.09	53 minutes	P5 Interview 1
8/5/21	18.01	50 minutes	P6 Interview 1
14/6/21	19:10	39 minutes	P6 Interview 2
10/5/21	17.09	34 minutes	P7 Interview 1
1/5/21	14.00	42 minutes	P9 Interview 1 (using ZOOM)
		1062 minutes	
		Less P4 Interview 1 = 1022 minutes	
		17 hours 3 minutes	

The questions posed to the participants were of semi-structured format and flowed through the focus groups and interviews in a non-specific order. They generated lively discussion, especially in the focus groups, with conversations frequently veering towards an unstructured format.

In analysing the data, as explained in 3.6.4, themes drawn from the research questions to test the usefulness of the tools were fused with codes that emerged via open coding of the data, with active gerunds employed to stay ‘attuned to our subjects’ views of their realities’, as suggested by Charmaz (Mills et al., 2006, p. 515). In this way, the final coding structure captured the lived experience of the participants (the process) and addressed the research questions on the usefulness of the tools of addiction recovery in attempting climate action (See Table 7).

Table 7

Final Coding Structure

Research question 1: What is the extent to which the participants feel more equipped to bring about positive climate behaviour change in their lives?		**Research question 3:** Do the participants notice their carbon footprint change over the period of activity? If yes, how do they feel about this? For example, do they feel discouraged, encouraged, ambivalent?	
Corresponding theme:	Focus of climate action	Corresponding theme:	Reaction to carbon calculator
Corresponding codes:	Active travel Climate influencing Developing new habits Growing fruit and vegetables Making dietary changes Recycling/Reusing/Repairing/Re-purposing Reducing home energy use Taking care with consumer choices	Corresponding codes:	Finding carbon calculator neither useful nor not useful Finding carbon calculator useful Finding carbon calculator not useful
Research question 2: What difficulties and obstacles do the participants encounter in the process and how do they react to them and/or manage them?		**Research question 4:** Beyond carbon reduction, what general benefits or lack of them do the participants experience when applying the therapeutic techniques of addiction recovery?	
Corresponding themes:	Obstacles to climate action AND Feelings expressed	Corresponding themes:	Relating to the tools of addiction recovery and the synthesis
Corresponding codes:	Desiring collective action Encountering climate dilemmas Finding 30 days too short Finding the greater context unhelpful Perceiving personal action as limited AND Feeling angry Feeling busy Feeling discouraged Feeling encouraged Feeling guilty Feeling household is supportive Feeling it's difficult but doing it anyway Feeling pleased	Corresponding codes:	Benefitting from a supportive environment Benefitting from the synthesis of the tools and techniques of addiction recovery Developing new habits Embracing a compassionate non-judgmental approach Engaging in reflection Enjoying low carbon fun Increasing engagement with all aspects of climate change Liking meditations Motivational 12-step slogans Overcoming bigger picture obstacles Overcoming personal action obstacles Sharing climate action experience, strength and hope Taking action because we can Valuing nature

In terms of style, Chapters 4 and 5 are presented from a third-person point of view (POV), with the researcher referred to as 'the researcher' (R when citing from the data). The researcher considered this perspective would present in a clearer fashion, and that the distinct role of the researcher as researcher/participant would be clearer to the reader than if a first-person reflective style had been adopted. Furthermore, as referred to in the introduction to Chapter 3, the researcher's acknowledged biases and personal opinions (see also personal vignette) would be less likely to interfere with the data analysis since a 'he/she/they' stance creates

more distance from the data than an 'I' one, thus encouraging a more objective lens[11].

4.1 Entering the process

4.1.1 First focus groups

Greenbaum (2000), comparing interviews to focus groups, notes that in-depth discussion is often easier in interviews. In contrast, in focus groups he observes that negative group dynamics may ensue with individuals (unconsciously) feeling the need to impress their peers, thus distorting the discussion. However, in this study, participants' ease of verbal interaction from the start, as demonstrated in presentations and interactions in the initial icebreaker (see Figure 4 and accompanying discussion), suggested that the need-to-impress dynamic did not distort the participants interactions, and that, furthermore, they felt comfortable.

Following the model of the 12-step fellowships, in the first focus groups (FG1a and FG1b), participants were reminded that this was a supportive, non-judgmental, and anonymous space to engage with climate and consider their own climate action (Donovan et al., 2013): 'So, there's a little saying that they say in the 12-step fellowships [the anonymity statement], which is 'who you see here, what you hear here, when you leave here, let it stay here' (R: FG1a & FG1b).

The anonymity statement, read out and emphasised at the start of each session, may have contributed to participants' apparent ease. On the one hand, the principle of anonymity embodied in this statement has contributed to many addicts finding a safe environment in which to recover (Alcoholics Anonymous, 2024;

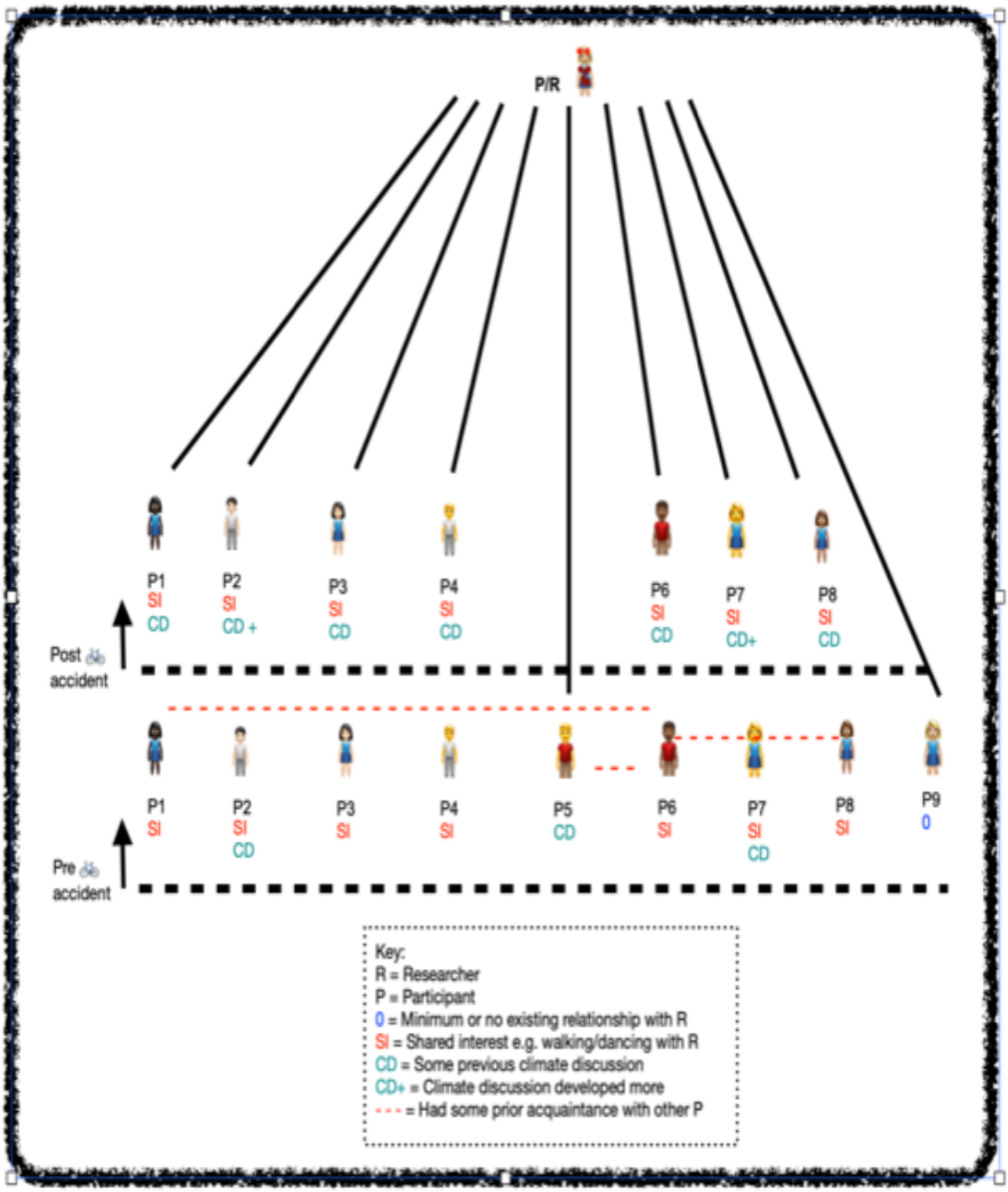
[11] A style also encouraged by University of Salford's Wordscope academic writing courses that the researcher attended.

Dekkers et al., 2020; Greene, 2021; Stanford, 2020). On the other, there is no legal requirement to maintain confidentiality in 12-step groups, since neither a professional psychologist nor clergyperson is present (Coleman, 2006) [albeit referring to United States law, a similar legal framework existing in the United Kingdom]. However, despite the lack of legal protection, evidence suggests that the anonymity statement, with only first names used for identification, diminishes any tendency toward competition or hierarchy (or Greenbaum's need-to-impress), thus providing an emotionally comfortable and humanly-connected environment for those attending recovery meetings (Dekkers et al., 2020; Greene, 2021; Kelly et al., 2020; Stanford, 2020). In the words of the twelfth tradition read out at every 12-step meeting – 'Anonymity is the spiritual foundation of all our traditions ever reminding us to place principles before personalities' (Alcoholics Anonymous, 2024 para 3): 'personalities' being the ego-based traits that might disrupt the harmony of the group and the 'principle' of 'anonymity' being what strips back any ego-tendency, thus supporting the group's unity and connectivity.

In addition to the anonymity statement, it must be acknowledged that the pre-data-collection climate chats that took place with seven of the participants on the researcher's recovery walks may have contributed to those seven feeling at ease. Though the participant/researcher walks and talks were accidental, it is of interest that they bore resemblance to the walking and talking philosophy of Aristotle and the Peripatos (Furley, 2016; University of Sunderland in London, 2021); indeed, research evidences the value of walking and talking as a philosophical and educational method (Murphy & Mannion, 2021). Figure 3 offers a visual representation of the evolving participant/researcher positionality to better clarify how this stood at this starting point of data collection.

Figure 3

Positionality between Researcher (R) and Participants (P1, P2 etc)

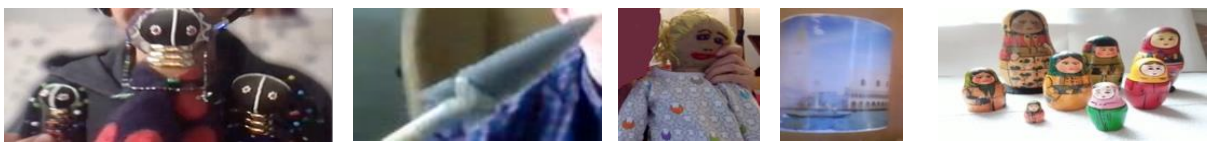


As an icebreaker, well-loved objects (not necessarily low carbon) were presented, and some participants voluntarily attached to them climate-related thoughts such as a telephoto lens that was ‘shockingly not low carbon’ (P4: FG1a) but captured amazing photos of the sky or a ‘camera’ mobile phone used to stay connected (the time being mid-lockdown), but again ‘ … not carbon neutral in any way’ (P2: FG1a). Also, several low-carbon objects were presented including Russian Babushka dolls handed down by a grandparent and currently being repaired by the participant to extend their life, a blanket and doll crocheted more than sixty years ago also by a grandparent, and the family-timeline theme continuing with a charm bracelet that had marked significant life events that ‘I expect I'll pass [it] on to my daughter’ (P1: FG1a).

Items presented in the concurrent first focus group (FG1b) included South African dolls from the Indie Bailey tribe, an Apache arrowhead, and a memento mug of Venice, and these items also sparked geographical, cultural, and climate discussion. ‘It's in my shed [the Apache arrowhead] at the moment in an old bottle. And it's been in the cellar where I've lived previously … it's one of those objects that's followed me around’ (P5: FG1b). ‘I really, really love Venice. And as we know, Venice is at particular threat of sea level rise and, um, so this mug, I drink out of it a lot’ (P7: FG1b), attaching both a climatic and nostalgic lens.

Figure 4

Well-loved Objects Presented in First Focus Groups (FG1a and FG1b)



The past, present, and future reflected in the items could be said to mirror the past, present, and future of engaging with a climate change project. This method was chosen based on the researcher's experience in courses she developed and facilitated (see personal vignette). Furthermore, studies support the use of well-considered icebreakers to foster comfort and connectedness in a variety of discussion and educational settings (Kilanowski, 2012; Mepieza, 2023; Tugbong & Alistre, 2023).

The items prompted participants to voluntarily share personal information, as well as tangential exchanges on how they were coping with the pandemic; in this way, honest and open engagement was demonstrated. It is of note that participants in both initial focus groups (FG1a and FG1b) moved quickly into a space where they spoke of deep personal feelings, including family loss, as well as engaging in climate discussion and sharing project goals.

Returning to the literature on research methods, as noted in 4.1.1, the need-to-impress group dynamic that Greenbaum (2000) warned may interfere with discussions did not arise in this study. Interestingly, Greenbaum suggests that individuals in a focus group may build emotional ties, and it seemed such a process was activated by the icebreaker of sharing these well-loved objects. This may have been aided by the fact that participants chose objects dear to them and thus connected with deep aspects of themselves. In short, participants appeared to accept and adopt the value of honesty and openness; both the chosen icebreaker and the 12-step tool of the anonymity statement may have contributed to the participants' embracing of this value pivotal to 12-step substance recovery (Alcoholics Anonymous World Services, 1986, 2022b; Kelly et al., 2020; Robbins, 1992).

4.1.2 Engaging more with climate

A theme ‘Being interested in and engaging more with climate’ emerged in the coding of the data. It seemed that, as in 12-step fellowships, the participants were able to discuss issues that they might otherwise sidestep. Morgan (1998) notes that focus group participants may welcome opportunities to share views and feelings on stressful issues, opportunities rare in regular daily life. Similarly, evidence suggests that a contributing factor in the success of 12-step groups is that they provide a rare opportunity to discuss the stresses involved in living clean (Kelly, 2022; Kelly et al., 2020; Stanford, 2020). It may be that the recovery tool of a supportive group facilitated discussion of these difficult climate issues, rather than ignoring them or disconnecting from them. Indeed, P1, P3, P6, and P9 explicitly stated that the group helped them to engage in such discussions, and all the participants implied this was the case by joining in the discussions on grave and distressing issues as demonstrated in Table 8.

Table 8

Examples of Global Issues that Participants Engaged with during the Project

Issue	Related image	Discussion snippets	Benefits of facing these with group support
Sea level rise		An initial icebreaker 'show and tell' included mug with world map on it where coastlines disappeared as hot contents were drunk, and a mug of Venice where sea level rise is a current threat.	Sea level rise and other grave consequences of climate change are hard to contemplate alone. This icebreaker helped the group contemplate these scenarios with others in an atmosphere that was serious but also included laughter.
Actions of world leaders	Author: Gage Skidmore[12] 	'This business about Biden and he's reducing [carbon emissions] but from 2005 figures. Well, what on earth, hell, is that all about?' (P3: I1).	The macro situation discussed and shared with another (or others) seems to permit frustrations be vented rather than held within. As a result, participants connect more with the issues rather than turn away because of frustration or other uncomfortable feelings.
Glaciers melting	Etienne Berthier, Université de Toulouse[13] 	'Today in the Guardian … glaciers are melting … I've been reading a lot more.' (P3: I1)	
Soot from wildfires and positive feedback loops	Cameron Strandberg[14] 	'I learned something about climate change that I'd never learned, I didn't know before. And it's really dark and depressing, but I'll share it anyway … Well, the wildfires send up a lot of Ash and the Ash lands on ice in Canada and places like that. So, it blows up and it makes the ice darker, which means the ice absorbs more heat and melts more. So, it's this like self-perpetuating cycle. . . and I was like, oh my God, that's, that's frightening' (P5: FG3a).	The discussion on this difficult issue seemed to demonstrate that keeping current on global issues is easier with a group of people who have come together and mutually agreed to discuss those issues.

[12] Creative Commons Attribution-share Alike 2.0 Generic
[13] Creative Commons Attribution 2.0 Generic License
[14] Creative Commons Attribution 2.0 Generic License

The following comments further demonstrate this engagement rather than disengagement with upsetting climate issues. ‘But you've made that obligation to the group to kind of carry on and complete things and do things that you said you're going to do’ (P2: I2). ‘Instead of reading a little bit and thinking how, yeah, that's a bit of a worry. I have been reading them [climate change articles] in more, more depth, really.’ (P3: I1) ‘So what's happening for me is, is climate change is taking a new place, is becoming more of a priority’ and ‘It's shone a light. I'm thinking about things’ (P6: I1).

As demonstrated in the literature consulted in Chapter 2, several environmental behaviour specialists conclude that engagement with climate change is difficult (Abrahamse, 2019; Bouman et al., 2021; Department of Energy, 2020; Whitmarsh et al., 2011; Whitmarsh et al., 2021). Albeit a limited pilot study, it is of interest to observe that engagement was fostered in this climate-specific support group, even when addressing the most difficult and distressing issues.

For all actors to enter the process of climate behaviour change as urged by the IPPC in the most recent 6th Assessment Reports (Intergovernmental Panel on Climate Change, 2022a, 2022b), effective engagement is a prerequisite. Without sustained engagement, change may be transitory or insufficient. Indeed a recent systematic review of the environmental behaviour change literature found that ‘most interventions showed only small positive effects or none at all’ (Rau et al., 2022, p. 1). The tools of addiction recovery have been demonstrated to successfully engage those in 12-step fellowships in a sustained manner (Donovan et al., 2013; Kelly et al., 2020) and it is of interest that the participants of this small study seemed able to deeply engage with climate from the first focus groups, and indeed throughout the study, even when dealing with the most upsetting and challenging aspects.

Hormio (2023) categorises climate change as a collective action problem, one that is the unintended outcome of the cumulative effects of many individual actions; logic presupposes that the solution be a corresponding individual/collective action. Therefore, any groups that successfully bring individuals together and support them in simultaneously acting individually and collectively have an important role to play in carbon reduction. There is additional benefit if the structure of the group can be easily replicated. The exponential growth of the 12-step fellowships that support both individual and collective action – starting with just two men (2.4.1) but subsequently supporting tens of millions – is a potential structure of value if transferable to the quest for 'carbon sobriety' (Alcoholics Anonymous World Services, 2022b).

4.1.3 Goal setting (in present moment and self-directed)

Before the first focus groups, participants were invited to formulate three climate action goals that they would attempt during the study. Following the 12-step model that is a suggestion-based recovery programme where 'there are no "musts"' (UKNA: Narcotics Anonymous in the United Kingdom, 2024 para 6), it was stressed that goal formulation was a suggestion and not a pre-requisite. The participants were signposted to sources of information on climate action and were free to choose their own goals, regardless of carbon intensity, and in keeping with the self-directive 12-step approach. In the first focus groups (FG1a and FG1b), participants shared their goals or, had goals not been formulated, shared thoughts on the process of attempting to do so and any difficulties encountered.

These self-determined goals were revisited in later focus groups and individual interviews. The process was not straightforward. Participants expressed how difficult it was to act sustainably within what they experienced as a largely non-

supportive economic context: how to source minimally-wrapped, locally-grown food items rather than plastic-wrapped, much-travelled produce, or durable consumer goods rather than those with inbuilt obsolescence; how to travel actively and sustainably rather than succumb to high-carbon travel choices as often the most affordable and accessible; or how to switch to a low-carbon diet when high-carbon low-welfare meat and dairy choices were the most abundant.

‘. . . cause like I do eat bananas, I'm afraid. Um, those, those plastic bags . . .’ (P3: I1).

Adams (Adams, 2014) concludes that our society and economy is organised based on climate denial. To critically consider this assertion, it is certainly true that global actions defined as urgent by the IPCC (2019) are not being embarked upon sufficiently either socially or economically such as comprehensive early warning systems for extreme weather, observational programmes to monitor land degradation and biodiversity loss, or investment in sustainable land management to prevent fertile soil loss, food disruption, and famine (Climate Action Tracker, 2024). Climate policies in 170 countries do now consider such adaptation, but the urgently-needed implementation of policies is lacking (Anderson, 2023; Boehm & Schumer, 2023; Climate Action Tracker, 2024).

Taking the lens from the macro of global policy to the micro of consumer choices, according to Brannigan (2011), and Whitmarsh et al. concur (2011), modern marketing techniques exploit the brain’s neuro-wiring to lock us into unsustainable consumer habits. Add to this a ‘tendency to over-emphasise the need for individual behaviour change without adequately acknowledging or addressing those structures and systems that embed the consumption of fossil fuels into everyday life, constrain individual agency, and create barriers to low-carbon lifestyles’ (Hampton &

Whitmarsh, 2023 para 4). These same authors later note that the ‘Carbon Disclosure Project attributes responsibility for 70% of global GHG emissions to just 100 companies’ (Hampton & Whitmarsh, 2023 para 9), meaning that a small number of corporations have disproportionate macro-economic power over the carbon embedded in everyday micro consumer choices. A report for the Climate Change Committee (Carmichael, 2019) noted that this wider context must be more consumer supportive for significant carbon reduction to take place. In short, a number of climate theorists (Brannigan, 2011; Carmichael, 2019; Hampton & Whitmarsh, 2023; Whitmarsh et al., 2011) observe that the current consumer context can be a barrier to those aspiring to lower their carbon footprints.

As a response to what they perceived as global social and economic climate denial, in 2009 many prominent authors, artists, and other creatives formed the Dark Mountain Project (The Dark Mountain Project, 2024) through which they continue to vision a post oil society rather than what they consider the fragility of our societal and economic structures: ‘… unchecked industrial exploitation frays the material basis of life in many parts of the world, and pulls at the ecological systems which sustain it’ (The Dark Mountain Project, 2018, p. 1).

> ‘I thought I could start using less reusable plastic . . . actually going to the fruit and veg shop and getting things in paper bags . . . that’s more expensive. I mean that’s fine. I can do that … that’s not an issue for me. But it is an issue for a lot of people.’ (FG1a: P3)

The participants’ experience of extra effort and life-organisation being needed to realise lower-carbon choices is vindicated in studies demonstrating that

consumer goods reach supermarket shelves exhibiting significant embedded carbon (Ivanova et al., 2016), this despite growing evidence that consumers want lower carbon choices and that providing carbon information can support those choices (Lv et al., 2024). Though the UK can claim to be the first major economy to cut carbon emissions by half (Uk Government, 2024), interestingly, Ritchie (2019), assessed for Our World in Data which countries were net importers of CO_2 emissions and found that these were predominantly richer Western nations, including the UK, where net embedded carbon continues to rise.

Despite this arguably unsupportive context, most of the participants demonstrated a determination to reach for their goals. That said, being higher-than-average earners, they were better able to afford a green premium on products than lower earners. However, even among this better-off demographic, the trend for buying sustainably has declined since the post-Covid financial downturn (Pieters et al., 2022).

> '… this whole thing about mass production and most of it comes wrapped in plastic! (Frustrated tone). I mean ... when I was a kid ... dare I say it ... you know we used to have a local baker round the corner, the bread used to get delivered on a bike. And it used to be wrapped up in a piece of tissue paper.' (P3: FG3a)

The above citation was a typical example of the frustration felt at the perceived context barriers, and this is further discussed in 5.1; nevertheless, an assortment of goals was set as in Table 9 that reflected the diversity of the group and included:

- general consumption
- travel choices
- dietary change
- composting and food growing
- carbon influencing
- being more meditative

Table 9

Goals set by Participants and Researcher/Participant on Commencement of the Project

Participant	Goal 1	Goal 2	Goal 3
P1	To reduce meat consumption	To reduce personal travel emissions	To consider general consumption such as clothes and make-up
P2	To climate influence by setting up a Carbon Literacy Course	To urge his household to dry clothes outdoors rather than use the electric drier	To further refine his diet to be lower carbon
P3	To reduce home carbon emissions in terms of waste and energy	To engage in active travel	To make dietary changes
P4	To establish home composting	To critically consider whether individual climate action is for him	
P5	To consider the purchase of an electric car	To extend his climate influencing	To look more at self-care and self-sustenance
P6	To downsize	To climate influence in the workplace	To organise re-chargeable batteries and for the sourcing of these to be ethical and not from the market-dominant companies
P7	To make dietary changes, specifically reducing cheese consumption	To investigate the 12-steps and their potential usefulness for her in her climate action and quality of life	
P8	To take greater self-care by incorporating meditation into her daily routine	To approach climate action from a non-judgmental and self-compassionate standpoint	
P9	To make dietary changes	To grow food	To find out and understand more about the science of climate change
R	To make dietary changes, in particular to reduce cheese consumption and use a home yogurt maker to make yogurt from non-dairy milks	To recycle her contact lenses	To campaign to protect an area of local greenspace

The goals had in common that each participant perused their daily life content and considered what it might be realistically possible to change, a day at a time in the present moment. This was in keeping with the 12-step principle to take daily life one day at a time and to be willing to accept the things one cannot change, to have courage to change the things one can, and to have the wisdom to know the

difference.[15] Indeed, as referred to in 2.3.5 and 2.4.2.5, in 12-step fellowships, the primary personal goal is to change one's behaviour 'today', with mindful focus on action in the present moment, clearly the only parcel of time when real-time action is possible.

Some theorists (Carter, 2023; Livingstone, 2021) believe the reason we have failed in the past more than thirty years to effectively curb emissions (instead letting them rise by sixty per cent) is that action is constantly postponed to the future (the can kicked down the road) and, as a result, little real-time climate action takes place. In this short study, actions, albeit small actions, were initiated. Evidently, small actions that are initiated amount to more than future actions that may never exist. Participants' immediate action towards their chosen goals reflects the 12-step addiction recovery principle of self-directed action in the present moment.

Indeed, the 12-step approach contrasts in several ways with the goal-setting approach most common to the studies explored in Chapter 2 where the climate behaviour change initiatives were generally:

- field interventions organised by specialists rather than being peer-led or self-directive (Bergquist et al., 2023)
- focused on higher impact behaviours, for example, targeting aviation or dietary change (Whitmarsh et al., 2021).

The rationale for this is logical: a project leader has more knowledge of behaviour change than a participant and focusing on high carbon behaviour such as flying has the potential for greater emission reduction than drop-in-the-ocean actions such as boiling less water in a kettle. However, perhaps the unequal relationship between a

[15] This is referred to as the 'Serenity Prayer' and is a shortened version adapted from an original written by Reinhold Niebuhr, a Christian Realist theologian.

project leader and a participant diminishes ownership of a participant's climate action journey and means they attempt to change things that they are not ready to change. Evidently, if a participant disengages due to feeling a lack of ownership or feeling overwhelmed by too great a challenge, no actual change will happen. In contrast, participants of this study, like members of 12-step fellowship recovery groups, were free to choose a relatively low-carbon-impact entry point, or a high one, or anywhere in between, and moved immediately onto the starting blocks, starting today, starting in the present moment: in short, starting rather than not starting. The project, like 12-step support groups, met them along their life path and supported them on it rather than attempting to set out a new path (Greene, 2021).

> 'Let's think about today and you know, all that kind of stuff, then maybe for now it's good enough to have maybe so many days meat free or only eat meat, red meat, once a week, or once a fortnight or something like that.' (P1: FG1a)

> 'Yeah. I think your theory of taking it one day at a time. It's so good cause … I'm like right the next two weeks, I'm going to eat, um, a cracker every day, and then it gets to like the second day I'm like, no I can't do it.' (P9: I1)

The wording of the Synthesis document distributed to all participants on the 'Just for today' principle applied to climate action suggested:

> 'Looking at doing something for the rest of our life, whatever it might be, is overwhelming. Breaking it down into achievable chunks helps the brain. But

more than that, we do only have ‘today’. The past is a memory, the future has not yet happened. The present moment is the only thing we can truly change. Focusing on this slogan helps us move into the present moment. And, by changing this moment positively, we change the future that flows from it.’

The goals participants set were of a nature that could be commenced immediately, or at least the preliminaries set in motion, contrasting with the Carbon Calculator Study (Buchs et al., 2018) where the goals were in the form of a (future) to-do list formulated for them, as opposed to self-directed life adjustments that commenced immediately as in this study. The process the participants of this study experienced could be said to be actively-meandering rather than linear-but-maybe-never-happening. ‘I think it's about trying to tackle things as you go along.’ (P1: I2)

The 12-step approach promotes contemplation and a self-directed (or self-determined) feedback loop, and always with action in the present moment in the foreground; this contrasts sharply with climate behaviour change globally which has involved much formulating, contemplating, re-formulating, but with most real climate action postponed until a future planned date (Carter, 2023).

The freedom to self-direct (or self-determine) meant that participants found and decided upon their own points of departure regardless of the amount of carbon saving involved in their choices (see Table 10), just as has been shown to be beneficial in addiction recovery support groups (Dekkers et al., 2020; Greene, 2021).

The concept of self-direction, or self-determination, has been found by research psychologists to be strongly motivational (Deci & Ryan, 2015). These two key theorists categorise motivation as either extrinsic or intrinsic. The former, extrinsic motivation, is external and fear based, such as fear of offending others, or

failing one's peers, whereas the latter, intrinsic motivation, emerges from within and is congruent with an individual's own personal passions, values, and intention. Acting from autonomous (intrinsic) motivation has been found to be more sustained and effective, both personally and in wider realms, as well as bringing about well-being co-benefits such as higher self-worth and life satisfaction (Li et al., 2020).

Though the critical literature on 12-step fellowships adopts different terminology, Greene (2021) underlines that the part of oneself that is connected to one's best wisdom and passions (one's higher self and perhaps the equivalent of intrinsic motivation), unhindered by outer fears (extrinsic motivation), may be accessed through the 12-step recovery process. In other words, surrendering to one's higher self or higher wisdom, as opposed to being motored by one's more basic and impulsive emotions, is to align with intrinsic motivation and to be less affected by outer influences that may trigger fear or other reactive emotions: that is, be less extrinsically motivated.

As discussed in 4.1.2, it is important that participants were engaged as without engagement there is no carbon reduction. The participants' words suggest that being able to select their own goals, regardless of carbon intensity, contributed to their capacity to apply themselves diligently to their actions. Perhaps they were tapping into Ryan and Deci's (2015) intrinsic motivation or Greene's (2021) 12-step higher self because they were being permitted to be self-directive (or self-determining). Table 10 demonstrates the level of diligence shown by the participants regardless of the size of the carbon saving.

Table 10

Participants' Self-directed Diligent Attempts at Carbon Reduction (Not Carbon Intensity Based)

Examples of self-directed attempts at carbon reduction	Participant's comment	Ref
Low carbon intensity	So, I now have a bit of duct tape, you know, along the bottom of the kettle so I can't, don't fill it. . . I've got a bad habit of filling the kettle up too much'	P3:I1
Carbon influencing – indirect carbon saving	Uh, well, one thing is I put it [climate change] on the rolling standing item on the agenda [of work monthly meetings] and that's happening, but more has come from that, you know. She's [the boss] even saying, let's talk about it at the strategic away day. So that's kind of cool…'	P6:I1
Potentially high carbon dietary change	We had one, at least one meat free [meal], I made vegan burgers, which went down very well.'	P1:I2

In summary, as outlined above, on the one hand, participants might choose to focus on low carbon items, meaning only small changes in their personal emissions. On the other hand, a more proscriptive approach imposing a focus on carbon-intensive activities, such as little or no flying or drastically changing dietary habits, might have been unpalatable, resulting in little or no change in their carbon contribution. The mental health and psychological literature aside, it is perhaps common sense that a personal approach, where one chooses one's own goals that fit one's daily life path, is more practical and, therefore, more likely to succeed. Pressure to select higher carbon ticket items might feel unachievable and overwhelming and deter those who might otherwise commence a journey of carbon reduction.

4.1.4 Sharing experience, strength, and hope

In 12-step fellowships, ideas are sparked by recovering addicts sharing and listening via an exchange of ‘experience, strength, and hope’. Even the recovering addict’s sponsor (the equivalent of a mentor) is not directive but rather makes suggestions based on their own experience that may or may not be followed up on. All choose to take on board whatever resonates or feels helpful to them, forging their own path of change on this basis. In this study, participants were encouraged to share their climate ‘experience, strength, and hope’. The diverse mix of climate change experience among the participants enriched this process and participants attested that this interchange was mutually beneficial.

> ‘I really liked the process of yeah um, getting us together in small groups and um that … so we could kind of talk about kind of, um, how we felt and um what we thought was going on and then yeah.’ (P2: I2)

Interestingly, in 12-step fellowships, a less-experienced member may spark a new perspective in a more experienced member, further demonstrating the absence of any hierarchy and the peer-to-peer nature of the groups. Such a situation arose in Focus Group 1b (FG1b) where a ‘very climate active’ participant, P5, shared the many ways that he was acting on climate, but confessed that he felt ‘guilty’ and a ‘hypocrite’ for occasionally driving a petrol car (P5: FG1b). A lesser experienced participant, P8, commented:

> ‘I'm like, God, if you feel guilty, how much more have I got to do to not feel bloody guilty? And … I hope that's like constructive for you. And that it’s

> encouraging. Like just don't feel guilty because, for someone else that's got so much more to do, I would say, perhaps say that you're proud of yourself … and recognise what you have done, because I think that for me is, feels more encouraging.' (P8: FG1b)

In this way, P5 reflected on his 'guilt' not being helpful and instead saw the wisdom of acknowledging all that he was doing on climate, and his aspirations to do more. P8, in turn, felt inspired that the 12-step approach was not based on the quantity or even quality of one's actions, but rather was non-judgmental and exploratory in nature; she felt that she could realistically integrate this into her life, free of the unhelpful and inhibiting emotion of guilt.

Al Gore, in an interview with Hanson (Hanson, 2017), describes guilt as being paralysing and unhelpful to action on climate, even classifying it as a form of denial. Appadurai in an audiovisual interview (West Coast Environmental Law, 2017) emphasises that, while we are all responsible for our personal carbon producing activities, some are more responsible than others, such as 'Big Oil [which is] accountable for the much bigger part it has played in creating and perpetuating the climate crisis'. In this way, she approaches the issue of guilt from a different angle, encouraging us to accept our portion of the responsibility, but stressing that this is minimal given the role the petrochemical giants have played in shaping the oil-based economy on which we all depend.

Interestingly, 12-step fellowships also consider the emotion of guilt unhelpful; framing addiction as a disease (Alcoholics Anonymous World Services, 1986, 2022b; Mendola & Gibson, 2016), rather than a moral deficiency, facilitates a responsible but non-guilt-based approach to addiction recovery, thus avoiding the

painful effects of guilt that can provoke substance cravings (Alcoholics Anonymous World Services, 2022b; Dekkers et al., 2020; Narcotics Anonymous, 2008; Stanford, 2020).

Sharing took place on the grounds for ‘hope’ in FG1a, specifically on the usefulness of individual action within the bigger national and international context of inaction and inadequate action. Following doubts expressed by P4 that any genuine change in the direction of emission reduction was taking place within this wider context, P2 responded that he felt a transition was happening, that decarbonisation was going to take place regardless of all other factors, and that they could be part of and try to influence who that transition benefitted. But P4 was resistant to buying into individual action making any difference but prepared to have a go anyway, as:

‘I don’t think there’s a day goes by in the house where somebody doesn’t say ... that’s bad for the environment ... or ... you know ... what about global warming?’ (P4: FG1a). P1 commented that she could see ‘both sides of the argument’ and how reading the Synthesis (the tool drawn up by the researcher to present the tools of addiction recovery) had encouraged her to see the ‘glass half full’ and that attempting change amounted to more than not attempting change (P1: FG1a). These exchanges in some ways resembled 12-step processes as each person was sharing honestly from their own perspective. Just as in a 12-step group, there was no need to reach an agreement or consensus, as all took away from the discussion whatever resonated or felt helpful to them. Indeed, even the relationship between a sponsor (mentor) and sponsee (mentee) is often described as a two-way street (Alcoholics Anonymous World Services, 2022a; McGovern et al., 2021).

4.2 Other aspects of process

4.2.1 Using the document '<u>Synthesis of the Tools of Successful Addiction Recovery</u>'

As explained in 2.5, 3.5.3, and 4.1.3, as one of the tools of addiction recovery, all participants were given a copy of a document written by the researcher that was a condensing of many aspects of the 12-step approach. It was divided into four sections focusing on:

1. Inspirational slogans – succinct and memorable suggestions on how to approach personal behaviour change
2. Gratitude – suggestions on how to note and notice positive aspects of one's life
3. Low carbon fun – taking note of the low-carbon ways that we can enjoy life
4. Reflection – suggested ways to regularly assess and adjust one's approach to behaviour change

This document was long, and the participants only managed to skim and scan it, or read the first section, or not read it at all. In retrospect, presentation of the document in a more structured way, with smaller sections presented sequentially, may have fitted better into the busy lives of the participants (covered more in Chapter 6's recommendations). Nevertheless, it seems that aspects of the Synthesis impressed the participants, especially the inspirational slogans, and were useful in their process of behaviour change.

Among Gifford's psychological 'dragons' of inaction (2.2.3) was that of behaviour being limited which deterred individuals from taking climate action because they considered their potential contribution too small to be worthwhile.

Within the Synthesis was a 12-step slogan that helped participants reframe this. The 'Just for today' slogan applied to climate action highlighted that they had a choice and the power to act in this moment in time.

'I actually, I thought it was a quite useful way of looking at it because it breaks it down and makes it easy.' (P1: FG2a), '… concentrating on the kind of one step at a time, what I'm doing today. So that is something I need to adopt a bit more.' (P2: I1) 'So, I read the, you know, the, the, the, the thing the document and I thought oh these are really good, you know, and it's like, it's just for today' (P7: I1).

There are many 12-step slogans, sayings, and acronyms that simplify the tenets of addiction recovery and help the recovering addict/alcohol's mind to focus and avoid stress and overwhelm. Motivational slogans have a long history and were used even in Roman times, such as the Latin '*ubi concordia, ibi victoria'*: 'where there is unity, there is victory'. It is common practice in 12-step fellowship meetings to have the most helpful slogans written in big bold letters blu-tacked to the wall. In the current digital age, online information abounds, offering guidance to recovering addicts on using the slogans (Herbert, 2022). McGovern et al. (McGovern et al., 2021, p. 2) note that 'Commonly used group slogans remind sponsors that to keep it, they must also "give it away"', thus encouraging sponsorship, a core tenet of 12-step recovery as referred to in 4.1.4.

However, a recent qualitative study that documented the usefulness of motivational slogans in health recovery contexts cautioned that, while evidently useful when applied to behaviour change, they do not necessarily engender intrinsic motivation (Sun, 2024) suggesting that slogans can be an effective ingredient of climate action strategies, but that accompanying tools are needed for autonomous (intrinsic) and continued climate behaviour change to occur.

Some further comments on the Synthesis were:

‘In reading your, um, the drug recovery kind of stuff [tools of addiction recovery] applied to this, because I would probably go as far to say I was a bit like a little bit sceptical and thought, how does this apply? … so, um, at first, I was a bit like, how does this apply? but when I stopped, I thought, I actually, I thought it was a quite useful way of looking at it because it breaks it down and to make it easy.’ (P1: FG2a)

‘Just relating into what you said and then that, to the, um, like the 12 steps type thing [tools of addiction recovery], the just for today and all that … The next thing for me is looking at the packaging and cause it's like, you can only do one thing at a time’ (P1: I2)

More discussion on the applicability and usefulness of the 12-step approach ensued including the following comments:

‘Um, I guess part of the point of this for me is a bit like giving up something that's not that easy or not giving up something necessarily, making a change. That might not be that easy because, that my understanding is that's what we're looking for is for, you know, like this 12-step program. Like it's not easy, easy to come off booze or drugs or whatever, and it's not that easy to come off carbon to the extent that we have it.’ (P7: FG1a).

P7 also contributed:

> ‘Yeah. And it's positive. I mean, I guess what we're doing as well, um, and tell me if I'm wrong. I mean, I mean, with, you know, standard 12-step, you're trying to stop doing a thing that you've found is harmful to yourself, but we've what we’re looking at as well … it's not just about stopping doing harm … it's about doing things that are positive and finding more positives.’ (P7: FG1b)

These participants’ words suggested that they found many aspects of the Synthesis helpful in their attempts at climate action. It seems they particularly liked the compassionate approach embedded in the 12-steps. Reference to compassion was not a common feature in the climate behaviour change literature except in studies involving mindfulness, such as the Mindful Climate Action study (Barrett et al., 2016; University of Wisconsin-Madison, 2022). It is also of interest that a more recent climate action study based on mindfulness and compassion demonstrated the transformative value of the inclusion of these values (Ramstetter et al., 2023). Terms like sacrifice, duty, responsibility – words and expressions suggesting obligation – were more common when speaking of climate action (Satia, 2022). In conclusion, use of the word compassion seemed to foster engagement among this group of participants whereas terms of obligation were uncomfortable and deterred them from action, a point to be considered in designing climate action interventions.

> ‘Yeah. Being kind to myself. And I do say that quite a lot, which is a [12-step] saying in a way, isn't it? And that helps. And that helps me overcome those obstacles that I put in front of myself. If I say, being kind to myself, I don't

have to do this job properly. Maybe just do it and be kind to myself … So yes, the sayings, the sayings and reflective breathing, uh, are probably the tools I'm using most.' (P6: I1)

'I was reading the thing that you sent across, researcher, I thought this is like community. Like this should be bringing joy. This should be like bringing us all together. Not be like, um well, you know, you've had cheese today. That's three lashes for you. Yeah. I do think it does come back to the lack of self-compassion.' (P8: FG1b).'

'I loved like, I read through, you know, your document, and I love the aspect of like the compassionate-self approach, the whole ethos around that. That to me, excites me.' (P8: FG1b)

4.2.2 Sharing a kaleidoscope of feelings

'And then I read this big thing about there's like microplastics. I was like, oh, for God's sake, stop using that.' (P1: I3). The 'feeling angry' in this citation was one of a broad spectrum of feelings participants experienced during the study from negative to positive with a range in-between, as demonstrated in Figure 5.

Figure 5

Feelings Experienced during Study – Content Analysis.

A content analysis demonstrated that the most frequently felt feelings were those of ‘feeling encouraged’ or ‘feeling pleased’, suggesting that the tools of addiction recovery contributed to some positive feelings, a possible co-benefit of applying the tools to climate action. ‘You can't just sit … and hope things will change because it probably won't. So, you've got to combine hope with action, which I thought was quite interesting.’ – referring to a programme viewed by a participant during the study featuring young activists and Greta Thunberg (P5: FG3a).

> ‘Um, yeah, I'm just super busy, but you will be pleased to hear that today I was talking about, um, this project, like loosely, obviously maintaining the confidentiality stuff, but telling some people at work about, about it and so that was, that was good. And they were like, “oh that sounds interesting”. So, I

was talking about the kind of one day at a time thing and they were like “Oh yeah”, so you never know.’ (P1: FG3a)

Closely behind these positive feelings in the ranking was ‘feeling it’s difficult but doing it anyway’, suggesting a degree of frustration at obstacles to action, but the willingness to continue despite them. Sometimes the obstacles were internal, such as P3’s nut allergy which made dietary change from vegetarian to vegan problematic. Nevertheless, she tried to find a way through.

‘And I'll just carry on and I'll work my way through the, um, the counters of alternative milks and yogurts … it's got me trying, cause I never actually had tried out oat milk before, so at least it's got me trying that … it's fiddling around with bits and pieces, but anyway, it's worth the, um, it's worth it. It's, it's worth a try.’ (P3: I1)

Examining the obstacles to action, it appears that, unlike in the above case, most frequently they were external rather than internal, in other words, the contextual barriers referred to by both Gifford and Bouman (Bouman et al., 2021; Gifford, 2011) and explored in 4.1.3, and the economic context was frequently the contextual barrier, nudging participants in the counter direction to that they were aspiring to travel.

‘Very occasionally I'll buy water in a, in a plastic bottle because I've no other choice, you know, say I'm on a long journey to London to see my daughter or something like that. And I feel terrible about that bottle, um, because I just see

those bottles floating on the ocean, you know, and, uh, and, uh, and it makes me so sad. Um, so it's, I think, I, I know that's, I'm just sharing how I calculate, I calculate little things in my head. And, um, the leave no trace principle, leave no trace is kind of impossible.' (R with P1: I2).

P1 while attempting to buy ethical, organic meat observed 'It looks really expensive and it's like, it's too expensive. So that is an obstacle.' (P1: I2).

Nudge theory applied to contextual decision making (Thaler, 2009) posits that the economic context be constructed in such a way that the eco direction of travel can be structured in to be the most attractive and easiest. This is not a new psychological approach, but rather one that has recently been discovered by governments and other decision makers, but it was originally a matter discussed by behavioural scientists back in the 1970s (Green Alliance Blog, 2011). Indeed, Whitmarsh points out in this blog (co-authored by her for the Green Alliance) that:

> 'Climate change is a commons problem, a social dilemma, which cannot be addressed at the individual level, and climate change mitigation (unlike setting up a pension) doesn't necessarily offer other benefits to the individual. So, we shouldn't assume Nudge techniques will work in the case of sustainable behaviours' (Green Alliance Blog, 2011).

Underlining the above point, participants frequently felt they had to make an extra effort to seek out the less damaging products and that that direction of travel was not easy: 'like Hulme garden centre refill, have got a refilling thing for various soap products and bits and bobs, but you've got to be passing there or cycling there

to do it, you know, otherwise it's, counter-intuitive, isn't it?' (P6: I1). 'In terms of single use plastic, different areas use different, you can recycle different things in different areas! *(voice rising suggesting frustration)*' (P3: FG1a).

In 2.2.1 on behaviour shaping factors, authors spoke of the problem of the intention-action gap (Gifford, 2011; PEAs Psychology, 2022) being especially wide regarding climate action. Yet in this study participants were willing to attempt to traverse that gap and overcome the obstacles, 'feeling it's difficult but doing it anyway', and thus narrowing the intention-action gap. This is consistent with the experience of those in the AA 12-step fellowships, where those attending regular meetings were more likely to act on their intention to stay sober than those not attending (Kelly et al., 2020).

Klöckner (2013) and Abrahamse (2019) both suggest that social support is an important factor in achieving changes in habit and automaticity. Although a pilot study, participants' capacity to narrow the intention-action gap in the process of attempting climate action, despite 'feeling it's difficult but doing it anyway', may have been due in part to the social support tool taken from the 12-steps that the evidence suggests helps facilitate habit change (Kelly et al., 2020; Stanford, 2020).

A further frequent feeling common to all the participants was 'feeling busy'.

> 'I'm too busy, and that's the cry that comes out … That's one big obstacle for me is just feeling … if it's not one thing there's another, so it's Ted's birthday coming up, so I've created a bit of space tomorrow, but then I've got to sort of, I'm just thinking about that, getting ready for that. Or I could be buying my reusable batteries, uh, you know, so it's like, there's always something and work, um, is quite high pressure.' (P6: I1)

‘Well life is really busy, really busy and full.’ (P7: I1)

‘I struggle with with time … work emails. And then What'sApp, bloody WhatsApp groups – I've got I'm on two or three of those … And then every day there's like 300 messages and I'm just like, ah, it's, it's stressful … You can't read 200, 300 messages a day on top of everything else. It's too much.’ (P5: I1)

Of course, the tools of addiction recovery could not make work and home life less busy, but the ‘just for today’ approach enabled a conscious appraisal of each day and the ability to stay the course. Considering a busy period as a whole is daunting but living it a day at a time takes one out of the mental picture into the actual moving living process. ‘So, I'm actually looking more consciously, you know, I think day-to-day practices.’ (P6: I1)

In conclusion, despite frustrations and dilemmas, or, in other words, despite ‘feeling it’s difficult but doing it anyway’ and ‘feeling busy’, the participants continued in their attempts to act on climate and achieved ‘feeling pleased’ or ‘feeling encouraged’. This suggests that the ingredients of the study, that is the tools of addiction recovery, enabled this determination to continue and traverse the difficult feelings and the difficulties themselves.

As covered in 4.1.3, those people who can afford a green premium are generally willing to pay more for more sustainable products, albeit less so since the pandemic. A firm of green consultants concludes that this should be capitalised on by manufacturers and addressed across a product’s value chain, with pricing

adapted in line with customer willingness (Voigt et al., 2023). Of additional help might be carbon labelling, so that the hard work of assessing the carbon intensity of a product be reduced – a barrier to consumers, and to participants of this study – and some key sustainability organisations are collaborating in attempts to achieve this (Carbon Trust, 2024). Were further progress to be made in this direction, it would increase clarity for those attempting to select lower carbon consumer products.

4.2.3 Using a carbon calculator

A carbon calculator was included in the study since providing personalised feedback has been demonstrated to significantly raise awareness and have an effect, albeit minimal, on the carbon footprint of the user (Aichholzer et al., 2012; Buchs et al., 2018; Padgett et al., 2007). The carbon calculator chosen for the study by the researcher, and in consultation with the research supervisors and the testing out of several by a colleague, was the online service https://www.carbonindependent.org/ . In seeking a suitable carbon calculator, consideration was given to ease of use, appropriateness to the sample population, and scientific reliability. Several carbon calculators were rejected as requiring too much paperwork, such as energy bills and shopping receipts, given that all the participants had busy lives and would not have time for such paperwork gathering, whereas Carbon Independent permitted a quick estimate (Rastogi & Williams, 2020). Another calculator was rejected as being inappropriate for the sample population, for example, because it asked whether the user had a swimming pool, an uncommon feature in households in Greater Manchester. Consideration was also given to the accuracy of the calculators as results varied considerably between different ones. Indeed, one study that compared many different calculators concluded that they were useful for raising awareness but not for accurate assessment of one's personal

carbon footprint (Padgett et al., 2007). Of all those perused, the Carbon Independent calculator appeared to be the most user-friendly and, since it also offered reliable climate change information, it was selected for the study.

However, because this study took place mid-pandemic, using any carbon calculator was not straightforward. Some participants felt that the results were skewed since their behaviour had not been typical, given they could not travel, shop, or socialise as they did pre-pandemic. 'Did you just want the last twelve months when we've all been in lockdown? Because I don't think that's realistic' (P1: FG1a). Added to the effect of lockdown was the five-month study delay: 'obviously when you first mentioned doing this it was quite a while ago. If I'd done it [the carbon calculation] then my carbon footprint would have been very different' (P1: FG1a).

It might have been useful for participants to calculate for multiple scenarios but, given the limitations of discussion time available, and the fact that the participants predominantly felt busy and did not want more 'life admin' (P8: FG1b), the researcher made a judgement call that such an exploratory task would not have been the best use of the limited time available. In addition, several studies, as explored in 2.3.1, suggest that reference to carbon calculators correlates with only negligible effects, or none, on individual carbon footprints (Buchs et al., 2018; Mulrow et al., 2019; Rastogi & Williams, 2020).

In terms of participant responses, the inclusion of the carbon calculator could be said to be like a double-edged sword: on the one hand, the carbon calculator served a purpose in that it introduced the idea of quantifying personal carbon use for the discussions and provided a yardstick; on the other, as revealed in the literature, it led to certain discouraging comparisons, such as when P3 compared her footprint to the researcher's and said … mine came out at roughly half the

national average, which is a lot higher than yours [the researcher's]' (P3: I1). However, beyond quantifying and comparisons, it stimulated some left field thinking on carbon contributions 'but then I thought that is offset by the fact that I've not had children. So that's my biggest contribution to climate change. I've not reproduced. *(laughter)*' (P3: I1).

Unfortunately, for P4 the carbon calculation did not incentivise but rather fostered complacency: 'so it does just feel like it's a question of me individually … me shaving a couple more millimetres off that. Cos I'm already you know at the b***** English average' (P4: FG1a). In contrast, P5 felt 'proud' of his result, and this encouraged him to aspire for more: 'I know there's more things I can do, but I'm quite proud of what that carbon calculator gave as our, as our carbon thing as a household.' (P5: FG1b)

An outlier from the start, P4 had reservations about individual carbon reductions making much of a difference to overall carbon emissions.

> 'if all the action to do with climate is individual and it's just people thinking is there something more I can do myself, as opposed to it being a national priority that you have to do otherwise you go to jail, or ... in the second world war ... oo if anybody's got a rifle ... or if anyone feels like doing something about the Nazis, you know, do your thing ... and there being no national effort. Do you know what I mean? And what difference would that have made? And the fact is you just would probably have been overrun ... do you know what I mean? ... if you can do something against the Nazis do it, but don't worry too much if you don't.' (P4: FG1a)

The literature on climate behaviour change interventions revealed that others share P4's reservations and prefer to take individual action within a framework of environmental regulation that ensures their actions be part of a bigger whole and, as such, more effective (Lorenzoni, Day, & Whitmarsh, 2007). Yet all the participants had committed to attempt behaviour change in the absence of such extensive environmental regulation and even P4 was willing to see if his participation increased his motivation for climate action.

> 'Anyway, that's what ... I kind of ... it goes round in my head when I think what more I can do ... I'm already doing quite a lot and is that really ... so is that really ... anyway it will be interesting to know after these thirty days whether my mind changes slightly on that. Or what?' (P4: FG1a).

Any negative comments on the carbon calculator centred on having to use it being a task and that life was busy enough.

> 'I think similar to what P7 was saying, like, well, I mean, in terms of like time, I feel like the calculator and like that very like quantitative approach to it … I don't feel like, it doesn't excite me … I'm like, oh, that's like more life admin' (P8: FG1b).

'Well, I have to confess that. I haven't done my carbon calculator. So, I'll do a quick guesstimate … I kind of lost track of everything. So, I haven't done my prep.' (P7: FG1b)

However, in terms of choice of carbon calculator, the Carbon Independent version received positive comments: ‘So yeah, it was dead easy. I thought it was good’ (P5: FG1b) and ‘I found it nice and easy. It's the first one I've done in my recent life, I suppose, in family life’ (P6: FG1b). In short, those that did use it found it easy and straightforward, not liking the idea of a task, but relieved it was an easier task than with other versions:

> ‘I often get put off by these things because I like to do things properly. So, I would think I better go and get all my bills. I'd better go and look at my car records of exactly how many miles I've done and … but deadlines and pressure.’ (P6: FG1b)

Of course, the inclusion of the carbon calculator was not a tool taken from addiction recovery, but rather a quasi-quantitative tool to aid and stimulate discussion, as well as a signpost for participants to sources of information on carbon and climate, and, as mentioned earlier, an awareness raising eco feedback tool (Aichholzer et al., 2012; Buchs et al., 2018). An analysis of the data suggests that for this group there was certain value to its inclusion; however, there are ways that it may have been used more effectively, such as participants using it live in a focus group session with immediate follow-up questions on its usefulness, including challenging questions on any comparisons or complacency that ensued (See 6.2.1).

4.2.4 Practicing mindfulness

There was considerable interest in mindfulness among the participants; indeed, the 12-step approach built on mindfulness principles was a factor in attracting participants 7 and 8 to take part in the study.

> ‘What, I would really like to do and, like, this is when I loved reading through your, um, worksheet [Synthesis of the Tools of Successful Addiction Recovery] is what I really wanted to try and do was in actual fact, like commit to doing five minutes, just five minutes, in the morning of meditation every day, thirty days, and actually, see if that increased my self-compassion for myself and therefore the world’ (P8: FG1b).

‘Oh, we’re doing a breath connector aren't we today? R reply: Yeah. P7: Oh, that would be nice. R: Oh good. I'm glad you think so.’ (R & P7: FG2b)

And when given the option of a long or a short meditation, the longer was more popular among most ‘I'd be up for that’ (P6: FG2b). However, the mindfulness meditation was not to everyone’s liking.

> ‘I have to be honest, researcher, and say that I hate anything like this at all. I never do it. I can't, don't, understand breathing. Um (laughter), don't do it at yoga. Um, so I'll just go with the flow. Yeah.’ (P3: FG2b)

For most though, it was an opportunity to do something they considered beneficial but did not find time to engage in during day-to-day life ‘I think the whole breathing techniques and stuff are generally good for life. I don't really get much chance to do it. I always have these good intentions and don't get there.’ (P1: I2) ‘I suppose that actually is the answer – meditation, you know, meditating and, and reconnecting with that regularly is the answer.’ (P6: I2).

‘Um, yeah, the mindfulness is really nice. I had a really busy week. So that was, uh, very pleasant and made me think, as every time I do something like that, that I must incorporate it into my weekly, monthly life, but it never happens.’ (P1: FG3a).

Even P4 who generally was an outlier and somewhat resistant to engaging with the process, had this to say about the mindfulness:

‘The mindfulness nearly sent me to sleep, and it was the best I felt all day. And it did work to, uh, kind of make me think, uh, that I am not just a lot of activities. I am also something else.’ (P4: FG3a)

Words like ‘flow’ and ‘reconnecting’ used to describe the mindfulness meditation and the phrase ‘a reminder that I am not just a lot of activities’ demonstrated that the inclusion of mindfulness meditation helped the participants to engage with themselves, and perhaps by extension, their lives, and the importance of acting on preserving life and tackling climate change. Mindfulness meditation is revisited as both a tool and a co-benefit, and with reference to the literature, in 5.2.3.

4.2.5 Significance of process to participants

When asked to comment on the significance of participation for them, several participants attributed a change in their climate behaviour to their involvement in the study. In answer to the question of whether the supportive structure was helpful: ‘Well, I would say absolutely because it's like, um, I see it's like social epidemic stuff really.’ (P5: FG3a)

’Makes you stop and think … Just brings it back to the forefront … It's been a good process to go through just to kind of … anchor the point and then remember and think about it and try and actively do something, you know, not just kind of bob along and just assume that it's fine, you know, actively try and do stuff or think about it or plan goals and things like that.’ (P1: FG3a)

‘I thought it was very interesting. I mean, yeah, it was. Seeing different people come from very different points, points of view, and some of which I thought about and other bits, I, I hadn't, you know, I, you know, the image of a journey isn't, um, isn't quite right, you know, cause there were some people I thought were much more aware of the broader picture, but then hadn't thought so much of the smaller picture, um, you know, and, um, so yeah, it was just interesting to see where I put myself in all of that really.’ (P3: I1)

‘I think that one of the things I suppose that um you don't often have is that kind of space where we can just kind of talk and kind of evolve in the group and kind of support each other around um those issues about how we are managing with either reducing our own carbon footprint or just managing with the, with, uh, responding to climate change.’ (P2: I2)

Of course, support groups exist in many different forms and for a variety of behaviour change objectives, and in the recent period, specialist support groups have emerged for those suffering climate anxiety via ‘The good grief network’ and ‘Climate Awakening’, and even include online tools for starting a support group in a

place of work or community (Benson, 2022). Just as in this study, the groups help people engage with climate rather than turning away due to the intense emotions that accompany engaging with climate reality. Perhaps, having a variety of fora that individuals can access to support their climate engagement is useful, so all have a route that can work for them. The engagement demonstrated in this study suggests that a 12-step based group could form an important option in the range of possible support solutions. An additional advantage to the 12-step approach is the rapid growth, low cost, and easy accessibility that such groups have experienced since their inception in 1935 (Donovan et al., 2013; Kelly et al., 2020). As Humphreys attests 'It's [AA] the most common place people seek help for alcohol problems' (Stanford, 2020, p. 2min 23sec) and Jones re-affirms that the extensive network and ongoing community that the 12-step groups offer is one of the reasons why they work (Stanford, 2020).

4.3 Longitudinal aspects of this short study

4.3.1 An accidental longer lens

External circumstances protracted the length of this thirty-day study. Firstly, as detailed in 3.6.2, seven participants effectively began their process during discussions on the researcher's recovery walks prior to the formal start of data collection on 19 April 2021. Secondly, scheduling practicalities extended the study beyond thirty days to fifty-seven days. Finally, two years later (August 2023), two participants – P4 and P8 – spontaneously contacted the researcher to attest that their climate engagement process had continued and evolved, and that climate consciousness, contemplation, and action had become integral parts of their daily

life. This prompted the researcher to send out a longitudinal follow up questionnaire the results of which are discussed in 5.2.

4.3.2 Too short a process

P7 expressed that, being only thirty days (though it was fifty-seven), it was too short a process to replicate an authentic 12-step experience:

> ‘ … a longer-term thing for like … the first steps are starting to look at the behaviour, aren’t they? And then the second steps, the next steps are being able to take opportunities to find strategies. Um, but, um, we haven't necessarily, I feel speaking for myself, got that context within these thirty days’ (P7: I1).

It is of note that a longer time scale for this process was of interest to this participant. Of course, this study could only offer a limited series of engagements for a thirty-day duration, but it would be of interest for future studies to offer an extended, wider reaching, and more authentic 12-step programme, contrasting the results with those of non-12-step peer-led interventions (See 6.2.1).

Australian health psychologist Hatty, during a recorded online departmental seminar, referred to behavioural science interventions typically affecting small numbers (Department of Energy, 2020), contrasting sharply with the expansion and reach of 12-step fellowships across the globe involving possibly tens of millions (Kelly et al., 2020), although exact figures cannot be known due to the principle of anonymity (Alcoholics Anonymous World Services, 2022b). Kelly et al. (2020) note that, in many places, 12-step meetings are available throughout the week, even during holidays and at weekends, and that this facilitates ongoing support for

behaviour change and thus enduring change in daily life is achieved for a great number of members, a point also made by other authors (Donovan et al., 2013; Morales, 2020; Robbins, 1992). In more remote regions, members reach out and connect with others so that no one is ever alone (Kelly et al., 2020). Evidently, such an extensive structure could not be replicated within a research study. Nevertheless, more aspects of the 12-step model might be drawn on and incorporated in a wider-scoped longitudinal study (see 6.2.1). Also of note, as referred to in 4.2.5, in a spontaneous citizen response to this need, climate anxiety support groups are growing in number, giving climate activists perhaps the beginnings of a more extensive network of support (Benson, 2022).

4.3.3 Minimum attrition

A further indicator of the strength of engagement in the process of the study was the minimum attrition; as previously mentioned, all participants completed their agreed quota of interviews and focus groups apart from one participant who reluctantly had to leave due to pregnancy, and another who left due to technology issues.

4.3.4 Movement through stages of behaviour change

The transtheoretical model (TM) of behaviour change was referred to in section 2.3.4. Key in the selection of participants for this study was that they be at least at the contemplative stage of the model to be considered for the study (See Table 11).

Table 11

Transtheoretical Model (TM) of 'Stages of Change' applied to Climate Action

Stage according to TM	'Voice' of individual attempting change	Stance towards climate behaviour change	Shorthand
Precontemplation	'No'	Not ready, or not even on radar.	Climate ignorer
Contemplation	'Maybe'	Starting to engage.	Climate curious
Preparation	'Almost'	Starting to research, preparing actions.	Becoming climate active
Action	'Yes'	Making change, actively engaged.	Climate active
Maintenance	'I'm committed'	Maintaining climate actions and expanding reach.	Very climate active

Despite the brevity of the study, some participants appeared to demonstrate a progression through the stages, as the following comments suggest. 'I am feeling, even when we had the last focus group, I felt actually I can tick off a few things.' (P6: I1) – demonstrating that P6 had moved into the action stage quite early on in the process. Similarly, the following words from P3 demonstrate that she was actively involved in the process of making change and attempting to maintain it.

> 'My first bike ride instead of driving, which was to go to my keep fit class on Friday, was somewhat stretching to put it mildly. I'm still at the stage of being really conscious that I am on a bike on a road and oh my God, there's a car and whatever, whatever.' (P1: FG2b)

As mentioned above, P8 and P4 voluntarily contacted the researcher two years on to attest to the positive effect their participation has had both on their lives and on their climate actions, actions they have maintained and built on showing them

having moved from the climate curious to very climate active (the maintenance stage, see Table 13).

P5 and P7, both of whom were already very climate active, continued to push the boundaries of their climate action but also to focus on self-care and the ability to maintain action without burn-out; in other words, managing to stay in the highest progression of the 'maintenance' stage.

As mentioned in 4.3.1, seven participants effectively began their process prior to the initiation of data collection, due to the delay arising from the researcher's bike accident and, as a result, discussions began earlier on the researcher's recovery walks. It could be argued, therefore, that these comments demonstrate a developing commitment that came about due to an accidental extension of their active climate contemplation period. Of interest too is Weathers perspective on TM as a non-linear but rather spiralling process, in which those attempting change revisit earlier stages but on a deeper and more committed level (CalSouthern Psychology, 2013), and this may be what occurred for those already climate active at the start of the process. The experiences of the participants viewed through this accidental longitudinal lens appear to share commonalities with the results of the meta review of studies on the effectiveness of AA; in the most rigorous set of studies, AA helped people sustain the behaviour change of abstinence from alcohol over other treatment modalities[16] longitudinally at one, two, and three year milestones (Kelly et al., 2020; Stanford, 2020).

[16] The other treatment modalities were Cognitive Behavioural Therapy (CBT), outpatient treatment, mindfulness, and education programmes.

4.4 General conclusions on process

The experiences of this study suggest that perhaps the important factor initially is to become engaged; once engaged, a personal path may move on to include considerable carbon ticket items. Logically, without engagement, no carbon reductions are possible. So, engagement is the starting point, the slip road onto the main highway of action. The actions of the participants of this small study seemed to suggest that self-direction, as practised in the 12-step fellowships, made engagement easier and higher levels of climate behaviour change more likely – the important initiation point being to be engaged and setting goals, to be on the path of action, rather than on the path of inaction.

Hatty (Department of Energy, 2020) suggests that there is no magic bullet and that a multi-levered approach to climate behaviour change is the most effective, including a range of support factors such as social encouragement and co-benefits. Kelly (2022), who along with others analyses the success of the 12-step approach to abstinence (Stanford, 2020), attests that there is no one clear reason why 12-step tools work, but that it appears to be the combination of several factors that work in different ways for different people: in other words, a multi-levered approach including widely available support groups and support network, exposure to positive social norms and values, the sharing of ‘experience, strength, and hope’, and more. Though the number of recovery tools included could not represent a truly multi-levered approach, this short study was able to incorporate several of these 12-step tools, all of which worked in different ways for different participants and was able to report tangible successes in the process of applying them. A larger-scale study incorporating a truly multi-levered approach incorporating a fuller range of 12-step tools of recovery would be of interest (6.2.1).

Chapter 5 – Behaviour change outcomes: findings and discussion

Introduction

In Chapter 4, the nature of the process the participants experienced during the application of the tools of successful addiction recovery in attempting climate action was explored. Now, this second discussion chapter will focus on the outcomes that emerged from that process. With reference back to Chapter 2, this chapter will consider the goals participants set and the actual outcomes that ensued. Also, outcomes unrelated to their goals will be considered.

The most relevant research questions for this chapter are:

- Q1 What is the extent to which the participants feel more equipped to bring about positive climate behaviour change in their lives?
- Q4 Beyond carbon reduction, what general benefits or lack of them do the participants experience when applying the therapeutic techniques of addiction recovery?

5.1 Goals and outcomes

Table 12 shows the codes that emerged, and the frequency with which they occurred, during the participants' discussions of goals and outcomes.

Table 12

Coding and Content Analysis of Participants' Discussion on Outcomes

Codes that emerged in discussions on goals and outcomes	Frequency of codes in data
Climate influencing	63
Making dietary changes	52
Developing new habits	43
Recycling/Reusing/Repairing/Re-purposing	30
Cycling & attempting lower carbon travel	23
Taking care with consumer choices	20
Reducing home energy use	13
Growing fruit and veg	8

This content analysis demonstrated that climate influencing was the most frequently arising topic. There was much frustration at how difficult it was to influence decision makers, to spread the word on climate, and to contemplate what the future might hold for those without a voice on climate. This was due in part because one participant, P5, worked in a job that involved climate influencing, as well as climate volunteering, and two participants, P2 & P7, had previous experience of attempting climate influencing, thus they brought examples and experiences of this to the discussions.

Perhaps surprisingly, given these inherent difficulties in climate influencing, almost all the participants spoke of climate with others outside of the process – some in their workplace, others in non-work situations – and regardless of whether their stated goal was climate influencing or not. Indeed, only two participants (P2 & P6) aspired to climate influence as a specific goal, but, for example, P1 found herself spontaneously doing so in her workplace, as previously quoted in 4.2.2:

> '… you will be pleased to hear that today I was talking about, um, this project, like loosely, obviously maintaining the confidentiality stuff but telling some people at work about it, and so that was good. And they were like, "oh that sounds interesting". So, I was talking about the kind of one day at a time thing and that and they were like "Oh yeah", so you never know.' (P1: FG3a)

This level of climate influencing is noteworthy with P1, P2, P3, P5, P6, P7, and P10/R climate influencing during the study in the form of interventions in the workplace and attempts at local climate influencing. P5, as mentioned above, was already a committed climate influencer and therefore this study played no part in him doing so through the duration of the study. However, his sharing of his climate influencing and current projects appeared to interest the other participants:

> '… pausing and reflecting is absolutely wonderful. And what I actually realise that is that I've done more than I thought, and that it's had much more of an influence than I thought. So, I'm actually filled with joy and, uh, energy, uh, despite being tired from my day.' (P6: FG2b)

The literature consulted in Chapter 2 suggested that climate field interventions tended to focus more on reducing carbon footprint aspects such as home energy, travel, and diet rather than climate influencing (Bergquist et al., 2023). Engagement is crucial if we are to involve all actors in climate action (see 4.1.2) as urged by the latest IPCC reports (Intergovernmental Panel on Climate Change, 2022a), and climate influencing is an essential preliminary to engagement to

cascade out the climate message and engage the greatest possible number of individuals in climate action.

Interestingly, the stated primary purpose of 12-step recovery groups is ‘carrying the message’ – shorthand for transmitting to others how recovery from active addiction is possible:

> ‘Carrying the message is one of the best ways to maintain your sobriety. It demonstrates how Step Twelve is the most joyous of the Steps to live, that participating in the recovery of others is one of the fruits of your own hard-won recovery.’ (Kellermann, 2022)

In other words, members of 12-step fellowships set out to achieve the equivalent of climate influencing within the realm of drug recovery, and have achieved it in cascading numbers since the creation of the first 12-step recovery fellowship in 1935 (Alcoholics Anonymous World Services, 2022b; Kelly et al., 2020; Stanford, 2020). Given that within this small study climate influencing ensued, whether spontaneously or as a specific goal, follow-on studies would be of interest that note the extent to which the tools of successful recovery assist ‘carrying a message’ of climate awareness and action (see 6.2.1).

Bill W, co-founder of AA, intuited that ‘carrying a message of recovery to others’ was key to his own recovery. However, in the early days of the attempts to set up AA, he confessed to his wife Lois that he felt disappointed that the people he was ‘carrying the message’ to were not yet achieving sobriety. His wife responded that they weren’t yet, but he was (Donavan, 2022). ‘Carrying the message’ was strengthening his own sobriety and keeping Bill W sober. As referred to in 4.1.4,

within the 12-step fellowships, sponsorship (mentoring) slogans exist, such as ‘We can only keep what we have by giving it away’, and the well-being of the sponsor (mentor) as well as the sponsee (mentee) are enhanced by this process (McGovern et al., 2021) Perhaps carbon influencing in the same way may strengthen the resolve of the individual to continue their path of climate action regardless of whether those they are ‘carrying the message’ to take action or not – a result in and of itself.

Of course, there are many ways to cascade out the climate message. In recent years, the expansion of carbon education projects, including the award-winning Manchester founded Carbon Literacy Project (Carbon Literacy Project, 2024), have been successful in both informing on climate and educating for individual carbon reduction (Srkoc et al., 2022). What is specifically suggested here is climate influencing as a two-way street, as in the 12-step model, and no studies, as far as this researcher is aware, have explored this potential mutually beneficial relationship.

However, research is focusing on virtual influencers who promote pro-environmental behaviour with interesting results (Gerrath et al., 2024). The manner of influencing used by these modern communicators bears little resemblance to the 12-step process, but it is of interest that those often regarded as peers are having a certain reach among a demographic not easily accessible to mainstream climate communicators.

In a recent extensive study, it was revealed that climate anxiety, though regrettably harmful to mental health and of course uncomfortable for the sufferer, correlated with increased climate action (Ogunbode et al., 2022). The mutual help dynamics of climate anxiety groups is perhaps comparable to 12-step mutual support relationships; having support and opening up emotionally, painful as that may be,

appears to catalyse climate engagement. In both 12-step fellowships and climate anxiety groups, attempts to trigger action and shape solutions that will benefit all are evidently more beneficial than isolation and inaction in our collective global challenge to avoid ‘dangerous’ climate change.

Further studies might explore all approaches that aspire, as urgently urged by the IPCC (2022b), to ‘involve *everyone*’ (Srkoc et al., 2022) and to support everyone in the emotions that emerge through engagement with climate change and gain a greater understanding of the most effective ways to climate influence, so that at this crucial time the possibility of effective action increases and ‘dangerous’ temperature rises might be avoided (Intergovernmental Panel on Climate Change, 2022a; Meyer et al., 2022).

‘Developing new habits’ and ‘making dietary changes’ closely followed ‘climate influencing’ within the frequency of codes that emerged in a content analysis as each participant strove to adapt elements of their daily living and introduce new ones. Perhaps the predominance of these themes was due to them coupling well with the 12-step approach, such as P7 commented when contemplating eating less dairy.

> ‘Um, I guess part of the point of this for me is a bit like giving up something that's not that easy, or not giving up something necessarily, making a change. That might not be that easy because, my understanding is that's what we're looking for, you know, like this 12-step programme. Like it's not easy, easy to come off booze or drugs or whatever, and it's not that easy to come off carbon to the extent that we have it.’ (FG: 1b)

Just as the addict/alcohol in 12-step recovery groups attempts the primary goal of abstinence a day at a time, attempting dietary or habit change in this way equally breaks down the task, rather than it feeling like an overwhelming challenge:

> '… at first, I was a bit like, how does this apply? but when I stopped, I thought, I actually, I thought it was a quite useful way of looking at it because it breaks it down and to makes it easy.' (P1: FG1b)

Despite the 'dragons' to inaction discussed in 2.2.3, participants attempted daily habit change even though they faced these internal and external barriers (Gifford, 2011). To take a case in point, P1 sought meat alternatives despite the time-limitations of a demanding full-time job and family responsibilities. Equally, P6, who also was time-stretched, took time out to research and compare the carbon cost of dairy deliveries in electric vehicles to non-dairy alternative products, or even buying non-dairy from the dairy deliverer since this was now possible. He also considered other strategic changes such as shopping first in a local low-carbon wholefood store and then topping up if needed at a regular supermarket rather than vice versa which had been his habit; he even considered downsizing, changing his daily living habit in multiple ways, to live more simply and lower his household carbon contribution. 'I need to create space for it. And in terms of you know longer term, that's like, will I be, I'm wondering about, you know, will I be downsizing the house.' (P6: FG2b). P10/R, despite daily work/study/family challenges, made habit changes including the introduction of three vegan days per week and the recycling of her contact lenses. In contrast, P7 struggled to let go of cheese consumption – a goal she set due to the high carbon intensity of dairy produce (Ritchie, 2022) – to a

large degree because life felt very busy and that she did not feel, therefore, that she had the capacity to address the accompanying emotions of giving up something she loved. It is of note that P7 had already taken action on ‘the low hanging fruit’ before participating in the study and so for her cheese was one of the last ‘carbon-frontiers’ and therefore a harder habit to break. But overall, most participants achieved some daily habit change, especially dietary change.

Dietary change and habit appear interlinked; after all, what we eat is a daily habit. The literature consulted in 2.2.2 documented that habits and automaticity were inhibitors of behaviour change. Thus, a focus on any tools that assist changes to deeply rooted and automatic habits are of interest. Klöckner (2013) proposes social support to dehabitualise deeply rooted behaviours and the support of the group in this study may have contributed to the ability of participants to tackle ingrained behaviours, just as the support of the group in 12-step fellowships is key to individual recovery (Kelly et al., 2020; Stanford, 2020).

The following three codes ranked lower according to the content analysis: ‘Recycling, reusing, repairing, re-purposing’; ‘Cycling and attempting low carbon travel’; ‘Taking care with consumer choices’. In exploring the first two of these categories, it is useful to re-visit the local context where MCC and GMCA’s climate ambitious policies facilitate a high level of active travel – ‘A universally accessible active travel environment’ (Manchester City Council, 2023a) – and home recycling opportunities, meaning that only two per cent of Greater Manchester’s waste goes into landfill, according to latest updates of the GMCA recycling plans (Greater Manchester Combined Authority, 2019). Despite the improvements to recycling in Manchester and a relatively extensive service, participants were frustrated at the gaps in the service: nowhere to recycle yogurt pots, soft plastics only recyclable at

certain supermarkets, contact lenses only recyclable at one optician meant that participants had to strategically plan multiple journeys to achieve no-landfill levels of waste disposal. Terracycle, a private company, did offer a yogurt pot disposal service, but …

‘You go to private addresses here, there, and everywhere to get rid of a few yogurt pots.’ (P3: I1)

In terms of active travel, P3 benefitted from the promotion of cycling by accessing Manchester’s free training (Transport for Greater Manchester, 2024), which gave her more confidence. In addition, the cycle lanes made her bike travel safer and more direct. Nevertheless, very fast ‘blumming lycra clad cyclists’ (P3: I1) emerging from behind her was still a problem.

The third of these three codes, ‘taking care with consumer choices’, overlapped with ‘developing new habits’. ‘Reducing home energy use’ and ‘food growing’ were the least referred to of all outcomes, although P6 implicitly referred to home energy reduction in considering downsizing and P3 and P10/R referred to food growing and were both progressing with this activity, which they commenced prior to this study.

Although each outcome reported above in itself may be a small ocean drop, the potential cumulative outcomes, logically and mathematically, of large numbers of individuals overcoming habit and automaticity could be considerable, therefore, any tools that support this are of interest. Furthermore, for larger numbers of individuals to make many ‘small’ changes longitudinally would amount to considerable climate mitigation. Hampton and Whitmarsh (2023) stress the need for multi-level changes that facilitate the multiple roles that individuals can potentially

play in our collective climate action, and, as noted in a report for the Climate Change Committee (2019, p. 8), ‘Every tonne of carbon counts, wherever it is emitted’.

5.2 Additional outcomes: reflecting on broader impacts

5.2.1 Personal changes

Firstly, the outcome of becoming a climate actor with some element of commitment will be addressed. It is of note that all the participants, bar the two that for personal reasons had to leave the process, fulfilled all the requirements of participating in terms of attendance at focus groups and interviews, and thus attempted with commitment to take climate action. This demonstrated, at least for the duration of data collection, that they achieved the non-goal outcome of becoming a committed climate actor. It may be that the tools of the social support of the group and the Synthesis of the 12-steps, especially breaking things down into small tasks that are ‘just for today’, played a part in this outcome.

Due to this being a short fifty-seven-day process (originally planned as thirty), non-goal outcomes were limited. However, a recent survey sent to the participants more than two years after data collection reveals a continuing commitment to climate action with all those who were contactable becoming committed climate actors, or continuing with climate action, thus building on their starting point when they joined the study, as demonstrated in Table 13.

Table 13

Level of Climate Activity Compared Longitudinally

Participant No.	Level of 'climate' activity at start of research	Level of 'climate' activity 2 years on
P1	Becoming climate active	Climate active
P2	Climate active	N/A
P3	Becoming climate active	Climate active
P4	Climate curious	Becoming climate active
P5	Very climate active	Very, very climate active
P6	Climate curious	Climate active
P7	Climate active	Very climate active
P8	Climate curious	Climate active
P9	Climate curious	N/A
10	Very climate active	Very, very climate active

For longer-term behaviour change to be sustained, the proponents of self-determination theory, as explored in 4.1.3, deem that motivation must be largely intrinsic, and only minimally extrinsic (Deci & Ryan, 2015). In this study, the 12-step tool of a non-judgemental and supportive group may have contributed to fear-based motivation being minimised, such as people pleasing or feeling guilty, and this may have contributed to the sustained nature of the participants' climate commitment and actions.

In addition, in contrast with more typical climate interventions where study facilitators might prescribe the next steps in a participant's climate behaviour change journey, participants had ownership and created and crafted their own climate action path, again in line with the 12-step tools incapsulated in Narcotics Anonymous UK's statement that 'there are no "musts"' (2024 para 6) and Deci and Ryan's (2015) self-determination that align with the 12-step principle of self-direction.

In 12-step fellowships evidence suggests that those who regularly attend meetings are more likely to remain sober/abstinent than those who do not, and it is

theorised that the social connectedness of the groups helps launch the recovering alcoholic/addict on a new life course (Dekkers et al., 2020; Narcotics Anonymous, 2008; Stanford, 2020). The slogan ‘I can’t, we can’ is ubiquitous in 12-step meetings and group literature (Dekkers et al., 2020; Narcotics Anonymous, 2008; Stanford, 2020). Though the social support of the focus groups and interviews only featured in the initial stages of the participants’ climate behaviour change journeys, the supportive nature of these (‘I’ rather than ‘we’) may have contributed to their sustained, longer-term climate action.

In addition, other non-goal outcomes have ensued as Table 14 demonstrates.

Table 14

Goals and Outcomes Compared, Including Longitudinally

Participant	Goal 1	Goal 2	Goal 3	Additional non-goal outcomes
P1	To reduce meat consumption	To reduce personal travel emissions	To consider general consumption such as clothes and make-up	
Actual outcomes compared	Found a range of appetising meat-free meals in a supermarket	Considering an electric car for future	Started considering micro-plastics in make-up, the ethics and sustainability of clothing manufacture	
	Shared low carbon meals with the family	Actively travelled when practical		
Longitudinal outcomes	She has taken further active steps to reduce her meat intake	She has purchased a bike and swapped lots of journeys last spring and summer	She has taken further active steps to reduce her meat intake	In terms of using the tools of addiction recovery 'With reducing meat significantly I am applying the 'just for today approach' rather than trying to do everything at once as its too difficult. I do a lot more mindful activities.'
	She has almost given up dairy products	She no longer drives to work though this is mainly as she now works closer to where she lives	She has almost given up dairy products	She has since used an online carbon calculator.
P2	To climate influence by setting up a Carbon Literacy Course	To urge his household to dry clothes outdoors rather than use the drier	To further refine his diet to be lower carbon	
Actual outcomes compared	This idea that P2 had had for a long time became concrete plans that were also discussed with his workplace	Conversations took place with the household	He tried items suggested by vegan housemates as well as purchasing and trying out vegan food items himself	
Longitudinal outcomes	The carbon literacy courses are now established.	Lower carbon household emissions have continued.	Not discussed	Not discussed
P3	To reduce home carbon in terms of waste and energy	To engage in active travel	To make dietary changes	
Actual outcomes compared		Took a cycling course to build her competence		
		Took a first wobbly few rides		
		Cycled to keep fit classes and other places where she would have taken the car		
Longitudinal outcomes	She is trying to become more climate aware in everything she does, buying less, more recycling, not using single use plastics	She has tried to use her bike more to avoid driving		She has worked on improving the local environment, in her own garden, local nature reserve, and in a community orchard
	She is considering installing solar panels on the house but there are considerable cost implications she will have to weigh up very carefully.	She is also starting to use the bus occasionally (she now has a free bus pass due to reaching retirement age which helps)		
		She is considering purchasing an electric car but, again, there are considerable cost implications which she will have to weigh up very carefully.		
P4	To establish home composting	To critically consider whether individual climate action is for him	No third goal	
Actual outcomes compared	New working system set up	Still pondering at close of study the role of individual action, but certain that system change needed for climate to be tackled		

Longitudinal outcomes		He has taken individual action and considers that it can be of substance, though only within a broader context of building a movement for radical change.		He has reduced flying to zero despite the need to travel abroad for work and career, and despite nonflying travel being very expensive, especially when holidaying with whole family (4 members)
P5	To consider the purchase of an electric car	To extend his climate influencing	To look at self-care and self-sustaining	
Actual outcomes compared		Structures put in place to enable climate influencing such as fora where people can discuss		
Longitudinal outcomes	An electric van bought for work and electric car benefits being considered and embedded carbon in new vehicles given current car is going well.	This has continued and expanded. Including 'I have done more at work as its now a core part, including going on radio shows for the South Asian / Pakistani community and bringing the issue up with regard to the impact it had in their country. And I regularly bring up in a constructive manner with taxi driver, people in street – even at weddings in Holland!' P5 has offered contacts and tools that could be used collectively to effectively carbon influence.		Climate has remained a 'massively' important issue. 'No music on a dead planet'. He has used the tools of successful addiction recovery in this continuing work (and was largely prior to participating in the study). He has used a carbon calculator.
P6	To downsize	To climate influence in the workplace	To organise a re-chargeable battery system for the purchase to ensure the sourcing of this be ethical rather than necessarily from the market dominant companies	
Actual outcomes compared	Initial plans considered	Got climate on the regular monthly agenda at work as well as daily practices integrated into the workplace such as dairy alternatives being available, awareness of energy use.	Researched and purchased	
Longitudinal outcomes		He continued to ensure climate be considered in the workplace including daily work practices. His workplace has joined the local clean air group		He cycles, reduces home energy use, and climate has greater prominence in all aspects of his life.
P7	To make dietary changes, specifically reducing cheese and dairy in general	To investigate the 12-steps and their potential role in climate action		
Actual outcomes compared	Some dairy reduction	Learnt more about the steps		
Longitudinal outcomes	HAS NOT RESPONDED DUE TO SEVERE ILLNESS OF HER MOTHER BUT HERE CLIMATE COMMITMENT HAS CONTINUED AND INTENSIFIED			
P8	To take greater self-care such as by incorporating meditation into her daily routine	To approach climate action from a non-judgmental and self-compassionate standpoint	To reduce her carbon footprint without it being at the cost of well-being and, thus, unsustainable	
Actual outcomes compared	N/A due to her leaving the study after the first focus group	N/A due to her leaving the study after the first focus group	N/A due to her leaving the study after the first focus group	N/A due to her leaving the study after the first focus group

Longitudinal outcomes	Her words suggest that her whole approach to life has become more meditative.	In her words 'Your description of climate change and at the heart of it...being well heart, joy and self-compassion (i.e. 12 step programme) has been transformative. These seemingly 'small' in time and length conversations have rippled through me, continually echoed to be at certain times. '	She has managed to work less and so, in her words, 'this means consuming less - I'd rather have time than stuff'. She walks to pick the kids up from nursery and getting the bus home, rather than driving. In her words 'I love 45-minute walk and the kids love getting the bus home.' And, in her words 'Since becoming a mother I have expanded physically and therefore I have sourced clothes that fit my new body all second hand rather than new and I love the app Vinted.' And 'We got an air source heat pump - fully renewable energy in our house now'	'I just wanted to put into words what has happened and being felt since I first had a conversation with you over 2.5 years ago within your climate change research. Your description of climate change and at the heart of it...being well heart, joy and self-compassion (i.e. 12 step programme) has been transformative. These seemingly 'small' in time and length conversations have rippled through me, continually echoed to be at certain times. Often the (in my opinion) rigidity, polarity and judgement from climate activist groups makes me recoil and feel guilty. I respect the work of these amazing humans, but also feel that isn't for me...right now. I need gentle, joyous and self-compassion at the heart. Becoming a mum for the second time since your research (I dropped out after our 1st call because of bad sickness and yet the conversation has stuck) it has certainly been 'an awakening' and our prior talks came at a wonderful time. I have since realised how disconnected I am from nature and thus this means I am disconnected from truly making joyous and sustainable changes to reduce my carbon footprint. For me, the joy and self-compassion has come from being more - more time, more nature, more presence, more processing, more books, more conversations, more time. Less consumption of things including holidays. I have come to realise just how masculine, doing and go-go-go I have been. How this way of living makes me feel the need for dopamine hit of more i.e. buy that dress because i feel so burnt out and that will make me happy.... for 5 minutes. The main area I do have some guilt around is using disposable nappies, with our first we used reusable, but I have had some health issues and ultimately without the village to raise these children we have been surviving a lot of times and this felt like a necessity and for that I give us grace. We are now actually looking at living co-housing in a Passivhaus - this is a big change. A change that seems exciting and natural. I also want to add, I know I was able to make these above changes as I have the privilege and financial ability to. I totally feel like I am making these changes for the people who can't and not from a place of 'i am so you should'. I feel so grateful I am able to make these changes. Those conversations years ago were the seed to so much of the above. Thank you 🙏P8 xxx'.
P9	To make dietary changes	To grow food	To find out and understand more about the science of climate change	
Actual outcomes compared				
Longitudinal outcomes	UNABLE TO CONTACT TO DATE			
P10/R	To make dietary changes, in particular to reduce cheese consumption and use a home yogurt maker to make yogurt from non dairy milks	To recycle her contact lenses	To campaign to protect a piece of local greenspace	
Actual outcomes compared	Though not completely vegan, her dairy dietary content is a third of what it was pre study.	Found a local optician that worked with Terracycle to recycle lenses. Took a regular trip there by bike.	Saved half of it. Ongoing	
Longitudinal outcomes	R has many vegan days and sources much of the cheese she eats from a sustainable and ethical dairy where the calves stay with the mother.	Sadly, the scheme was scrapped by the optician as Terracycle put up their prices.	The campaign has now ended but R continues to campaign extensively on climate issues.	Meditation now occupies a much greater part of daily life. A well below average carbon lifestyle continues.

5.2.2 Co-benefits

As evidenced in 2.4.2.3, for climate commitment to be sustained, it must feel beneficial to the individual. Co-benefits such as feeling encouraged, feeling pleased, feeling the benefits of mindfulness have emerged in the process of this study and are analysed under various other headings including 4.2.2, 4.2.5, and 5.2.3. These numerous co-benefits were a welcome outcome and the longitudinal questionnaire demonstrating that the contactable participants continued to experience these co-benefits suggest that the tools of addiction recovery also had lasting usefulness.

Co-benefits may be a stronger motivating factor than scientific understanding or climate concern and high among them is benevolence, the desire for a more moral and caring community (Bain et al., 2016). In 12-step groups (Alcoholics Anonymous World Services, 1986; Dekkers et al., 2020; Greene, 2021; Narcotics Anonymous, 2008), as in this study, overtly speaking of compassion contributed to this co-benefit being available, and of value to the participants as in P8's goal to '[increase] my self-compassion' (P8: FG1b) (4.2.4), and P6's desire to '[be] kind to myself' (P6: I1) (4.2.1), and may have played a role in the seeding of longer-term climate commitment demonstrated in the follow-on survey.

In addition, new thoughts absorbed via the cross-fertilisation of ideas during discussions, may have led to participants embarking on actions previously ignored, such as a more plant-based diet (P1) or alternatives to flying (P4). As a result, they would experience first-hand the accompanying co-benefits such as enjoyment of plant-based food or the excitement of overland travel.

Aware of the strong pull of co-benefits, studies have aspired to map climate actions to potential co-benefits (Jennings, 2020). In 2.1 and 2.2, psychological

aspects and other barriers to climate action were extensively explored and listed in consultation with the scientific literature, but it would be of interest to map the range of support groups, as well as specific useful behavioural tools, such as those of 12-step recovery, and point individuals in the direction of the many co-benefits of taking action. This information would then be available to potentially support sustained climate behaviour change among wider layers of the population.

5.2.3 Mindfulness

‘I am not just a lot of activities. I am also something else.’ (P4: FG3a)

These words, as fully cited in 4.2.4, show P4 experiencing a moment of finding an aspect of himself that eluded him in the busyness of his day-to-day life. His tone was of surprise and, given that mindfulness has been demonstrated to improve quality of life (Creswell, 2017; Goleman & Davidson, 2017; Khoury et al., 2013; Schuman-Olivier et al., 2020; Wamsler & Brink, 2018), the tool of mindfulness gave P4 a taste of a tool that could perhaps improve all his days. Apart from P8, none of the participants included mindfulness meditation as a goal, yet all benefitted from the taster. P10/R and P6 have continued and deepened their daily mindfulness practice. The inclusion of mindfulness and tracking of outcomes related to it would be of interest in further studies.

Chapter 6 – Meta-discussion, limitations and recommendations, and thesis conclusion

Introduction

Given a continuing rise of anthropogenic CO_2 levels in the atmosphere, the failure of the powerful actors to sufficiently curb emissions (International Energy Authority, 2020; Jackson et al., 2018; Kenner & Heede, 2021), and the acute need for effective climate behaviour change at every level of society (Intergovernmental Panel on Climate Change, 2022b) as outlined in Chapter 1, this study aimed to trial an innovative approach to climate behaviour change, that of applying the mindfulness-based (Goleman & Davidson, 2017) tools of successful addiction recovery (Alcoholics Anonymous World Services, 2022b; Narcotics Anonymous, 2008) among a group of participants. In this fifty-seven-day study involving nine participants and one participant/researcher, a qualitative constructivist grounded-theory-leaning approach was applied where an abductive approach to data analysis allowed answers to the research questions to emerge, and the main aim of testing the tools of addiction recovery applied to climate behaviour change was met.

This chapter first draws together and highlights the most interesting and key findings of this study, relates them to the research questions, and compares them to the literature referred to in Chapter 2, and further literature consulted during the exploration of the emerging themes. Then, the limitations of the study are considered, and recommendations made for future studies and policy makers. Finally, there follows an overall conclusion to this innovative study.

6.1 Overall findings: Review of research questions

To achieve the main aim of critically evaluating ‘the extent to which the tools of addiction recovery might engender positive climate behaviour change among

a group of participants, the following research questions were devised and woven into the semi-structured interviews and focus groups of data collection:

1. What is the extent to which the participants feel more equipped to bring about positive climate behaviour change in their lives?
2. What difficulties and obstacles do the participants encounter in the process and how do they react to them and/or manage them?
3. Do the participants notice their carbon footprint change over the period of activity? If yes, how do they feel about this? For example, do they feel discouraged, encouraged, ambivalent?
4. Beyond carbon reduction, what general benefits or lack of them (co-benefits) do the participants experience when applying the tools of addiction recovery?

Table 15 demonstrates the relationship between these research questions and the addiction recovery tools and presents the outcomes of most note. A detailed discussion of the table's contents follows in 6.1.1.

Table 15

Outcomes of Note on the Usefulness of the Addiction Recovery Tools

Research question	Addiction recovery tools found to be useful	Outcomes of note
Q1 Recovery tools useful?	Just for today 📅	Helped with the breaking down of carbon reduction tasks into manageable portions. Prevented overwhelm. Narrowed the intention-action gap.
	Serenity Prayer 🙏	Supported self-directed goal setting, and achievement of those goals.
	Support of the group 🙋 🙋 🙋 🙋	Helped with climate commitment, the setting of goals, sticking to commitments, overcoming obstacles, and learning from each other within a non-directive but supportive subculture of intense climate engagement.
	Mindfulness meditation 🧘	Bar one outlier, the practice calmed and relaxed the participants and increased self-compassion.
Q2 Obstacles to action	Sharing of 'experience, strength, and hope' when facing obstacles	Helped knowing one was not alone in facing the difficulties. Led to cross fertilisation of ideas on how to move past obstacles. Supported continued engagement and achievement of goals.
Q3 Carbon reduction/reflection	Self-direction ➡ within a non-hierarchal group	Fostered a better relationship, one of ownership, with one's own goals. Goals achieved, or on course to do so, and this continuing longitudinally for most.
	Positive reflection ❓	High frequency of codes representing 'feeling pleased' Low frequency of those representing 'feeling not pleased'
	Carbon calculator (NB Not a recovery tool)	Largely not liked as too much life admin, but useful in initial focusing and assessment of participants' carbon footprints.
Q4 Co benefits	Mindfulness and calm 🧘 Greater Self-compassion ❤️ Satisfaction of having acted on climate (feeling pleased) 😊 Gratitude 🙏	Mindfulness and the non-judgmental group setting fostered feelings of calm and increased self-compassion for most participants. Participant reporting of feelings of being pleased and the satisfaction of engaging on climate, overcoming obstacles, and achieving goals. Reported feelings of gratitude.

6.1.1 Research Question 1 (Usefulness of recovery tools)

In Chapter 4, data analysis of the process revealed that the participants found the addiction recovery tools useful in their climate action. The recovery slogan 'Just for today' helped them break down the challenge of changing their habits and behaviour into smaller segments; it seemed that what Gifford (2011) described as the discouraging factor of action being limited was superseded by participants

realising they could use this slogan to concretely change things by simply focusing right here right now, thus narrowing the intention-action gap and contextual barriers (Bouman et al., 2021; Faries, 2016; Gifford, 2011; Kilian & Mann, 2021) discussed in 2.2.1. The ‘Just for today’ slogan paired well with the ‘Serenity Prayer’ that encourages an appraisal of what one can practically change, rather than dwelling on what one cannot change, and this supported participants in their self-determined process (Deci & Ryan, 2015), embarking on tasks towards their goals as described in 4.2.1 and 4.1.3.

Another key tool was the support of the group, and it was of note that participants moved quickly into a space of open and honest sharing. Even on issues such as deep personal loss and stressful climate developments (4.1.2), participants openly discussed with each other, suggesting that the tool of anonymity and confidentiality within a non-judgmental atmosphere contributed to their ability to do so (4.1.1).

The existence of the group offered to participants a space where they could talk about climate change and evolve their own personal relationship with a topic often avoided in everyday life. As reported in 4.2.5, groups are being formed that look at climate anxiety (Benson, 2022), but having an additional space to share self-directed personal goals (Deci & Ryan, 2015), following the 12-step recovery model (Alcoholics Anonymous World Services, 2022b; Narcotics Anonymous, 2008), allowed participants to strengthen their climate commitment. The findings suggested they were less likely to drift away from challenging tasks, such as entrenched habit change, highlighted in 2.2.2 by environmental psychologists (Abrahamse, 2019; Klöckner, 2013) as especially difficult to uproot. As Klöckner (2013) suggests, social support (in this case that of the group) helps dehabitualise automated routines.

Hormio (2023) notes that the problem of climate change is an aggregate of all our individual actions – a commons problems – and suggests the solution be both individual and collective. Supportive groups are evidently of significant value in this individual/collective task of finding climate solutions (4.1.2), and the results of this study suggest that a format based on addiction recovery groups can be beneficial in fostering both climate engagement and carbon reduction.

Within the supportive group, the sharing of 'experience, strength, and hope' (Narcotics Anonymous, 2008) proved to be a beneficial interplay for participants, regardless of their level of climate knowledge or activity, as demonstrated in 4.1.4, and engendering greater understanding and compassion (4.1.2). The sharing of feelings reduced isolation when faced with the overwhelming challenge that climate change represents (4.2.2), taking multiple forms as 'dragons' by Gifford (2011) as explored in 2.2.3, or as value conflicts by Bouman et al. (2021) in 2.2.4. In addition, the principle of sharing being non-directive and self-determining (Deci & Ryan, 2015), as in 12-step groups (where even a sponsor/mentor is not directive), allowed the forging of the participant's own individual climate action path and development of the more effective intrinsic motivation rather than less-effective, exterior-influenced, extrinsic motivation (Deci & Ryan, 2015) with ideas shared, and useful things taken from the discussion (4.1.4), but without pressure to take any specific actions on board: a growing approach endorsed by other climate action advocates (Satia, 2022).

Bar one outlier, the tool of mindfulness meditation was calming, comforting, and fostered self-compassion; however, for the outlier this tool was uncomfortable as even in yoga lessons she professed 'I can't, don't, understand breathing.' (P3: FG2b). However, all applied a mindful approach to their behaviour change, as

referred to in 4.2.4 and as suggested by Harris (2011) in 2.4.2.5, helping them engage with themselves, their chosen goals, and the wider issue of the climate challenge.

The results of applying these tools answered research Question 1 and demonstrated that the tools were notably useful in supporting positive climate behaviour change in the daily lives of the participants. This was a significant result given, as noted in Chapter 2, climate behaviour change is complex and multilayered, with psychological, structural, social, and cultural barriers to action (Abrahamse, 2019; Bouman et al., 2021; Klöckner, 2013; Whitmarsh et al., 2011).

6.1.2 Research Question 2 (Overcoming obstacles)

Within an economic context that does not readily support climate behaviour change, as explored during the sharing of goals in 4.1.3, the participants encountered many obstacles (4.1.4) and research Question 2 focused on whether the tools were useful in overcoming them. The group facilitated an exchange among participants on impediments to action, and this meant they knew they were not facing these difficulties alone even when there was no clear way forward (4.2.2). Their goal achievements suggested that they did move through obstacles (5.1), yet again demonstrating a narrowing of the intention-action gap frequently referred to in the literature in Chapter 2 as a difficult feature in the field of climate engagement and action (Abrahamse, 2019; Lacroix et al., 2019). Interestingly, this is consistent with the results of studies on narrowing of the intention-action gap within Alcoholics Anonymous (Stanford, 2020).

The process reflected that of a 12-step meeting where members share their addiction recovery ‘experience, strength, and hope’. As explained in 6.1.1, no individual member in 12-step groups has the answers for any other member, and it is

the process of sharing without the obligation to find answers for oneself or others that leads to an airing and sharing of experiences where all take away from that process what is useful for them and this appeared to be replicated among the participants of the study. At times, the participants differed in viewpoint, at others they learnt from each other, and all homed their own personal approach within this process that helped them to move through the many personal and contextual barriers they encountered (4.1.4).

In addition, an unexpected outcome was revealed in the longitudinal feedback reported in 5.2.1; despite the relative short length of the study of fifty-seven days (or 'thirty' as the participants tended to refer to the timescale, that being the original plan), more than eighty per cent of the participants (that is those that were contactable in that they were still using the same email address) were continuing to take action two years on. This contrasts sharply with a meta-analysis of climate behaviour changed interventions, including 3,092,678 observations, where other external factors such as economic incentive were kept constant. The analysis was strictly based on randomised controlled field trials with quantitative measurement of the resulting mitigation. The results demonstrated that carbon reduction and climate engagement were low level through the course of the interventions and infrequent beyond completion (Nisa et al., 2019). Evidently, this pilot study was not able to adapt the rigorous parameters of the interventions measured in this meta-analysis, but a more tightly controlled study would be of interest.

6.1.3 Research Question 3 (Carbon reduction/reflection)

In answering research Question 3 on any tangible carbon-reduction outcomes of the study, Chapter 5 presented the results that emerged in the data analysis. In terms of participants' observation of any carbon reducing behaviour, all

achieved at least one of their goals (5.1), and most managed several, suggesting that the tools were useful in supporting their climate action. As previously explained, it was acceptable to this study that these goals include climate influencing – a form of indirect carbon reduction, and perhaps an act that strengthens and sustains the climate influencer's commitment to climate action, as in the two way process of sponsorship in 12-step fellowships (Alcoholics Anonymous World Services, 2022a; McGovern et al., 2021).

The ongoing climate action reported in the answers to the longitudinal questionnaire mentioned above and in 5.2.1, demonstrated that carbon reducing actions continued. In some cases, the carbon behaviour change intensified. An impactful example of this was the case of P4 who now chooses to use rail and ferry for long distance travel rather than aviation despite being a participant very resistant to and questioning of the value of individual climate action at the start of the process when one of his goals was to 'critically consider whether individual climate action was for him' (Table 14).

This third research question also focused on any feelings the participants experienced, an important feature since negative feelings might discourage action. In this regard, feelings were reported such as 'feeling pleased' or 'feeling encouraged' in a much higher frequency than any negative feelings. This suggests that the tools may have contributed to their engagement in the process, their satisfaction in achieving goals, and their resultant climate action (4.2.2). Given the recognised and increasing emotional impact of climate anxiety (Benson, 2022), the group was also a 'wall' of human support, a pivotal tool in addiction recovery (Kelly, 2022).

This third research question also involved the use of a carbon calculator tool. Though the actual carbon calculator chosen was informative and easy to use,

participants generally would have preferred to not use the tool due to their lives being busy and containing an excess of ‘life admin’ (4.2.3). A more user-friendly way to log and measure achievement of goals and any carbon reduction would be advantageous, also given the observed limitations of carbon calculators (Buchs et al., 2018; Rastogi & Williams, 2020).

6.1.4 Research Question 4 (Co-benefits)

As discussed in Chapter 2 and in 4.1.2, environmental psychologists and researchers from other disciplines working on behaviour in the field consider that engaging with climate is difficult (Abrahamse, 2019; Bouman et al., 2021; Klöckner, 2013; Whitmarsh et al., 2011), yet engagement is a prerequisite to action. As noted in Chapter 4’s exploration of the process, participants continued to engage with climate and stayed steadfast in the process even during discussions of stressful climate developments, suggesting that the addiction recovery tools may have helped to facilitate this ongoing engagement, despite it being difficult, and that this led to feelings of satisfaction and accomplishment (co-benefits).

In addition, the non-judgmental and compassionate approach as presented in the Synthesis (4.2.1), and carried through into the interviews and focus groups, may have engendered the co-benefit of valuing one’s own efforts and oneself regardless of outcomes: that is, the co-benefits of self-worth and self-compassion (4.2.1), benefits that help motivate and sustain action (Bain et al., 2016).

The suggestion that one be reflective and notice things to be grateful for (an aspect of mindfulness), as presented in the Synthesis document, engendered the co-benefit of valuing the process as a whole (4.2.5). The well-being benefits of mindfulness were an additional co-benefit. The frequently felt obstacle to action of ‘feeling busy’ (4.2.4) was tempered, even if only momentarily, by the experience of

meditating and focusing on calm in the moment, becoming ‘not just activities but something else’ (P4: FG3a).

6.2 Limitations and recommendations

As demonstrated above in 6.1, on the one hand some very promising findings emerged from this study that answered the research questions, on the other they were not generalisable due to shortcomings such as the small sample size, the short length of the study, and the absence of quantitative supporting evidence. These limitations, and others, are now explored and recommendations for future studies made.

6.2.1 How to integrate tools of successful addiction recovery more effectively in future studies

Limitation: The researcher, selected several key addiction recovery tools to be used in the study, as referred to in 3.5.3. One of these key tools was a seventeen-page document distributed to the participants where she condensed key tenets of the 12-step addiction approach in a ‘Synthesis of the Tools of Recovery’. However, as previously mentioned, the document was too long for the participants to read as they were already time-stretched as working people with the additional task of being study participants. This included attending interviews, focus groups, planning, reflecting, and carrying out substantial changes in their daily lives, and this feature was demonstrated in data analysis with the frequently occurring code ‘feeling busy’. Nevertheless, the participants did wholly or partially read the Synthesis and attested that they found what they read helpful (4.2.1). The following recommendations concern how this Synthesis was presented, as well as the other study inputs of the carbon calculator and the mindfulness tasters.

Recommendation: In future studies, a document such as the Synthesis might be presented in simpler, shorter episodes, perhaps using a mixture of media such as a PowerPoint presentation, a video, a short pamphlet, or a blend of these. Discussions might focus on one episode at a time; this sequentially presented supporting material might more comfortably match the time available to the participants and be better digested.

Equally, the carbon calculator (also too much 'life admin' for the participants reflected in 4.2.3) might be integrated episodically in a way that incentivised and supported the participants, as was the case in studies that involved a carbon calculator explored in 2.3.1.

Given that the tool of mindfulness was beneficial (4.2.4), mindfulness training might feature more substantially in future studies, especially with the predominantly popular tasters expanded on. In this way, the purported benefits of mindfulness as an enabler of climate action could be further explored as in the Mindful Climate Action study (Barrett et al., 2016; Grabow et al., 2018; University of Wisconsin-Madison, 2022) (see 2.3.2 and 4.2.4) where mindfulness training played a pivotal role, but where the tools of addiction recovery were absent.

Furthermore, a more ambitious study design might integrate more substantially the tools of addiction recovery by more closely resembling the 12-step recovery process. As referred to in 2.2.5, Hatty in a departmental seminar (Department of Energy, 2020) recommends a multi-levered approach to climate behaviour change due to its complexities. Hampton and Whitmarsh (2023, p. 1) similarly suggest that 'a more cross-cutting perspective to understand various factors that can enable and accelerate pro-environmental choices is needed.' As referred to in 4.4, it is theorised that 12-step fellowships' successful outcomes are due to the

multi-layers of the approach working in many ways for different people (Kelly et al., 2020; Stanford, 2020). Some benefit from the alternative social network they provide, others from the availability of peer role models, some are guided by the clear message in the slogans, and others gain from the cross professional and non-professional collaboration with statutory healthcare, or members benefit from a mix of all these; in other words, the 12-step fellowships work because of their multi-pronged approach. A study that more amply replicated the full range of tools of addiction recovery, thus applying these multiple prongs, or levers, to climate behaviour change would be of interest (including 'carrying the [climate] message' or climate influencing).

Finally, a future study might choose to focus on a sample of participants already experiencing some degree of climate anxiety (4.2.5). As referred to in the researcher's personal vignette, her own use of the tools of addiction recovery was prompted by life circumstances that could be described as her 'rock bottom', when the consequences of her addictive behaviour were negatively impacting her daily life, and the lives of her loved ones. In 12-step recovery groups, those who seek help and embark on recovery have usually faced such a personal 'rock bottom' (Alcoholics Anonymous World Services, 1986, 2022b; Morales, 2020). Yet in our society in general climate change does not necessarily rebound on us in this way in a personal rock bottom, although it could be argued that we are facing a collective rock bottom. However, the increasing numbers of people experiencing climate anxiety are in a sense being personally impacted by our collective failure to reduce carbon emissions (Benson, 2022). The experience of the use of the tools of addiction recovery among such a group would be of interest since what could be tracked is not only any climate behaviour change they might embark on but whether

simultaneously they experienced the co-benefit of a reduction of their climate anxiety. Such an approach to a sample would also be in line with the psychological approach of leveraging moments of change (LSE, 2022) referred to in 2.3.3.

6.2.2 Greater streamlining of climate activity participant start-level, with possible addition of control group

Limitation: As outlined in 3.6.1, the participants were recruited from an anomalous relatively affluent geographical area, the district of Chorlton in Greater Manchester, and were a diverse group in terms of family status, age, occupation, sex, ethnicity, and climate activity (3.3). It is of note that they shared demographic similarities in addition to their high-earner income bracket (aside low-earning student, P9, and participant/researcher, R); though employment within the sample varied – doctor, social worker, urban gardener, housing worker, teacher, nutritionist, librarian, writer, artist, and student – all were professionally passionate and committed. Their fields of work fell under the umbrella of community and not commerce, suggesting they were more socially motivated than financially.

The differences that notably affected the study were P9's low-income preventing her accessing the technology needed to take part meaning she had to leave, and P8's stretching family commitments meaning that, when she was diagnosed as pregnant, she had to leave the study.

In terms of their climate start-level (see Table 16), four of the ten participants (including the participant researcher) fell into the more experienced categories: 'climate active' or 'very climate active'. This was the nature of the sample that presented via the researchers' recruitment strategy, and it was considered a sufficient mix given the 'climate curious' might benefit from hearing the experience of those already 'climate active' and 'very climate active'.

Table 16
Transtheoretical Model (TM) of 'Stages of Change' Applied to Climate Change

Stage according to TM	'Voice' of individual attempting change	Stance on climate action	Shorthand label
Pre-contemplation	'No'	**Not ready, or not even on radar.**	***Climate ignorer***
Contemplation	'Maybe'	**Starting to engage.**	***Climate curious***
Preparation	'Almost'	**Starting to research, preparing actions.**	***Becoming climate active***
Action	'Yes'	**Making change, actively engaged.**	***Climate active***
Maintenance	'I'm committed'	**Maintaining climate actions and expanding reach.**	***Very climate active***

Recommendation: Although a group with a mixed level of climate activity is reflective of a 12-step fellowship meeting, a greater ratio from the less experienced categories of 'climate curious' and 'becoming climate active' might more clearly indicate the usefulness of the recovery tools, especially their ability to motivate and engage the 'climate curious'. A purposeful sample might aim to include a greater ratio of 'climate curious' and more newly climate active participants and a longer study would create more opportunity to potentially move through the stages of change (Boston University School of Public Health, 2022). A demographic that also embraced those working in more commercial fields would also be of interest.

Alternatively, a future study might endeavour to test the tools of addiction recovery in an experimental design using a representative sample with both an intervention group and control group to demonstrate more clearly any movement through the stages of climate behaviour change. As emerged in analysis of the data, the participants' own words and actions indicated that the tools of addiction recovery did support their climate action (4.4 and C5). However, it cannot be known whether a parallel group not applying the tools might fare better, worse, or similarly. Such a

study, as in the carbon calculator study (Buchs et al., 2018) referred to in 2.3.1, would have greater internal validity and more robust findings (Bryman, 2016).

6.2.3 Capacity of research: budget, personnel, time, and other resources

Limitation: By nature of being an unfunded, part-time Master of Science by Research course, this study had no budget support, nor the timeframe, personnel, and additional resources that a higher budget permits. Also, the research experience brought to the project was limited since this was the author's first research study. These factors naturally limited the scope, with participants themselves stating that it felt like too short a process (4.3.2), and also left the study vulnerable to outside events such as the researcher's bike accident, the severity of which delayed data collection for more than five months, and with ongoing effects as outlined in the Reasonable Adjustment Plan (RAP). According to a recent multi-authored London School of Economics exploration of funding of research with societal aims, such funding is harder to secure than industry-partnered research (Stage et al., 2023). Despite these limitations, as outlined above, the study had promising findings that it would be useful for current designers of public climate interventions to integrate into their knowledge base.

Recommendation: Future studies might be better resourced, with a mixed team of expertise and, as a result, be more resilient and far reaching. The potential for scalability would increase and, therefore, a consequential more robust and potentially transferable set of results would be more useful to the urgent field of climate behaviour change.

6.2.4 Methodological considerations

Limitation: As referred to above in 6.2 and explored in Chapter 3, a mixed methods approach had been considered but discounted due to not matching the capacity of the project.

Recommendation: Such an approach would be a better fit for further studies since this would permit the gathering of quantitative evidence as well as the lived experience of the participants attempting climate behaviour change; it would permit the collection of a much more robust data set with both subjective and objective evidence.

Furthermore, future studies might consider a wider range of methodologies, perhaps adopting a longitudinal embedded ethnographic approach, or perhaps a stronger adherence to constructivist grounded theory.

6.2.5 Policy considerations

Recommendation: As outlined in 2.4, 12-step fellowships such as Alcoholics Anonymous and Narcotics Anonymous are entirely peer led and have grown exponentially in reach since their beginnings almost a century ago (Alcoholics Anonymous World Services, 2022b). Though these fellowships do work alongside local and national statutory agencies, they have no affiliation to them and are entirely self-funding and self-supporting (Donovan et al., 2013). Despite this lack of any professional intervention, there is strong evidence that they engender positive behaviour change and collaborate well with professional bodies, both statutory and non-statutory (Krentzman et al., 2010; Stanford, 2020). Both local and national policy makers have the potential to draw on this low cost, scalable, and effective behaviour change model that, as this study demonstrates, has the potential to be applied to climate behaviour change: interestingly, a model suggested several decades earlier

by Robbins (1992) for more ethical societal and economic organisations that might now be useful to draw on for bodies attempting climate action.

6.5 Thesis conclusion

In Chapter 1 the urgent need for action on climate was explored. Also evidenced was how this urgency is intensifying each day as the powerful actors fail to break with economic and political structures based on the continuing combustion of fossil fuels (International Institute for Sustainable Development, 2022; United Nations Environment Programme, 2021) – some, as referred to in Chapter 1, equating this attachment to fossil fuels to addiction (Aquarius2Zeitgeist, 2010; Open Democracy, 2014; Suranovic, 2013).

Chapter 2 explored climate behaviour change interventions and studies that underlined that information alone is not enough to engender behaviour change, a feature according to a recent study that continues even among those most aware of the impending catastrophic climate scenarios (Brock et al., 2023). Given that climate behaviour change is complex, multi-layered and difficult to achieve, multi-disciplinary approaches have been attempted and psychology models applied (2.2), but lasting behaviour change proves elusive (Wyss et al., 2022). In contrast, the anomaly that is the entirely peer-led 12-step fellowships do achieve transformational and lasting change, but in the field of addiction, not climate (2.4).

Consequently, this research set out to explore the extent to which the tools of successful addiction recovery might engender positive change among a group of participants when applied in the field of climate behaviour change. Nine participants and one participant/researcher attempted climate behaviour change over a fifty-seven-day period in a qualitative constructivist grounded-theory-leaning study and the results were promising with sustained climate engagement among over eighty

percent of participants, a determination to traverse the difficult to narrow intention-action gap (Abrahamse, 2019; Bouman et al., 2021; Faries, 2016; Lacroix et al., 2019; PEAs Psychology, 2022) with active engagement in carbon reducing behaviours even when this was difficult, significant movement through the behavioural stages of change (Boston University School of Public Health, 2022), and with co-benefits such as feeling pleased or encouraged among the findings, co-benefits that overlap with those evidenced in 12-step programmes such as inspiration, hope, well-being, and increased feelings of connectedness (Dekkers et al., 2020; Kelly, 2022; Stanford, 2020).

This pilot study has demonstrated that further studies, as recommended in this final chapter, would be of interest to future researchers and policy makers and this has been drawn on to produce specific suggestions for the achievement of greater rigour and the generation of transferable or generalisable results. Future climate behaviour change interventions embarked on by academic researchers, or organised by local and national policy makers, might benefit from the integration of the tools of addiction recovery in their design, potentially leading to greater climate engagement and carbon reduction, thus forming a valuable addition to the plethora of approaches to climate action. At this time of high public concern on climate change (Ball et al., 2022; Funk et al., 2020; Ipsos, 2021), but with public engagement in mitigation lagging (Brock et al., 2023; Wyss et al., 2022), increasing the range of effective tools to support climate engagement and action raises the possibility of transforming that concern into action.

In the increasingly urgent global situation, the highest international scientific body – the IPCC – recommends all individuals in all strata of society become engaged in climate action (Intergovernmental Panel on Climate Change,

2022b). As noted in Chapter 2, several academics consider it no longer sufficient for interventions supporting climate action to be incremental (Whitmarsh et al., 2021); they must be transformational (2.3.4). As demonstrated in the exploration of the literature on the anomaly of the 12-step fellowships in 2.4, the effects of using the tools of successful addiction recovery can be transformational, with shifts from destructive life-paths of substance dependence to ones that are free of daily substance use, rewarding, and socially connected (Dekkers et al., 2020; Greene, 2021; Stanford, 2020). This first study applying the addiction-recovery tools to climate action (2.4.2) demonstrates their potential to play a positive role in the plethora of approaches aiming to transform our climate behaviour and decrease our attachment to fossil fuels so that climate might be rebalanced, and future generations live on a habitable planet.

Personal vignette

Firstly, it is important to acknowledge that two key themes that form my research question have personal significance for me:

successful addiction recovery

climate behaviour change

I entered addiction recovery aged twenty-seven and I have now been abstinent from all forms of drugs and alcohol for thirty-eight years. In tandem with my addiction recovery, I have been an active proponent of climate behaviour change. My research proposal emerged from these parallel passions of addiction recovery and commitment to climate action.

I became clean from all narcotics via the 12-step programme of Narcotics Anonymous and mindfulness practices. This personal experience, as well as similar recovery I have witnessed in thousands of others, suggests to me that these tools have great value in supporting behaviour change. In the last decade there have there been rigorous studies from which strong scientific evidence has accumulated on the value of these approaches as discussed in this thesis in 2.4. My personal experience plus the positive outcomes of these research studies awakened my curiosity as to whether the 12-step approach might be useful in supporting climate behaviour change.

As stated above, a commitment to climate action has accompanied my drug recovery. For more than thirty-five years I have aspired to leave minimum trace regarding both my ecological and carbon footprint. As a youth and community worker, as a teacher, and as an individual, I have also attempted to climate influence others including:

- Devising my own courses for people in my community (1990s)

- Running fora and workshops with practical outcomes such as tree planting, food growing, and personal carbon reduction with youth and community groups around Manchester (1990s)
- Coordinating the youth aspect of the International Global Forum Event held in Manchester as a follow on to the community element of the Rio de Janeiro Earth Summit (1994s).
- Activity in local authority structures on climate such as occupying the post of Co-chair of Manchester City Council's Agenda 21 initiative (late 1990s)
- Winning a major DEFRA grant to make a film for young people on climate change that went on to be seen by several thousand (2006)
- Educating on climate within primary and secondary schools (2000 - 2015)
- Coordinating large scale eco dance events (2013 - 2017)
- Running carbon literacy courses for Manchester Carbon Literacy (2016 - 2017).
- Initiating and coordinating a local food growing group and collaborating with other food growing initiatives in Manchester (2015 to present)

During this work, I observed impressive attitudinal change and carbon reduction. However, no change has been as dramatic or impressive as the radical shift in behaviour that I have witnessed in successful drug recovery.

It is evident that my personal history affects my view of addiction recovery. However, I am fully aware that the tools of successful addiction have not been applied to climate behaviour change and the extent of any positive effect is untested and unknown. I fully acknowledge that usefulness in one arena does not guarantee usefulness in another very different one. A case in point, those facing serious addiction problems are motivated by a personal rock bottom; though concern for

future generations and the earth might be deemed a collective rock bottom, this does not necessarily motivate in the same way as a personal rock bottom.

Due to this personal history, throughout the course of this study I have aspired to maintain an open mind, be vigilant of any biases emerging, and observant of any benefits or lack of benefits to support climate behaviour change that might ensue. As described in Chapter 4 Introduction, this personal vignette aside, I have written this thesis using a third-person POV to attempt distance during analysis between myself and the data.

Reasonable Adjustment Plan (RAP) of the researcher

Reasons for an extended trajectory

This thesis for the degree of MSc by Research was commenced in 2018 as a part-time course with a duration of two years plus write-up time but has evidently had a much longer duration. The reasons for this are as follows:

- An interruption to studies took place in 2019 due to a confluence of external circumstances that impacted on my ability to apply myself to my studies. In December 2018, my daughter had a problematic time giving birth to my second granddaughter. She lost a critical amount of blood and my granddaughter also almost perished and had to be resuscitated. My daughter's mental health was affected, and the baby needed special attention. At the same time, my son was suffering depression and suicidal thoughts following a random physical assault and theft and subsequent court case involving witness intimidation. Supporting my children with these difficulties was intense and emotionally stretching, but I continued with my studies and my employment. However, a breaking point occurred when I managed a weekend break to the lake district but witnessed a cliff-fall accident where the female victim sadly died on impact. This latter incident prompted me to seek help from the university's wellbeing and counselling service as I found I could no longer concentrate.
- On 7th November 2021 my studies were back on track and all arrangements were in place for data collection to commence five days later when an unexpected accident occurred. I was cycling home, and a motorist turned into my path and collided with me knocking me

unconscious and causing severe injuries. I was forced to take a second interruption. The injuries were life changing and have continued to impact on my ability to work and study, first by manifesting as PTSD that is now largely resolved, but with other symptoms that are ongoing, for example, preventing me managing to adequately sleep. In this latter period, my husband has also suffered and been tested for an unknown medical condition that has been an accompanying ongoing concern.

Throughout these circumstances and the interruptions, I have aspired to keep abreast of the relevant literature and to stay current on behaviour change, policy developments, and climate science. I have also continued to interface with the research community through attendance at regular online writing sessions, attendance at conferences, and participation in the University of Salford's training opportunities.

Despite these difficulties, I have enjoyed my studies and been very well supported by my supervisors and other academic and non-academic associates, including being given a Reasonable Adjustment Plan (RAP). I am delighted to have embarked on my studies, expanded my learning, and completed the writing of this thesis.

Appendices

Interview guide

Before formally commencing this interview guide, the researcher will **reiterate the need for ethical safeguards and ensure the interviewee consents and is clear on the research context.**

At each personal interview, the questions will be:

1. Before we go into detail, could you sum up in a few words how you think the week went? How do you feel about it?
2. What climate behaviour did you attempt to change this week?
    I. Why that particular choice or choices?
    II. Did you stick to the choice(s)?
    III. Are you still happy with the choice(s)?
3. Which technique(s) from the synthesis did you apply?
    I. Why that particular choice or choices?
    II. Did you stick to the choice(s)?
    III. Are you still happy with the choice(s)?
4. How do you feel it went in terms of result(s)? How do you feel about the result(s)?
5. How did it go in terms of your emotions, your thoughts, your energy levels and how you feel physically?
6. Did you encounter any difficulties? What did you find easy? How did you cope with any difficulties? How did you feel about any difficulties? Did you find strategies that helped? If yes, what were they?
7. What was new about your experience? What do you feel you have learnt? What did you already know that came in useful?
8. Do you feel your life has been enriched or improved in any way this week? Or has your quality of life this week diminished? Could you say more about any positive/negative/neutral changes you experienced?

9. How was the experience of attempting this change within your particular household? Did others encourage you? Did they question or object to what you were attempting? How did that make you feel? How did you deal with that?
10. Is there anything you would like to add? Is there anything you would like to ask me? How do you feel about the week ahead? What choices in terms of climate behaviour and the therapeutic techniques are you considering for the week ahead?

Focus group guide

Before formally commencing the focus group, the researcher will **reiterate the need for ethical safeguards and ensure the participants consent and are clear on the research context.**

Preamble re ethics:

Thank you for taking part in this research. A special appreciation to you all for agreeing to participate first time round, and for still being here and willing to participate many months later.

Before we begin, just a reminder of some key ethical information…

- Anonymity is a key feature of the study. We request that you respect the anonymity of all participants.

- Confidentiality is also a key feature of the study. We request that you respect the confidentiality of all participants.

- Respect is also at the heart of this study and we request that you conduct yourself in a manner that is respectful and kind to yourself, to all other participants, and to the researcher and the researcher's assistant at all times throughout the study.

Now on to what is going to happen in this session…

- We will start with an icebreaker as described in the mail out and briefly introduce ourselves maybe mentioning our job, our interest in climate, our hobbies, or none of these. No rules just a 'hello, I'm here' in whatever form you feel you would like.
- Then there will be a minimum of 5 core questions and maximum of 10. The questions will be like pebbles dropped in a pond to stimulate conversation and an exchange of experiences and will relate to your experience, strength and hope; your current feelings and any thought feelings or questions arising from

the carbon calculator and the Synthesis of the Tools and Techniques of Addiction Recovery.

- We will finish with an optional 5 minute breath connector and a final check out.

FG1

- Intros and Icebreaker + why are you carbon curious?

- Q1. How was the experience of using the carbon calculator. Did you learn anything new.

- Q2. Are there any questions, comments, issues with how to use the Synthesis?

- Q3. Could you sum up in a few words your reaction to it?

- Q4. What particular behaviour do you think you will target and why that choice or choices? Macro/medium/micro targets?

- Q5. Do you have thoughts or questions about climate science?

- Q6. Do you have thoughts or questions about the bigger context regarding climate change and climate behaviour change.

- Q7. How are you today? Now?

- Wind-down 5 min breath connector

Possible probes

- Can you say more?

FG2

- Breath connector and check in

- Q1. How was your initial experience of using the Synthesis of the Tools and Techniques of addiction recovery. Could you sum up in a few words how it went?)

- Q2. What particular behaviour did you target and why that choice or choices?

- Q3. What tools and techniques did you apply. And how did it go. Difficulties, benefits, or anything in between.

- Q4. What has been new this week, if anything?

- Q5. How are you today? Now?

- Wind-down 5 min breath connector

FG3

To be decided based on what is needed to answer the research questions following what unfolds in the previous two focus groups

Longitudinal questions forwarded to participants (Jan 2024)

1) Has climate change remained an issue of concern in your life?

2) Have you maintained the changes that you made during the 30 days of the project?

3) Have you taken any further climate action?

4) Have you continued to use any of the tools of successful addition recovery presented to you (e.g. having a non-judgmental supportive group, the just for today approach, the compassionate approach, mindfulness tasters)?

4) Have you since used an online Carbon Calculator tool?

5) Would you like to offer any additional feedback?

Study inputs

The carbon calculator

The Carbon Calculator selected for the study was Carbon Independent (https://www.carbonindependent.org) and was selected due to its usability and reliability. In her previous work capacity as a high school teacher and environmental youth and community worker, the researcher had experience of incorporating carbon calculators into educational settings and drew on this experience in making this selection, as well as consulting the relevant literature.

Mindfulness tasters

Short five-to-ten-minute tasters were built into the focus group sessions and were provided by an invited local health worker qualified in mindfulness training or the researcher following her guidance.

Document: Synthesis of the Tools of Successful Addiction Recovery

Contents

General Introduction

Climate Change is arguably the most critical issue facing modern society. Despite more than 30 years of warnings, carbon emissions are still on the rise, with behaviour in the richer developed nations becoming more, not less, carbon intensive. Many programmes for climate behaviour change anticipate that scary scenarios will shock people into sacrificing their high-carbon comforts. Yet the evidence is that shock-and-scare approaches do not work. New approaches are needed.

I, the researcher, began to consider how it might be if we were supported through a process of climate behaviour change rather than asked to sacrifice. When faced with the need to dramatically change my own behaviour due to a destructive drug habit, the supportive approach worked where other approaches failed. I became curious about whether a supportive approach based on the tools and techniques of successful addiction recovery might have something to offer the field of climate behaviour change.

In terms of my own climate behaviour, I have for many years sustained a lower-than-average carbon footprint[17]. This has been a joyful and happy process and not one of sacrifice and guilt. I have applied to diet, home energy use, travel, shopping and more the principles that worked for me in drug recovery. This pilot study will explore whether the tools and techniques of addiction recovery have anything to offer the field of climate behaviour change, and this synthesis is a tool in that process.

I, the researcher, have much lived experience of addiction recovery, but I am not a professional well-being practitioner. In order that this synthesis be based on ethical, safe and beneficial practice, key scientific literature sources have been consulted and three professionals have reviewed and approved this approach.

How to use the Synthesis

This synthesis is based on recovery from all types of addiction, drawn mainly from the 12-step recovery programmes such as Alcoholics Anonymous and Narcotics Anonymous, but also from other successful addiction recovery approaches:

- Compassion Focused Therapy (CFT)

[17] The UK average is 14.1 tonnes and mine is about 3 tonnes.

- Mindfulness and Meditation practices
- Yogic traditions

Of course, it is not possible to condense the entirety of these approaches into one document and one 30-day research project. However, the essence of the practices that have been shown to support successful addiction recovery are integrated within it.

The synthesis includes much yogic practice. The 12-step addiction recovery groups are built on yogic principles such as silence and mindful presence. 12-step meetings are not literally silent but rest on silence in the sense that those who speak do so in an uninterrupted flow against a background of attentive listening on the part of those present. In addition, many recovering addicts weave yogic practices and meditation into their recovery programme and there is evidence that these practices aid emotional ease and clarity of mind. Step 11 of the 12-step programme specifically suggests meditation. For all these reasons, meditation, breathwork and yoga occupy the second category in this Synthesis.

It is suggested that you browse the four categories, go with your own intuition and try out the tools and techniques that most appeal to you. Bear in mind that it is recommended you 'pick and mix' from the four categories. You may choose to focus on one item a day, or several in one go, or none at all. It is also absolutely fine if this Synthesis is not for you; you can simply use the carbon calculator, focus groups and personal interviews as a source of ideas and support throughout this project.

Thank you for putting in the effort. Change is not easy, and we are all attempting to carve a new path through the jungle (not that we want to carve any more paths through actual jungles!) Neuroscience demonstrates that repeated behaviours create new neural pathways. This can be difficult at first, as our urge is to follow familiar pathways, the ruts in the road that already exist. But we can gently remind ourselves that, just for today, we are trying a new pathway and return to our chosen carbon reduction actions.

The synthesis is not a prescription but rather a condensing of experiences that have worked for others. We can select what works for us from this free sharing of beneficial ideas and practices. We are all different – unique, in fact – and what works for one may not work for another. We can be our own non-judgmental mentor.

I thank you for your willingness to take part and I hope you enjoy this process. 🙂

The Tools and Techniques

The tools and techniques are structured in the following four categories:

- ***Motivational Slogans –*** *Helpful sayings and acronyms that capture an idea and can guide behaviour in a positive direction.*
- ***Meditations & Breathwork –*** *Drawn mainly from mindfulness practice, these are easy ways to connect with our senses, slow down our thoughts and feel more grounded.*

- ***Fun –*** *Ways to enjoy ourselves that are low carbon!*
- ***Reflections –*** *Ways of taking stock that enable us to track our progress, notice the good things we are achieving and gently feedback and learn from our own experience. This section also includes suggestions of how to foster positive self-regard.*

As we take from the four categories, it is suggested we consider one additional ingredient:

- ***Spiritual Principles***

Spiritual principles are at the core of the 12-step recovery process. Spiritual principles such as honesty, hope, faith, courage, integrity, willingness, humility, self-discipline, love and perseverance are arguably useful tools, whether one identifies as atheistic or agnostic or has a deistic faith.

In the 12-step fellowships, it is suggested that faith in something greater than our individual selves can aid us in connecting with such spiritual principles. The something greater can be our family, friends or community, or it could be our higher selves or the laws of physics. The point is to feel connected to something beyond egoistic self that inspires in us compassion both for ourselves and others and bonds us together.

Category 1 – *Motivational Slogans*

The following are some motivational slogans commonly used in 12-step recovery circles. It is sometimes said that such slogans are wisdom written in shorthand. In 12-step fellowships, they are printed on posters in meetings and appear in daily meditation books. Some write them on pieces of paper, put them in a small box and take one out each morning. Recovering addicts practise the slogans to the best of their ability and the slogans thus become part of everyday thoughts and habits.

Many more are available here: 12-step recovery slogans.

'Just for today'

This is a key slogan in the 12-step fellowships that has been demonstrated to aid long term abstinence from substance and behavioural addictions. Over the last 30 years, at a governmental and corporate level many acts of carbon reduction have been planned (future), but very few have taken place (present). In the climate change field, action is continually planned for the future and stock is constantly taken of the accumulating damage of our past. Action in the present moment can become lost. Could this transformational principle from addiction recovery also benefit climate behaviour change?

Looking at doing something for the rest of our life, whatever it might be, is overwhelming. Breaking it down into achievable chunks helps the brain. But more than that, we do only have 'today'. The past is a memory, the future has not yet happened. The present moment is the only thing we can truly change. Focusing on this slogan helps us move into the present moment. And, by changing this moment positively, we change the future that flows from it.

An alcoholic abstains from the first drink today and remains sober. An addict abstains from the first drug today and remains clean. Many achieve decades of successful recovery using this simple approach (including myself ☺). Change becomes something directly in our hands that we have power over. Equally, by abstaining from carbon intensive behaviour just for today, we are lowering the carbon of the future.

If we consider carbon emissions, the only ones we truly have direct control over are our own emissions within the boundaries of this day. This might seem small to us. However, as Caroline Lucas, former leader of the Green Party, says 'Every Act Matters'. The Addiction Recovery approach of the 12 steps suggests we act as individuals within supportive communities and focus

on our chosen actions 'just for today', right here, right now. That is the way to guarantee change and is where we truly have power.

The mind can wander into a thousand places where it will argue with the above assertions. It might object, 'But what about all those coal-fired power stations in China!' 'What about my neighbour flying to Australia yet again!' 'What about the oil conglomerates!' All these *are* carbon intensive, and *very* annoying, but thinking about them does not change them and can paralyze or inhibit our own actions. Only our acts can bring about change, whether those be individual carbon reduction acts or campaigning acts aimed at influencing the bigger polluters or transforming social structures. The unhelpful thoughts change nothing. So, what can we do about such thoughts?

It is suggested we don't resist such thoughts. Psychologists have observed that, when we resist unhelpful thoughts, they become more powerful. We can simply notice them, and not become involved in them, perhaps reminding ourselves that they do not lead anywhere useful. We can just allow them to be. If we do not engage with them, they fade into the background and our chosen actions can be in the foreground.

We can focus on what *we* can change (our chosen actions), not what we cannot (everybody else's actions). That does not mean that we do not attempt to encourage change in others or demand it of decision makers and powerful corporations (we absolutely must!), but we do not waste time and thoughts on what is beyond our scope, but rather focus on the things within our reach and capabilities.

It's a '24 hours at a time' decision and effort to work on our chosen climate actions. If an action is concerned with, for example, a carbon-intensive food that we find we are craving such as roast lamb (for me it's cheese! 🧀), the decision to act can be broken down into smaller parts of an hour at a time, or a minute, or just for this moment, depending on what works for us at any given time. We can be kind to ourselves, especially if we are craving, and perhaps indulge in a low carbon treat instead[18].

'If you do what you always did, you get what you always got.'

[18] https://www.eatlowcarbon.org/food-scores/

*This is a 12-step fellowship way of expressing the quote often mis-attributed to Einstein: '*The definition of insanity is doing the same thing over and over again and expecting different results.*'* 😜 🧠

It is certainly true that as a global community we are doing the same thing over and over again – consuming fossil fuels and producing climate changing carbon emissions – and expecting different results, such as that the temperature might magically stabilise, or reduce, or the problem go away. The 24 hours of today, or, more precisely, the present moment, is the time and the place to act. Some of those actions might be immediate changes of behaviour and some might be first steps in the present moment of a plan that leads to a reduction in carbon emissions. The change of focus to the present moment – now, today's actions – could be key in shifting us out of the insanity of doing the same things over and over again and expecting different results, or 'getting what we always got'.

'Find what feels good'

This is not a 12-step fellowship slogan but the tagline of Yoga with Adriene[19] *that is available for free on YouTube. I include it because it expresses my feeling that climate behaviour change must enhance our lives, not diminish them, if we are to embrace it.*

A lot of the time we are 'in our heads'. Thoughts race around our minds, encouraged by the unprecedented tsunami of information flow of current times. Managing work, study, home, family, friends, time-out and even pets takes a mental toll. The ongoing conundrum of balancing all these aspects of life occupies thought space.

Most of us find our most treasured times are when we slow down and notice an amazing sunset, taste some delicious food, smell the scent of flowers or share quality moments with family and friends. At these times, it is as if we are without thought and are in our bodies rather than our heads. It is so easy to neglect what 'feels good' and be taken over by the endless 'in our head' stuff of life.

[19] https://www.youtube.com/user/yogawithadriene

Many of us will become so desperate for a break from 'head' that we might indulge in something to blot it out: a heavy drinking night; an escape-it-all flight; a shopping binge; or a big tub of ice-cream. These are short-term measures, and the relief doesn't usually last long. Building into our lives 'what feels good' in a more sustaining way is good for us and for planet.

This slogan can also help us remember that, although there is a climate crisis, and a world facing enormous difficulties, life is to be lived and enjoyed. The mind might immediately object 'But that is selfish and it's that type of selfishness that has led to the climate crisis.' However, rather than yo-yoing between the extremes of self-sacrifice and selfishness, we can try treading a path between the two, where self-care and compassion are found. We *can* take care of ourselves and enjoy our lives while loving and living in harmony with the world around us.

To this end, it is suggested that we check in with ourselves regularly throughout the day and stay conscious of how we are feeling. This is the method of mindfulness and is explored more in the '***Meditation & Breathwork***' category. When our 'mind' is running our lives, at times we are unconscious of what we are doing from one moment to the next. Checking in with the senses can be a way to anchor in and find what is going on, and whether it 'feels good'. Look out of the window and notice the trees, plants, birds, clouds and skyline. Listen, and notice the sounds around us, not just those in the foreground but those in the background, too, especially if the naturally soothing sounds of nature are among them. Breathe in for calm and awareness and notice any pleasant scents.

How we move matters as well. Are we consciously aware that we have hands, feet, a sense of touch? Taking the mind into different parts of the body reminds us we have a body and feels good too (see 'Body Scan' in ***Meditation & Breathwork***). We move out of mind and into ourselves in a more full and pleasurable way.

'*Find what feels good*' can lead, with practice, to us feeling good by just being. No need to buy consumer goods, race around the world or pursue any other form of escape because we are at ease exactly as we are. This does not mean that we do not choose to buy something we need, take a trip, go on an adventure or eat an ice-cream, but we do these as a life enhancement rather than an escape. This means that we plan our activities consciously because there is no hurry or desperation. Planning consciously means we consider the carbon cost and eco footprint of our treats. They are part of loving and living life and they become more balanced in their nature as a result.

Finally, many of us unconsciously engage in thought patterns that are self-critical and do not 'feel good'. With gentleness and boundless positive self-regard, we can notice these and lighten or even let go of their 'grip'. They may be thought/feeling habits that we formed in childhood, at school or later in life. They are not helpful, and we deserve to live free of such self-negativity.

It is suggested that '*find what feels good*' is explored in combination with reference to the ***Low Carbon Fun*** category.

H.O.W.

Honesty, Open-mindedness and Willingness is another key slogan in the 12-step fellowships.

Honesty

Telling lies, taking paperclips from work or cheating at monopoly might be considered dishonest and someone who doesn't do these things considered honest. However, here we are not referring to honesty as the antonym of such regular and harmless 'dishonesty', but rather as a journey within ourselves.

For many years, as a society we have been dishonest regarding climate change. Of course, some areas have been affected much more than others. Dishonesty has taken place on a grand scale on the part of the oil, coal and gas companies, who contracted psychologists to seed suspicion and doubt among the general public regarding climate science. But most of us are 'guilty' of the straightforward and understandable self-dishonesty of wishing the climate crisis would go away: plain regular denial, or 'cognitive dissonance', to give it its fancy name.

Denial can take many forms. An Oxfam climate officer reports that a survey of public attitudes a decade ago could be summed up as 'It's serious, but it's ***too soon*** to act. It will be up to our children's children.' This has now flipped to 'It's serious, and it's ***too late*** to act. Our poor children's children.' Somehow the '***now***' where we can act is leapfrogged.

But we *can* navigate that space between ***too soon*** and ***too late*** and use the '***now***' to act. Our self-honesty can be a seeking of our own truth on climate, an inventory of our carbon footprint and identifying our own next steps action plan: an honesty with ourselves on how we

truly feel about the climate challenge and what we want to do. This is honesty as an inner seeking, but absolutely without the pointless emotions of 'guilt' and 'shame' or any form of self-recrimination that paralyse us rather than propel us into action.

Open-mindedness

Addicts often feel so guilty about their substance or behaviour abuse that they indulge even more in substances or in addictive behaviour in order to blot out their bad feelings. An endless loop of self-destructive behaviour is thus set-in motion. Regret and guilt about yesterday lead to continued self-destruction tomorrow. Those in 12-step fellowships use *'open-mindedness'* as a device to open a gap in the non-stop traffic of these negative emotional traps. By letting go of the mind-grip on past and future, we become open to the possibility of behaviour change in the now.

A climate-focused equivalent of this is the feeling that we have all failed, it's just too late, too bad – we're too bad! This feeling projects onto the future leaving us no way out. *'Open-mindedness'* is a tool to forgive ourselves and others, let go of such pointless mental obstacles and open space where change *is* possible.

Willingness

Along with these tools of *honesty* and *open-mindedness*, *willingness* is the energy that propels us into action. Even when we are afraid, unsure or feel powerless, *willingness* means we take the courage to act, irrespective of the results. Our primary focus is our *willingness* to act in the here and now and the future results are secondary. Non-attachment to results is a powerful tool, like sowing seeds without worrying about which will grow but enjoying the primary focus of the contact with the seeds and the soil. By acting in the here and now with mindful love and kindness towards ourselves and others, we are writing a more positive future that can flow from these primary acts.

F.E.A.R.

Within the 12-step fellowships and the wider addiction recovery communities, there are various meanings assigned to this acronym. Here are several and it is suggested you work with whichever works for you.

Face Everything and Recover. Jon Kabat-Zinn, developer of the Mindfulness-Based Stress Reduction programme (MBSR), suggests we see whatever is arising within us as our curriculum; by facing it, we can learn and become wiser and stronger. We can *Face Everything and Respond*.

False Evidence Appearing Real. When faced with an immediate danger such as a lion 🦁 that is about to eat us, we'd be better going with *Forget Everything and Run*. But most everyday fear is actually projection. We are imagining what might happen in the future. In that sense it is false as there is no knowing exactly what is going to happen in the future. Science can guide us on the general brush strokes, such as that climate change is beyond critical and needs our attention. However, the exact scenarios are unknown, and it does not serve us to dwell on them. Much better to stay focused on today and what we can change, and to enjoy our day.

Keep it simple

This was a slogan that arose in the very early days of the establishment of Alcoholics Anonymous in the 1930s in the U.S.A. The idea was not to overwhelm those new to the fellowship with information so that they could focus on the primary task of staying sober. But it is also true that most things work better if kept simple rather than complicated, and it feels better too!

It is of interest and value that the 'no charge' principle of the 12-step fellowships is in the spirit of 'keep it simple'. Many substance and behaviour addicts have recovered at no cost to the NHS or any other state institution. I practise the simplicity of 'no charge' in my daily life in the form of skill exchanges with others, food growing (so that some of my food is free) and the simplicity of simply not shopping. In short, economically simplifying often equates to less buying and therefore less carbon since all our consumption has a carbon cost.

Easy does it but do it!

It is good to be gentle with ourselves, but not *so* laid back that we do nothing.

First things first

Without realising it, we often try to achieve the impossible and do several things all at the same time. Instead, we can decide to do one thing at once and give it our full attention.

A fellowship friend recounts how he would have a cup of tea in his hand, decide to write a note and pick up a pen, and then notice that mail had landed on the mat and pick that up. As his tea spilled on the mail and the mat, he would realise that he was acting as if he had multiple hands rather than two. This type of accident was a regular occurrence until he worked on becoming mindful of doing one thing at a time, and first things first.

This too shall pass

It is a physical law that all things in the universe are in a constant state of flux – the weather, the atoms that comprise a rock, the cells throughout our bodies and even our emotions. Everything is constantly changing and so everything does pass. When we are feeling bad, or things are difficult, it can help to know that whatever it is that is bothering us, it too will pass.

D.E.T.A.C.H. – Don't Even Think About Changing Him/Her.

Most of us have plenty to do just focusing on ourselves and do better to do so. When we try to change another person, naturally they resist. If we are grounded in ourselves and advocate for ourselves in our interactions with others, then they are more likely to hear us. We can use 'I' statements rather than 'You' statements. When we point a finger at another person, we may become judgmental. We can respect that we are all autonomous human beings sharing a collective journey on planet Earth and we can negotiate with assertiveness, kindness and peace.

Meditations & Breathwork

To be guided through the follow techniques, please refer to the *footnotes* that provide video links.

Mindfulness Meditations

'*Mindfulness is awareness that arises through paying attention, on purpose, in the present moment, non-judgmentally,' says Kabat-Zinn, founder of Mindfulness-Based Stress Reduction. 'And then I sometimes add, in the service of self-understanding and wisdom.*'

Three easily accessible mindfulness meditations are described below. I will also be offering optional 'five-minute breath connectors' in the course of our focus groups and interviews.

The Body Scan

The body scan technique involves us taking our awareness into different parts of our body, one at a time, covering the whole body. It can be very relaxing and pleasurable and, like all mindfulness techniques, can take us more out of mind, and the stream of thoughts, and into our body. ([20] *link to body scan meditation)*

[20] https://www.youtube.com/watch?v=_DTmGtznab4

Coming to our senses

Based on the book of the same name, this mindfulness exercise takes us out of mind/thoughts and into our senses, our window to the world around us. *([21]link to 'senses' meditation)*

Loving Kindness Meditation

Loving kindness meditation (LKM) is a self-care technique that, evidence suggests, boosts well-being and reduces stress. The practice can help increase our capacity for forgiveness of ourselves and others, our connection to ourselves and others, and our overall self-awareness and self-acceptance. Sometimes, we may encounter resistance to this technique, and it may take practice to allow ourselves to receive our own love and to project it out to others. *([22]Link to loving kindness meditation)*

Breathwork 🧘

Please note before proceeding to the suggested Breathwork.

These suggested breathing techniques are safe for most people and there is well-researched evidence of their stress reducing and health promoting benefits. But for some people, they are not advisable. **You must not attempt them if you have a medical condition such as severe asthma, COPD, or any other lung or heart concern.**

For all – if you experience shortness of breath, dizziness, nausea or any type of agitation, stop the practice immediately.

Ujjayi breath

[21] https://www.youtube.com/watch?v=azG_EHKRqmk

[22] https://www.youtube.com/watch?v=sz7cpV7ERsM

Ujjayi breath is a technique where we breathe in and out of the nose with the lips sealed – no breath passes through the lips. As we practice, we allow the breath to be audible and it is sometimes referred to as 'Ocean Breath'. It sounds like the Star Wars character 'Darth Vada' so it might be worth warning other members of your household before trying this 😬. The lips gently close and, although the breath is passing through the nostrils, the emphasis is in the throat. It can be practised alone or in combination with yoga poses. *([23]Link to Ujjayi breath yogic practice)*

Pranayama Breath

Pranayama can be described as "Control of Breath". Rather than simply breathing in and out without attention, with Pranayama we consciously focus on breathing full breaths and on the length of our in-and-out breath. We also focus on pausing in between the in-breath and the out-breath.

Much of the time, with the busyness of modern life, we breath unconsciously throughout the day. We might breathe quickly and shallowly thus triggering the sympathetic nervous system. The sympathetic nervous system is really useful for when we are facing a genuine threat where fight, freeze, or flight is required; but it is not good for our mind, our emotions or our bodies to be in a constant state of alertness. 😰

In contrast, pranayama and other conscious breathing techniques trigger the parasympathetic nervous system, slowing down the heart rate: in other words, our breath tells our mind which tells our body that everything is OK, and we can relax. By controlling the rhythms of our breath, additional oxygen is released into the blood and to the brain bringing many health benefits and feelings of well-being. *([24]Link to Pranayama Breath yogic practice)*

Alternate Nostril Breathing

[23] https://www.youtube.com/watch?v=IQrsJ-yZWV8

[24] https://www.youtube.com/watch?v=Oy4wvF9Z24A

This is also a pranayama yogic breath control practice and can be done in the cross-legged 'Sukhasana' yogic pose, in any seated position or even lying down. We use our thumb and another finger (I prefer my index finger) to block off one nostril at a time. *([25] Link to alternative nostril breathing)*

Wim Hof Breathing

Wim Hof is considered by some to be an adventurer, an endurance athlete and a Dutch philosopher. I cautiously include reference to his breathing techniques here as not all he does is evidence based. However, he has beaten many Guinness World Records and is extremely popular so many find value in what he suggests. *([26]Link to Win Hof Breathing)*

Low Carbon Fun

In this modern age, pleasure or fun is often equated with spending, which always involves carbon. Game show participants when questioned on what they would spend the jackpot on invariably choose things like a faraway holiday, an SUV or a gourmet meal at a top restaurant. The super-rich spend their excess wealth on construction ventures, private jets or even space tourism. The carbon price-tag is often not considered when it comes to pleasure seeking and entertainment.

[25] https://www.youtube.com/watch?v=8VwufJrUhic

[26] https://www.youtube.com/watch?v=0BNejY1e9ik

Happily, fun and entertainment do not have to have come at a high carbon price. Indeed, the joy and satisfaction gained through low carbon choices can be greater than the carbon intensive ones – and without the worry or guilt associated with adding to the problems heaped on the planet. Low carbon tends to equate with low cost – a lovely win-win.

In addiction recovery, recovering addicts often discover fun for the first time since childhood. As self-worth and self-love grow, the recovering addict feels that they deserve to feel good and enjoy life. Fun being a low priority in daily life is not exclusive to recovering addicts. We can be high achievers in work, or masters in home management, or academically excel, but allow little time for simple daily enjoyment of life. We might feel that it is unimportant or that we don't deserve it.

Other mammals in the animal kingdom have no problem including fun in daily life. Our primate cousins spend a great part of the day napping, laughing and playing. We know that having fun reduces stress, promotes health and makes us feel life is good; and yet, we struggle to prioritise it. Paradoxically, rediscovering fun may be key to us seriously changing our climate behaviour.

The following is evidently not rocket science but may act as a nudge or reminder that fun can be simple and healthy, low-carbon and low-cost. I'm sure all participants will have even more fun ideas that could be added to this list.

Walking improves circulation, strengthens our bones, keeps us trim, lightens our mood and is good for the physical and emotional heart. Even just 15 minutes a day has proved to make a big difference to our mental and physical health. What's more, if a walk is shared with others, there is social connection.

Singing

Singing and music making improves our mood, reduces stress and can even aid good sleep. Not everybody wants to sing, but joining in the creating of music with others, or simply listening to music, brings great joy. Singing is zero carbon but the reproduction of music, of course, does have a carbon cost. We can be mindful of our energy usage[27], turning off music systems when not in use and not excessively spending on music that we are not going to listen to, thus minimizing the carbon cost.

Laughing

Primates engage in games such as tickling that involve much laughter. As hunter gatherers, evidence suggests, we relaxed and laughed throughout the day. We often now access laughter through the internet or TV. It's good to remind ourselves that we can spend time with others and share jokes and anecdotes for free, and at no carbon cost.

Chatting

A google search of the word 'chat' brings up the range of apps and communication via devices. Of course, the real meaning of 'chat' is to talk person to person. Through chatting, we bond and connect with others promoting well-being and happiness. Nothing needs to be achieved, no boxes to tick, no particular direction – just the fun of sharing life and conversation with fellow humans.

Dancing

Dancing is my personal favourite whole-body workout, available anytime and almost anywhere. Just like other low-carbon fun, dancing connects to something core within us. These gentle, simple ways of having fun connect with our human nature. The fact that our hunter gatherer ancestors enjoyed such simple pleasures for many tens of thousands of years may explain why they ground us and promote happiness and health.

Games

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27 We can reduce the carbon cost of our energy by switching to a 100% renewable tariff https://selectra.co.uk/energy/guides/renewable-energy/best-green-energy-supplier

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Just like 'chat', the word 'game' has been appropriated into the world of technology, but many non-techie versions are available. I recently stayed with family in a shelter with no internet, mobile coverage or electricity. The evening was full of zero carbon games -- charades, identity guessing, words puzzles -- and we ended up going to bed really late!

Gardening

There is currently a surge in the number of people taking up gardening. Wildlife gardening and food growing are both integral in my daily life. Watching the tadpoles in my pond is now a spring obsession and our home and garden house several families of native birds. I feast on low carbon free food including spinach, rocket, courgettes, soft fruits, potatoes and relish the outdoors time cultivating them. Ornamental gardening is equally good for us as colour brightens our life and the natural anti-depressant effects of soil lift our mood. For me, the win, win, win, win nature of gardening in all its forms cannot be overstated. There are no food miles, packaging or carbon storage costs and the nutrients are maximised with no loss through transportation or processing. Even for those time limited or with little space, the magic of watching things grow can happen in a mini container garden or windowsill pots. 🌻

Hugging

At the time of writing, very little hugging is possible because of Covid-19, so this suggestion is tinged with sadness. 😕 🤗 Nevertheless, hugs are so goooooood. In Narcotics Anonymous (NA) one of the slogans is 'Hugs not Drugs'. I have a t-shirt gifted by members emblazoned 'Hug Squad'. At one of my first NA meetings I backed off when somebody approached me offering a hug. Hugs had never been part of my life, but they are now. I am grateful that I have a family that I can hug, and I hug myself 🤗. I hope all participants have somebody to hug and that, if not, they can hug very soon.

Painting

There is evidence that our critical thinking skills, our fine motor skills, our creative growth, our confidence and more are all enhanced by the act of painting and drawing. We also beautify our life and the lives of others through this practice. Reclaimed materials can be our canvasses and eco-friendly paints our tools making this a low carbon activity. Equally, creativity in all its forms is an essential and health promoting part of ourselves. We can strive for our photography and video making to be as low carbon as possible through eco energy suppliers and mindful turning off of appliances when not in use.

Reflecting

"If you must look back, do so forgivingly. If you must look forward, do so prayerfully. However, the wisest thing you can do is be present in the present . . . gratefully." – ***Maya Angelou***

The aim of this section is to inspire non-judgmental self-reflection in whatever form that may take. I simply like to take time cross legged to reflect or sit out in nature. Some like writing a physical diary, others prefer word processing or using an online format.

In the 12-step fellowships of addiction recovery, this daily inventory is known as Step 10. Whatever form this takes, the purpose is to supportively, compassionately and honestly evaluate our daily lives. As well as evening diary writing, reflection can include spot checks throughout the day where we go within and notice how we feel and the choices we are making.

I like to build my awareness, to note what is helpful, and to constructively be conscious of what is not. Often in life, we rush through the day with little time for reflection. When aiming to shift behaviour, a daily inventory can be a useful tool. In my 12-step programmme, I learnt to keep my diaries as honest as possible, but never judgmental. I struggled with self-praise, so it was good to acknowledge my achievements and allow myself to feel good about them.

Serenity Prayer

The serenity prayer is traditionally recited aloud, in unison, to close meetings of 12-step fellowships. As well as being pleasing to the ear, it is a useful reflection tool. The following can be

understood atheistically, with God equaling our wisest most compassionate self, or, if preferred, as reference to a deity.

"(God), grant me the serenity to accept the things I cannot change, the courage to change the things I can, and the wisdom to know the difference."

- Accepting the things we cannot change brings peace.
- Changing the things we can brings fulfilment and life improvement.
- The tricky bit, of course, is being able to recognise the difference between what we can change and what we cannot change, and this is always a work in progress.

Gratitude

The science of gratitude is a fairly recent research area, but its results are clearly demonstrating that the cultivating of an attitude of gratitude contributes greatly to both our physical and emotional well-being and supports a decrease in negative affect and problematic functioning.

In the 12-step fellowships, the maintenance of a gratitude diary is suggested. This may feel difficult at first, especially if the concept is new to us. It can seem phony to focus on feeling grateful for the small things in life like our bed, food in our kitchen, the warmth of friends, if those feelings are not coming naturally to us. If we are heavily in the habit of worry and negativity, or feel depressed or stressed, it can take quite a gear shift. But growing evidence of the well-being benefits suggest it is worth the effort.

Appreciating the small things in life actually changes our brain chemicals and increases a steady sustaining flow of dopamine. Joy for little things increases and we need less to be happy. Our most destructive climate behaviour, it could be argued, is when we go for the 'big hits' such as a long-haul trip across the world to see some extraordinary cultural or historic sites, or the purchase of big-ticket items like a luxury car or a total house renovation. We can actually become addicted to these 'big hits' because our brain has got used to that level of dopamine. By working on gratitude, we become freed of the need for big injections of dopamine and instead can feel content and appreciative of all that flows through our days such as the food we eat, the people we spend time with, little snapshots of nature or a beautiful sunrise. 🌞

Within the kaleidoscope of emotions that we experience on a daily basis, there may be a mix of contradictory emotions. It's normal and natural to feel unhappy about negative, painful and distressing things in life. So, we might feel gratitude at the same time as feeling sad at the loss of diversity in the world, the death of a loved one or difficulties in our relationships. It is not helpful to become inauthentic, striving for 'positivity' as a virtue but not really feeling it, but rather cultivating gratitude in an honest and authentic way, noting what we truly feel grateful for without forcing it and accepting of our rainbow of emotions just as they are. 🌈

Finally, I try to remember to be grateful to myself. We have all opted to contribute to this study. We have opted to aspire to do the best for ours, our children's and for all of our futures. This is a brave act. Thank you to me and to you. 🙏

Finally, here is an exert from Oprah Winfrey's gratitude diary! Yes, she has a much bigger income than any of us and hangs out with ex-royalty, but I still think they are pretty good suggestions. 🙂

- "I have a place to sleep."
- "I ate today."
- "I have a good heart."
- "I drink clean water."
- "I strive to be better."
- "I wish others well."
- "I am a good person."
- "I have nice clothes."
- "I am breathing."
- "Someone cares for me."

'I'm back to journaling—electronically—and whenever there's a grateful moment, I note it,' she wrote on Oprah.com. 'I know for sure that appreciating whatever shows up for you in life changes your personal vibration. You radiate and generate more goodness for yourself when you're aware of all you have and not focusing on your have-nots.' Oprah Winfrey

Thanking You!

I appreciate that you are taking time to do this and admire your personal courage and willingness. I want to add here my personal thanks to you for participating in this research study. 🙏💚👍

Personal information on the researcher for readers of this Synthesis

My own experience and what I understand to be 'Successful Addiction Recovery'

What is written above was drawn in large part from my own experience of 35 years of successful addiction recovery combined with the tools and techniques that a body of evidence suggests work for others. By addiction, I refer to substance use and behaviours that are repetitive, hard to give up and lead to unintended harm. Here follows a little more information on my own experience and the nature of the 12-step fellowships in case it is of interest to you.

Most people have heard of Alcoholics Anonymous, which was the first entirely voluntary supportive community for recovery from active addiction. Tired of the compulsion to drink and the accompanying harm to self, family and their community, two people back in the 1930s in the USA attempted to support each other in staying sober. Together, they drew up what are known

as the 12 steps of Alcoholics Anonymous. From those two founding members has grown a fellowship that has become a worldwide phenomenon with millions of members.

Numerous fellowships across the globe based on this model now address both substance and behaviour addiction, including Narcotics Anonymous (NA), Gamblers Anonymous (GA), Overeaters Anonymous (OA), Codependents Anonymous (CODA), Sex and Love Addicts Anonymous (SLAA) and Debtors Anonymous (DA). The exact numbers that have found relief from active addiction with the support of these fellowships cannot be known due to the principle of anonymity that they practise. I have seen the Narcotics Anonymous fellowship in my region grow from a handful of members more than 30 years ago to many thousands living clean and sober lives today.

For various reasons, the first 27 years of my life were painful, and I addictively used drugs and alcohol to suppress and escape that pain. As for many addicts, this was a self-destructive pattern with unintended negative consequences. There was no escape and the consequences accumulated in a 'rock bottom' involving crime and family breakdown. However, something happened that felt like a miracle to me. I found a community willing to support me in attempting to live drug-free. I'd previously consulted many professionals, all good people and well meaning, but, in my case, not catalysts for change. The NA community was not made up of professionals; they were people like me, addicts, but who had managed to get clean from all drugs and sustain that abstinence.

How they achieved this was through a simple process of sharing their Experience, Strength and Hope of what worked for them, including following the suggestions in the 12-steps. And there was no charge! – we threw a few coins into a pot to pay for room hire and refreshments. (I had spent a fair amount over the years on private therapists). A light had turned on in my life and it has grown brighter ever since. I am now in my 35th year of abstinence from all drugs, including alcohol, and life gets better and better.

For almost the same length of time, I have also been aware of, and acted on, climate change. I have managed and participated in many community programmes that aim to bring about positive climate behaviour change. These are mainly information-based programmes, by

which I mean that they work on spurring individuals to change their behaviour by urging them to consider the science, look at how serious the climatic changes are and look at how our 'bad' behaviour is causing the problem, then try to do better.

This is perhaps comparable to those well-meaning professionals who tried, unsuccessfully, to help people like me to put down the drugs. They tried to persuade me, presented me with complicated life plans, suggested I 'do it for my daughter'. I felt confused, overwhelmed, pressured, guilty and simply craved more drugs to drown out all those 'bad' feelings – a negative downward spiral.

In contrast, a room full of strangers suggesting that I 'do not take the first drug, just for today' felt refreshingly simple, and doable. There were no rules, only suggestions. There were no experts, just individuals sharing their own experience. They suggested that feeling organically 'bad' because of my using was not helpful and that I should give myself a fresh start. The love, support and unconditional positive regard awoke feelings in me I had not experienced before, such as self-acceptance and positive self-regard. That positive support initiated a personal journey for me that continued and continues with ever-increasing self-worth, peace and happiness.

Our collective Rock Bottom?

As referred to above, the point of this research is to explore whether the tools and techniques of successful addiction recovery might be helpful when applied to climate behaviour change. The catastrophic climate change we collectively face today is arguably a 'rock bottom', like that 'rock bottom' I personally faced 35 years ago with my addiction, only on a global scale. As a global community, and as individuals who make up that community, we are locked into behaviour patterns with unintended consequences that are now affecting us all.

We can play a greater role as the bigger global consumers. The average carbon footprint of a citizen of Chad is negligible at less than one tonne of carbon emissions per annum while that of a UK citizen towers above this at 14.1 tonnes per annum. Many do not question flying and meat eating, or transport, shopping and home energy use habits, but these habits as a whole are a destructive pattern with accumulative unintended consequences. We are encouraged by giant

economic organizations and governing institutions to adopt these habits – arguably due to addiction to money and power leading to denial of climate destructive consequences.

Though not wanting to raise alarm, it is appropriate to note at least once in this text how serious the situation is. To avoid 'dangerous' climate change of the type that would deplete wildlife, hamper food production, acidify the oceans, raise sea levels, increase storm drought and flooding and make many zones of the planet unlivable, we must avoid a global temperature rise of above 2 degrees C. However, according to Manchester climate scientist Kevin Anderson, we are currently on course for a global temperature rise of 4 degrees C.

We urgently need innovative and effective climate behaviour change approaches. Could the tools and techniques of successful addiction recovery support us in bringing about a climatic change of direction? Might the simple fact that we are being offered support rather than blamed, shamed or asked to sacrifice make a difference to our ability to bring about climate behaviour change in our lives? I am looking forward to exploring this together in the course of this research study. 💚

Document: Suggested Climate Actions based on my Experience, Strength, and Hope

Contents

Introduction

Other literature has highlighted how important climate behaviour change is and, fortunately, there is an abundance of suggested climate actions immediately available on the internet: '50 ways to reduce your carbon footprint'[28], '50 ideas for shrinking your carbon footprint'[29], '50 tips to cut down your carbon footprint'[30] and other titles that do not include the number 50[31] 🙂. There are also books rich in information and ideas such as 'Carbon Detox', 'How to Reduce your Carbon Footprint', and 'How Bad are Bananas' 🍌 (this last one is not a joke and is highly recommended!). Rather than re -invent the wheel by writing yet another 50 actions or a book with a zany title, this

[28] https://blog.arcadia.com/50-ways-reduce-carbon-footprint/

[29] https://climatecare.org/50-ideas-shrinking-carbon-footprint/

[30] https://www.globalgiving.org/learn/reduce-carbon-footprint

[31] Lemon juice, legumes and local activism: what green habits have you adopted in 2020?

booklet will sign post you via the footnotes[32] to existing sources of information. The Carbon Calculator we are using also is a good source of information.

In addition, as is the tradition in 12-step addiction recovery groups, I *(Pauline, author of this booklet)* will share my own *experience, strength, and hope*: that is the actions and approaches that have worked for me, or for my family, friends, and colleagues and that strengthen and inspire me. I will also weave in some ideas and approaches drawn from working on carbon-reduction community projects. Everybody has their own experience to be added to this rich tapestry of climate behaviour change and it would be wonderful to capture all your practical ideas and experiences into a pool of information that others can draw on. *(I'm a bit stumped on how... but think a starting point could be a Google Jamboard? We could speak about this together at the next focus group. Or there might be other options that you know of.)*

Above all, this booklet aims to support you in changing the things that you feel able to change and feel comfortable doing so. Rather than a burden or sacrifice, climate behaviour change, in my experience, can be a journey of discovery. If it is onerous, we will avoid it. We are human. But if we can discover and decide what we want to change, just for today, regardless of what any other person, community, multinational company, nation state, or head of state might be doing, or not doing, then the journey can be personal and powerful. I suggest that doing our best, being gentle with ourselves and knowing where our power begins, and ends, is realistic and reasonable climate action.

So, is it really worth us bothering? Is there any hope? Such questions will no doubt arise as climate change is a brain-numbingly mammoth issue. Though we cannot stop such thoughts arising, I suggest that dwelling on them is unhelpful. When feeling

[32] There is no info here... I'm just checking that you know where and how to find the information signposted in this document 😊 👍.

disheartened by a lack of sufficient climate action on any level, it can be empowering to know that we have power in our own lives, in this present moment. Many of our fellow humans have little or no power or choice: perhaps because of extreme poverty, oppression, coercion, or all of these. We can keep it simple, be grateful we do have some power, do what we feel is available to us, with active hope, and an open heart. 🧡

The low hanging fruit, veg, salad, herbs, and more 🍓🍏🥗🌿

A good starting point in a journey of change can be to pick the things that we find easiest to change.

Here are a few suggestions of 'low hanging fruit' and more, and signposts (remember – see the footnotes) to related information:

- Growing lettuce, leaves, and herbs

The taste is great, and the nutrition is at its highest. There is no plastic bag with leftover rotting leaves to dispose of as with supermarket buys. Hundreds, or even thousands, of food miles are reduced to a few feet journey to the windowsill, balcony, or garden. The cost is minimal. What's more, if the leaves are harvested with a sharp knife or scissors, they re-grow! Grown from seed, the cost of edible leaves can be counted in fractions of pennies. One home grown parsley plant is one less shop-bought parsley plant with its accompanying eco-footprint: a first step on a journey to growing more. [33]

- Growing apples, pears, plums, strawberries, raspberries, blueberries, and other fruit

Once purchased, fruit bushes and fruit trees take care of themselves, apart from a little annual pruning. The initial investment can be low. Well known stores, even discount stores, sell fruit trees and other gardening materials cheaply; however, beware of low-

[33] [33] There are many local organisations that support food growing such as Sow the City https://www.sowthecity.org and national ones such as the Royal Horticultural Society (RHS) https://www.rhs.org.uk https://www.nsalg.org.uk/allotment-info/brief-history-of-allotments/

price compost containing peat[34] that is unsustainable – there are many alternatives. Picked straight from the garden, the fruit from the bushes and trees is fresh and organic. Any surplus can be used in preserves such as chutneys and jams or frozen and used throughout the winter in cakes, pastries, smoothies, or in the fruit's original form. Apples will happily sit on an apple rack for three or four months. The rack can be bought, or home constructed for those DIY handy.[35]

My Experience, Strength, and Hope

My own home 'orchard' has grown from one initial redcurrant bush to include blackberries, blueberries, wineberries, raspberries, strawberries, plums and apples. Since I eat fruit every day, this is quite a monetary, carbon and eco saving. I like the feeling that I have semi exit-ed the super-polluting, soil-depleting, vitamin-deficient supply/production chain of traditional shops and supermarkets. And the fruit is so much tastier!

I am fortunate as I live on an estate built in the interwar years specifically designed for garden horticulture. But for those without a garden, many berry bushes and dwarf fruit trees grow well in containers, or it is worth exploring hydroponics[36]. My own garden is a mis-mash of container-grown and bedded-in edibles: a trial-and-error approach that allows me to discern what works best in my garden, bearing in mind the light and soil conditions. It is a wonderful time to grow with so much free 'tuition' available via social media and the internet. I find You Tube videos especially useful as 'show and tell' works for me. However, at other times, it is

[34] https://www.fertilefibre.com/blog/peat-compost-alternatives/

[35] How to make an apple rack - You Tube video

[36] https://www.independent.co.uk/extras/indybest/house-garden/gardening/best-home-hydroponics-kits-gardening-indoor-herb-garden-a84616.html

nice to relax and browse a horticulture book or magazine, especially sitting in the garden on a sunny day.

I am also a member of a community allotment so have an additional source of home-grown fruit and vegetables. Between the allotment and my garden, with the addition of foraged hedgerow fruit, I manage to freeze and preserve enough fruit to last right through the winter. I do buy additional fruit for variety and vitamin content, but at least my purchases are minimized because of what I grow. I have learnt much from other allotment holders, family and friends. I love the fresh air, exercise and relaxation that home growing all provide.

- Purchasing low carbon fruit and vegetables

Sustainably and ethically grown fruit and vegetables are harder to source than regular supermarket crops. Mega scale, monoculture, chemical-dependent farming has taken over the bulk of plant food production in Western nations. The main supermarkets might be responsive to customer demands to a degree, but their main driver is profit since that is how the supermarket world is structured.

As a result, they tend to prioritise the cheapest produce, regardless of how it is produced, and promote and advertise that produce. Market dominance allows the leading supermarket chains to demand who produces, and how it is produced. We have no doubt all paced the aisles of the big stores looking for non-plastic sealed organic local produce only to be disappointed. Yet fresh, organic, unpackaged produce was the only fruit and veg on sale just half a century ago.

Surprisingly, the greater part of the world's food production is still grown by small scale farmers, but they find themselves obliged to participate in the production chain of globe-trotting produce. In the UK, 17% of the fruit we eat is home grown. Most of the fruit we consume is imported from the European Union (a fluid situation at time of

writing due to our exit from the EU), with exotic items such as bananas, pineapples, and mangos sourced from South America or Asia. Supermarket food travels enormous distances, clocking up ever-increasing food miles and emitting hundreds of thousands of tonnes of CO_2 along the way. This seems non-sensical. Here is a telling example from a few years ago. An upmarket store selling hand-tied chives advertised these chives as British. The store did source them from the UK, but then flew them over to Kenya where low paid workers spent long, arduous, and brain-numbing hours hand tying them into pretty bunches, after which they were flown back again. All that when we can grow said chives on our windowsill. I cannot say which store it was but…'H*rr*dnous'!

However, shops where we can buy locally, ethically and organically produced fruit and vegetables luckily are available in our area. Unicorn Grocery is a whole food cooperative with a long history of specialising in vegan and organic produce at reasonable prices, and other areas of the city have their equivalents[37]. Some such stores have not fared so well. The big supermarkets, with their virtual monopoly, can source cheaply and sell cheaply. But Unicorn grocery is a wonderful success story where good produce is affordable to most.

Other sources of local produce are farmers' markets, regular markets, fruit and veg box providers, and direct-from-the-farm sellers. Some sell additional produce, and a whole weekly shop can be bought.

[37] https://www.unicorn-grocery.coop , https://www.organicnorth.co.uk , https://theorganicfoodstore.co.uk , https://vegboxpeople.org.uk , https://www.abelandcole.co.uk

My Experience, Strength, and Hope

I buy a weekly shop from a supplier[38] who delivers mainly biodegradable packaging and collects any packaging I want to return the following week: for example, fruit is held in cardboard punnets and nuts come in a returnable refillable plastic tub. (If anyone wants a free sample box let me know as they will send one). As a result, I have reduced waste. The brown paper bags and cardboard I can add to my home compost thus creating a closed loop when I go on to use this compost for my own fruit and veg growing. I can also use the cardboard for weed suppression using the 'no dig' gardening method[39] with no need to revert to toxic weed killers. The downside is that prices of this supplier are high, so this prevents me shopping there if my finances dip. Also, there are some items that I must source elsewhere so I do an occasional supermarket shop to stock up on particular items. We have a great new local little shop in my area that sells refills and other eco products[40] that I am exploring integrating into my shopping routines and reducing any supermarket shopping even further.

In addition, I have a milk deliverer who brings produce in glass bottles[41] twice weekly. There is another deliverer in the area[42] and it is a shame that competition means twice as much petrol is used. They offer an almost identical service, so this particular competition does seem to have no benefit. Anyhoo, I love that they collect and reuse the glass bottles, and that they deliver oat milk!

[38] https://www.abelandcole.co.uk

[39] https://charlesdowding.co.uk/start-here/

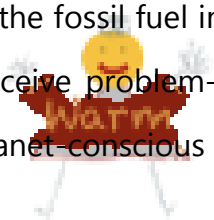
[40] https://www.lentilsandlather.co.uk

[41] https://www.mcqueensdairies.co.uk

[42] https://themodernmilkman.co.uk/?gclid=CjwKCAjw3pWDBhB3EiwAV1c5rKjRApLTKm0zhfpNbQKEGKejxF2UXKic_iV_2dMYplCr0x4YfWBdZhoCgkcQAvD_BwE

- Turning the heat down, or off

Wearing pajamas and a wooly jumper around the home is my idea of heaven. Whatever our garment preferences, perhaps we can be cozy and comfortable whilst burning minimum fuel by heaping on those layers.[43] In addition, there are now a good choice of energy suppliers who offer a competitive 100% renewable tariff meaning it is possible to opt out of any investment in the fossil fuel industry. I have been with one such company for many years and receive problem-free service. Friends and family are with other equally reliable and planet-conscious providers.[44]



- Turning appliances off

We might feel the energy saved is just too small to make the effort to turn off that light or that remote-control or to switch gadgets off at the plug. But when we do, we save more than just the energy used directly in the home: about a third of the energy that we draw from the national grid is lost in transit. Why burn all that unnecessary fuel for an annoying red dot! Also, lower lighting in general aids our sleep. 😴

- Walking, cycling, car sharing (with masks!), using public transport (with masks!)

Since I began car sharing with my son, I cycle everywhere! So many low-carbon options are win win win being healthy, fun, and low-to-zero cost. Flying aside, public transport is evidently far lower carbon than individual car use as we all share one vehicle rather than owning, fueling and maintaining an individual one. There are multiple collective advantages to public transport use: less traffic noise, less traffic accidents, better air quality and less wildlife loss via roadkill. The individual advantages

[43] The Energy Saving Trust and other organisations can help. https://energysavingtrust.org.uk

[44] https://selectra.co.uk/energy/guides/renewable-energy/best-green-energy-supplier

are substantial too including that our travel be lower cost, more relaxing, more social. However, needing to rush from A to B in a timescale that public transport or cycling does not facilitate, many of us find ourselves with no practical choice other than to depend on car use which can be frustrating but ought not be guilt inducing since we live within a transport infrastructure that favours car travel: the vast proportion of land given over to parking demonstrates this. I suggest we vote with our feet and bike wheels, reduce our car journeys as much as is possible, and support campaigns for the prioritizing of low-cost (or free![45]) low-carbon public transport.



- Adapting our holiday plans

In current Covid-times more of us are holidaying closer to home (if we are lucky enough to holiday). Though we may still crave the sun, we are discovering that where we live offers countless adventures and relaxation. (see also 'A Big-Ticket Item' below).

My Experience, Strength and Hope

My experience, as usual, is a mixture of actions I am pleased with and other actions that I view as my shortcomings that I can continually work on. On the positive, I have not flown for about 15 years which puts my carbon footprint substantially below the per capita UK average with flying being carbon super-intensive (see below). However, I do use a car where I would prefer to use public transport. Unfortunately, I suffer migraines if I am around technology and most buses and trains are now fully of

[45] https://freepublictransport.info/city/ http://www.freepublictransport.org.uk

technology and fully kitted out to facilitate its use. As a result, when I visit my daughter in London or holiday in the UK, I drive. From a carbon perspective, this is not great, especially when I am a sole driver/passenger. To balance things out, I attempt to make all local journeys by bike or on foot. This has lapsed somewhat since my bike accident but is on the increase.

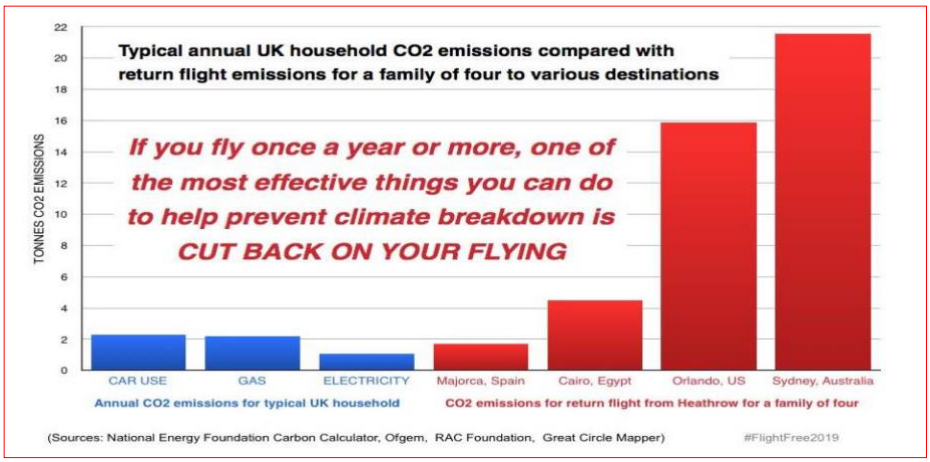
In terms of energy use around the home, I am pretty careful regarding turning off lights and sockets, but not perfect. My biggest guilty secret is that I like baths and do not like showers! If I am honest, I do not even feel willing to work on this at the moment as I hate showers unless they are really warm, and ours is a cold and annoying trickle. I am open to working on though. Today I had a shower at the local baths and a lovely swim!

A BIG-ticket item

- Flying (for work or holidays)

Flying has become an item that is often excluded, whether consciously or not, from carbon calculations as if it had no carbon cost. Because flying is the single highest carbon ticket item in almost any household carbon budget, this booklet has a special section to explore the topic.

If we are confused or conflicted regarding flying, it is not surprising as there is much contradictory information. Newspapers, for example, might encourage us to divest from fossil fuels and act on climate on their main and editorial pages, but then advertise faraway holidays in their travel pages as if there were no connection. Since flying is relatively cheap, for



many, and especially for those with budget limited and/or time-strapped lives, flying seems to offer the only affordable and time-permissible break from the drudgery of life and the unreliable British climate.

We may have family that we can only visit by flying, or we may be working so hard we feel we desperately need that guaranteed sunshine, our skin craving its caress and our body hungry for its vitamin D. Again, guilt is pointless and what is written here is not intended to evoke it. Awareness, however, is gold and can enable us to make conscious choices.

Flying is, in effect, subsidised to the tune of £11 billion a year because of the non-existence of aviation tax[46]. Aviation and shipping emissions are emitted from climate models and projections, even by the main international body on climate, the Intergovernmental Panel on Climate Change (IPCC). This 'let's just pretend it doesn't exist' approach is self-denial and will not help us solve our climate problems.

Just one flight can double or treble an annual carbon budget and place it above recommended UK per capita carbon emissions target of 4,000 tonnes. Alternatives to flying might include travelling by train[47], coach, or ferry[48], or a blend of these. The journey itself might be structured in as part of the holiday, holiday timespan permitting[49]. A friend of mine had a great adventure hitching a ride on a yacht to Cuba. However, he had managed to take 6 months off the responsibilities of daily life to take

[46] http://www.if.org.uk/wp-content/uploads/2012/11/Aviation_Report_Intergenerational_Foundation_FINAL.pdf

[47] Check out The man in seat 61

[48] https://hitchwiki.org/en/Hitchhiking_a_boat

[49] I didn't want to fly – so I took a cargo ship from Germany to Canada

the trip and did not have a dependent family. There are more holiday options on dedicated eco-travel sites[50], though they are aimed at more affluent travelers.

My Experience, Strength and Hope

As shared above, I haven't flown for about 15 years. I used to regularly take a Eurostar to Paris followed by the night train from Paris to Madrid when visiting family in Spain. I met interesting people and loved the adventure of it. Sadly, that route no longer exists (bring it back!), but many European night trains do.

Counting Carbon

Many approaches to carbon reduction involve estimating the carbon we use. Indeed, we are making reference to a carbon calculator as part of this research study. Carbon counting can be a useful informative and motivating tool. By looking at the size of our carbon footprint, acting on it can be a natural next step provided we look at it as a tool to aid self-awareness and not to fuel the type of self-criticism that engenders 'guilt' paralysis, or indeed complacency if we are below the UK average which is still much greater than most per capita carbon footprints across the world.

Becoming aware of the carbon injustices across the globe can be a wakeup call. At the current time, in the UK the average per capita carbon footprint is calculated at 14.1 tonnes of CO_2 e[51] per annum. This figure is a realistic estimate taking into account all impacts including goods produced at home and abroad, their transportation, foreign travel, and more (you may see a figure of 5.3 tonnes per capita average UK emissions but this is based only on fuels burnt in the UK rather than our total contribution). Compare our footprint to that of Chad where the average per capita footprint is almost zero, or Tuvalu where emissions actually are zero, or Bhutan which is carbon negative

[50] https://www.responsibletravel.com/holidays/low-carbon/travel-guide

[51] CO2e stands for CO2 equivalent, in other words all greenhouse gases are taken into account and converted into their CO2 equivalent.

https://ecometrica.com/greenhouse-gases-co2-co2e-and-carbon-what-do-all-these-terms-mean/

and absorbing 6 million tonnes of carbon per year that the rest of the world is emitting. It could be argued that this equates to others dieting so that we stay fatter!

Whilst teaching geography to reluctant high school learners, I loved using an online reference tool called Breathing Earth (sadly it has 'died' with the phasing out of Adobe Flash 😔💔). It was visually engaging, easy to use and starkly clear. Hovering the mouse over any country of the world generated a per capita carbon footprint pop-up.[52] The students were instantly riled by the injustice it demonstrated -- that the majority of the world's nations, especially the developing nations, were not contributing to climate change but were suffering the worst of its consequences.

Although carbon counting, like calorie counting, can become a negative if it becomes too obsessive, using the numbers as a tool to understand the broad-brush strokes of the carbon cost of material goods and activities can be useful. Currently, neither private enterprises, nor public organisations sufficiently count or consider their carbon footprint, let alone get obsessive about it. However, the latest international agreement of the Intergovernmental Panel on Climate Change (IPCC) signed in Paris in 2016 means there is now a legal obligation on governments to calculate their carbon.[53] Some forward-thinking companies are already counting their carbon and preparing for the more intensive auditing that is to come. [54]

Leave no trace *(or tread more lightly)*

[52] https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions. A good statistical source but not as accessible as breathing earth was. :(

[53] https://www.youtube.com/watch?v=I-4F5MJEeqs

[54] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

As explained above, this list of suggested actions could easily be the size of a novel as there are so many interesting and exciting ways that we can reduce our carbon footprint and/or campaign on the issue. As a result, navigating the wealth of information available can be overwhelming. For that reason, it can be useful to have a guiding principle that can save us needing to constantly refer to charts, books or websites. The principle of 'Leave no trace', though not an achievable aim in itself, can guide us in the right direction. We can substitute 'tread more lightly' if that feels more doable.

A few summers ago, I worked at a young people's camp-out on a lake district mountain. We had a clear mission: to leave the mountain exactly as we found it with no litter, no food waste, and no human waste. The mission began with nine reluctant teenagers trudging heavy rucksacks and tents up a steep mountain under a hot sun. On arrival at our destination, it started to rain. There was a lot of protesting about what a rubbish trip this was, but we pitched tents, cooked and ate our food, sang songs, told jokes, and moods lifted.

The young people were taking their John Muir Award.[55] John Muir was a mountain lover and environmentalist who developed the idea of humans aspiring to 'leave no trace'.

With their enthusiasm now higher, the young people began to get into the spirit of the 'leave no trace' approach. Little trowels became the route to achieve this. Leftover food was buried, and toilet trips relied on the same process. The young people laughed as seagulls almost immediately dived in and dug up the food waste they had buried, but thankfully not the toilet waste!

[55] https://www.johnmuirtrust.org/john-muir-award

There was lots of low carbon fun with island hopping races, wild swimming, and competitions to achieve the most 'bounces' when skimming stones across the tarn. The air was fresh, the terrain beautiful, and the 'rubbish trip' became a great one with near zero trace of 'rubbish' or indeed any carbon or eco footprint. Of course, 'leave no trace' on a one-off trip is easier than applying the principle in everyday life. Yet, it can still be a guide, something we strive for and thrill at when we get close to achieving it.

My Experience, Strength, and Hope

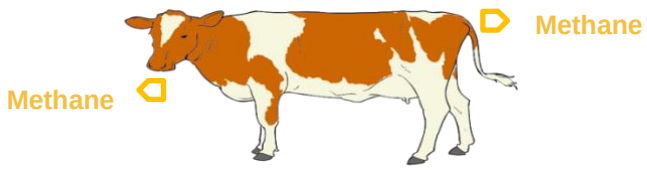
In my own daily life, my food waste becomes the compost for my house and garden plants. As often as I can afford, I purchase my regular food and household shopping from low or zero waste suppliers. I hang on to material items for as long as I can to reduce carbon and eco-damage: for example, we waited until our kitchen was literally falling apart before replacing it. I have a blanket my grandma crocheted more than 60 years ago and a doll she knitted; these items inspire me. (You've all seen these items now at the focus groups… and I loved your valued items!)

I engage in low eco-footprint fun like walking with friends, joining singing sessions, dancing using a solar powered speaker system, cycling excursions with the family. I also have many carbon 'sins'; for example, my contact lenses and blister packs have sadly been going to landfill. But I am delighted to have just worked out how to recycle them at a local chemist with the help of Terracycle[56]. I am gradually working through the things that enter my black bin and finding how to dispose of them. We do not (yet!) live in a context where leaving zero trace in terms of carbon footprint is possible, but we can perhaps aspire to nudge closer and closer to leaving no trace.

[56] https://www.terracycle.com/en-GB/

In terms of cleaning and self-hygiene, well maybe I smell, and my house does, but I simply use as few cleaning products as possible. I'm not an expert on alternative cleaners but know they exist[57]. Another thing I do, while we are on 'disgusting' things, is de-flea the cats with a comb rather than use any bee-killing products[58].

Finally, I simply aspire to not buy. This would certainly not be everybody's choice, but I rarely buy make-up, cosmetics, new clothes or other consumer goods. I love that this gives me the freedom to work less in my self-employment as well as meaning I am leaving less of a trace on the earth.



Delving deeper with consumption choices

- Vegetarian and/or veganism

The stats make very clear that reducing or giving up meat and/or dairy products in our lives is one of the biggest steps we can make in terms of reducing our carbon footprint. A study from Loma Linda University in California estimated that those adopting a vegetarian diet produced a third less emissions than did meat-eaters.[59] Another study carried out by researchers at Oxford University also concluded that a vegan diet is the "single biggest measure" that can be taken to reduce environmental pollution and that eliminating meat and dairy products can reduce an individual's carbon footprint by up to 87%[60]. According to the Vegetarian Society, vegetarians have a lower carbon footprint than meat consumers, albeit higher than that of vegans, and state that by replacing meat with sources of protein such as nuts, seeds, beans and lentils, we can reduce carbon and other greenhouse gas emissions. Factory farmed meat production

[57] https://www.thegoodtrade.com/features/5-natural-cleaning-substitutes-you-can-make-at-home

[58] https://www.sciencedaily.com/releases/2020/11/201117085940.htm

[59] https://academic.oup.com/ajcn/article/100/suppl_1/490S/4576703

[60] https://www.ox.ac.uk/news/2018-10-12-balanced-plant-based-diets-improve-our-health-and-health-planet

is eco destructive and carbon intensive as the industry as a whole drives deforestation and habitat destruction. In addition, cattle burp and fart the greenhouse gas methane which is now quantified as COe – carbon dioxide equivalent[61].

Stats on the advantages of eating plant-based diets abound from dietary advisory bodies, through animal protection groups, to international climate groups -- including the Intergovernmental Panel on Climate Change (IPCC). The conclusion is always the same: re-organising the global food system is essential to reduce carbon emissions. Currently just the land clearing (mainly forests) to produce the feed for the cattle accounts for more than 14.5 percent of total global greenhouse gas emissions, before we begin to count those from meat production, transportation and those methane-rich cow burps and farts. Without a rehaul of food production, we will neither continue to feed the global population of 7.8 billion and counting nor meet the Paris accord designed to help us avoid 'dangerous' climate change. Finally, a study published in Nature in October of last year, drew the same conclusions: further emphasising that the world must shift toward plant-based diets, avoid food waste, and employ new farming technologies. *(NB I would love to add in here more info on low carbon pasture fed meat and low carbon seafood that came up in focus group discussion).*

Aside from carbon reduction, such dietary changes allow for more compassionate farming. As a child I lived in a small town surrounded by small farms. These farms generally had cows and sheep grazing in surrounding pastures, chickens clucking around the courtyard, and a

[61] https://vegsoc.org

guard dog pacing around in front of a cosy-cottage farmhouse that would bark if my friends and I got too close. These farms were as we expect them to be, like in our storybooks, in our nursery rhymes and in our children's TV programmes. Sadly, images of today's factory farming are ugly and cruel.

At the Five Rivers cattle feeding operation in Kersey Colo., the largest 'farm' in the world, there are nearly 100,000 cows, and a grand total of 1 million cattle across the six states they operate in[62]. The scale of intensive cattle farming in 2020 is mind-blowing. For space minimalisation, the animals are crammed together in pens, crates or cages that are functional and devoid of stimulation. The cattle are unable to engage in any normal social interaction with all comfort and joy squeezed from their lives. The happy and comfortable life we imagine our farm animals have before we slaughter them is no more for these creatures. They are no longer treated as sentient beings; they are considered units of production and the conditions that surround their lives contribute to meat production numeric efficiency whilst zero is the quality of their life.

The animals reared for meat in the UK do generally fare much better. However, the poultry sector, for example, is intensive and cruel. Even those who work in the sector generally receive low pay and have terrible working conditions. Billions of animals are suffering abuse in carbon intensive food production, as are the workers themselves, as is the planet. We can help reduce this by nudging ourselves towards better dietary choices – or leaping if we can!

Although the ugly practices outlined above dominate large-scale meat and dairy production, thankfully, sidestepping the meat and dairy industries becomes easier

[62] https://insideclimatenews.org

every day as alternatives become mainstream. Plant-based alternatives are more widely available even occupying shelf space in the meat sections of supermarkets and the menus of fast-food restaurants. The movement towards vegetarianism, veganism and more conscious meat consumption is growing amongst all generations, especially the young.

My Experience, Strength, and Hope

My own experience is a little unusual; I am a lifelong vegetarian because our parents brought us up that way. Our mum turned vegetarian when she was 5 after visiting a farm with an uncle who pointed to the animals saying things like "See that lovely little piggy? That's your pork chops." She never ate meat again even going hungry during the war years when her mum refused to make an alternative dish to the main meat course. Our dad ate meat until my older sister was born. Seeing that a vegetarian could give birth to a perfectly healthy child, he decided to give it a go. I have never had any desire to eat meat and so it is very easy for me to say vegetarianism is easy. I cannot know how it is for a lifelong meat consumer to attempt vegetarianism.

I attempt to have as many vegan hours and days in the week, and sometimes I manage a run of two or three days. The main food item that I struggle to let go of is cheese. I know that the mother cows and their calves suffer terribly as a result of the dairy industry and I want my habits to be fully congruent with my values. But when that cheese board is offered, the cognitive dissonance creeps in. So, I know that I have no right to think I am better than any meat consumer who experiences the same dilemma of being used to and loving a food but not wanting the suffering that goes into producing it. As with everything else in my journey to reduce my carbon footprint and my trace on the planet, it is for me a matter of nudging forward, changing what I can, saying 'Yay!' when I find I have managed a vegan day, but not beating myself up for finding it hard to let go of the habits established before I became conscious that they were habits. Currently, I am planning to make oat milk

yogurt. If successful, I would no longer eat shop bought yogurt of any type. Woohoo ☺

- Buying real foods

Some years ago, I attended a talk by a Peruvian environmental campaigner. He shared how he would enter a supermarket and gaze at aisle after aisle of products, none of which he wanted! Only one per cent of the products sold were of interest to him: the real foods. By this, he meant the fresh fruit and vegetables and staples such as grains, legumes, seeds and nuts; anything else he considered poison, especially the Ultra Processed Foods (UPFs) that have been so manipulated they are barely recognisable as food.

Ultra-processed	Processed	Home version
sweetened breakfast cereals	plain bran cereal	oatmeal made with rolled oats and sweetened with honey
Coke	artificially flavored sparkling water	SodaStream
flavored potato chips	plain tortilla chips	DIY pita chips
white bread	whole-wheat bread with minimal ingredients	homemade bread
fried chicken	deli rotisserie chicken	roast chicken from scratch
flavored candy bar with long ingredient list	simple candy bar with short ingredient list	dark chocolate squares
Frappuccino	store-bought cold brew	drip coffee
mashed potato flakes	frozen potatoes	fresh, whole potatoes
energy drink	sweetened fruit juice	fresh-squeezed orange juice
flavored granola bars with added sugar and preservatives	granola bars with minimal additives	DIY granola
artificially flavored cheese crackers	naturally flavored crackers	whole-grain crackers and cheese slices

Avoiding UPFs with their heavy carbon and eco footprints is not easy in a modern world where they flash before our eyes almost every waking hour -- on television, online, on billboard advertising and more. We may have grown up with packets of biscuits, bags of crisps, or sugary confectionary as treats. Our teeth, tastebuds, stomachs, and the pleasure zones in our brains can become associated with such processed snacks automatically ranking them as something to be enjoyed, even a need. These highly packaged, carbon intensive, non-nutritive 'foods' have become structured into our lives. For all that, they *can* be structured out, if we feel it is available to us, as the discovering of a path that is healthier for both us and for the planet. Before exploring further the ways foods are manipulated, here is a sign post to easy alternatives to the UPFs.[63]

[63] https://www.healthline.com/health/food-nutrition/ultra-processed-foods

There is much persuasive language used in their advertising. However, what these foods really contain, and the destruction and cruelty that can go into their production, is not mentioned. Here are two facts that became game changers for me and helped me to let go of many processed food products in my life.

1. UPFs use cheap, toxic, lifeless ingredients to create bulk, reduce costs and maximise profits.
2. UPFs have been carefully manipulated to be moreish and addictive, again to maximise profits.

There are hundreds of substances that are used to improve consistency and create bulk in UPFs: some common ones are starch, guar gum, glycerin, and polydextrose[64]. Another very problematic one is palm oil[65]. This emulsifier, used in everyday processed foods such as cakes, ready meals and chocolate bars, mainly derives from palm plantations situated in land that previously was rich tropical forest in South East Asia. This is the land where Orang-outans are struggling to survive due to clear felling by the palm oil industry. Palm oil is used in almost eighty per cent of processed supermarket foods. *(Read more on this in the Addendum on Palm Oil P.24)*

My Experience, Strength, and Hope

When I was teaching this topic in geography at high school the students would become upset, and so would I. Each day that I manage not to eat these products and, thus, to not contribute to this disaster for wildlife and local people, I feel grateful that I have that choice. It has taken time for me to transform my diet and now I am grateful that do not feel the need for palm oil products -- most regular supermarket bought biscuits and cakes -- and thus that I am not contributing to the tonnes of CO_2 *emitted*

[64] https://www.theguardian.com/food/2020/feb/13/how-ultra-processed-food-took-over-your-shopping-basket-brazil-carlos-monteiro

[65] https://www.wwf.org.uk/updates/8-things-know-about-palm-oil

from the slash and burn and released from the trees that covered the tropical regions. It is worth repeating again that addiction recovery experience suggests guilt is not a useful driver of behaviour change; but I find awareness can be, and that I can gently urge myself to try, a day at a time, to avoid products related to destructive practices and instead eat healthy and promote regenerative practices for wildlife, human societies and the planet.

*Food has become so complicated. All the procedures that go into making UPFs have extensive eco and carbon footprints as well as being bad for our health. There is so much to be gained by simply sticking to, or switching to, real fresh foods or minimally processed items such as preserves, dried goods, fermented foods, and salt-preserved items. My own experience is that I feel better and better, happier and happier, lighter and lighter the simpler and real my diet. In the words of a slogan used in the 12-step fellowships, we can just '**keep it simple**' and thus maximise our health and the planets and reduce emissions in the process.*

- The other things we buy, or don't buy

There will always be things we have to shop for: household necessities, clothes, medicines. In addition, we are encouraged by the advertising industry to buy things simply for the sake of buying. It is normal too to treat ourselves, or someone else, or to buy something simply because it is beautiful, and we like to look at it.

Unfortunately, the advertising industry encourages us to go beyond the occasional treat and to buy for the sake of buying. Advertising is designed to make us think something is lacking in our lives, or even that something is lacking in us. Fast fashion, the beauty industry, the house-makeover industry and more encourage us to throw away and start anew, or to constantly add to or update. But maybe it is fine just as it is; maybe we are fine just as we are. Nothing is really lacking, and we can enjoy being ourselves and appreciate all that we have without over-shopping!

Supporting, Campaigning, & Sharing our Experience

Seen from space, the earth has no national borders. The bold dividing lines of our maps and atlases are human creations and concepts. In reality, all pollution is both local and global and ultimately affects all of us. Equally, all positive acts helps all of us. In this section, the words 'support' and 'campaign' have been linked together as that what we are seeking are solutions and actions that serve our entire global community and the earth where we live.

The above said, it is only human to feel frustrated, upset, or even livid with those who act against the best interests of our common humanity and the planet. Speaking out, in whatever way we choose or are able, is a must; but it makes sense, if available to us, to speak out in ways that are more likely to be heard. We may be tempted to vent our emotions and seek vengeance from those we feel are offenders. However, the more reflectively we communicate, rather than getting swept into a reaction, the more likely we are to be heard. Negative emotions can be channeled into measured, determined and wise actions and campaigns.

To take a concrete example, Shell recently tweeted asking that individuals consider what they could sacrifice to save the planet. The tweet went viral, not because of its climate behaviour change value, but because of its starkly hypocritical nature. How dare a fossil fuel company that had carried on trading for 30-years knowing full well that its emissions would lead to dangerous climate change turn to us and ask us to guiltily consider *our* behaviour. Who would not be angry? However, evidently it does not serve us for our reaction to be to throw in the towel and abandon our climate concern; in contrast, we might channel that anger into strengthening our resolve to support and campaign for alternatives to fossil fuels, or even an end to the fossil fuel industry.

All campaigns, whether small, medium or large, are valuable. We may not get immediate results. We may be continually frustrated by the lack of action or concern for climate on the part of our elected representatives and the non-elected economic big players. But we are doing our part for ourselves, for all life and for future generations.

Many campaigns for justice only succeed after years or decades of campaigning. Patience brings rewards. The Spanish for patience is Paciencia (paz y ciencia) and translates as peace and science, or peaceful knowing.

It is a testament to our humanity that many of us become involved in campaigns for those geographically removed from us who we may never meet, such as during the opposition to apartheid in South Africa. Climate change campaigning goes a step beyond that as we campaign both for those geographically removed from us, such as in low lying countries already flooded by rising tides like the Maldives, and those removed in time from us, such as our children, or their children and sentient beings still to be born.

Coming together to campaign is good for the soul. We support each other in our common concern. We share the collective grief of the situation we find ourselves in and the joy of finding ways through. In the 12-step fellowships, posters on the wall remind members that 'together we can'. The loneliness and isolation of facing difficulties alone is transmuted into a loving and compassionate collective act.

I hope this document has helped underline the fact that, though any of our individual actions may seem small in the big global scheme of things, if we add up the carbon involved then they amount to a lot: the heat and light where food or consumer goods

are produced, the transportation to the supermarket, the energy involved in packaging, the energy involved in dealing with the packaging waste (usually plastic), the emissions from rotting food produce or other waste, and more. If we all reduce all we can, the potential carbon savings are enormous. And if our example inspires others to do the same, the gains are exponential.

Prior to Covid, I was involved in a Climate Self-compassion and Self-Care group. We met several times and participants found it useful. I hope to be able to re-launch that group at some time. Many other forums for Climate support do exist such as on facebook, but I am not up to date on which are active. I hope that this project can contribute to ongoing climate support, though I confess that at this moment I do not know in what shape or form. For the moment, I am enjoying this process and warmly thank you for engaging. 💚

Addendum on Palm Oil

Palm oil is used extensively in processed food production due to its cheap cost and long shelf life. In the 1990s and the early 2000s, tropical forests in South East Asia were clear felled at an alarming rate, with all forest life removed and leaving only bare land. Most often the felling also continued floodlit at night. Many critically endangered species, including our primate cousins the orang-outans, were either killed outright or forced to flee.

Orang-outans are a gentle and highly intelligent species. The name derives from the two Malay words: **Orang** - meaning man, and **Hutan** meaning forest. These noble 'men

of the forest' need vast areas for their survival as they move around in order to find and eat food that is in season. Like humans, they have strong attachments to their young who the females raise alone for the first seven or eight years of life. There is increasing evidence that they are highly intelligent and sensitive animals. For example, it was thought that only humans were capable of displaced referencing – the ability to communicate information about a future or past event – but orang-outans have demonstrated the ability to verbally suppress their knowledge that there is a predator close by until it is safe to do so without causing alarm.[66] Also, the tool use demonstrated by Orang-outan young is superior to that of human children.[67]

In the early 2000s, scenes on television documentaries of orang-outan anguish as their forest homes were being cleared sparked outrage amongst the general public. In 2018, footage of a desperate orang-outan mother attacking a forest clearing digger machine hit the pages of the Daily Mirror and went viral on You Tube.[68]

In an attempt to improve the industry, an organisation called the Roundtable on Sustainable Palm Oil (RSPO) established Principles and Criteria (P & C) for companies to adhere to, or to aspire to achieve, by a set deadline. Those that did so received RSPO certification. Most high street names are amongst those signed up to the Roundtable. This sounds all well and good, except that maybe it is not. Independent studies have found that the level of sustainability, or lack of it, between RSPO certified palm oil plantations and those not certified is negligible. Evidently, more work needs to be done ensuring this well-meaning approach has the desired effect.

[66] https://advances.sciencemag.org/content/4/11/eaau3401

[67] https://www.popularmechanics.com/science/animals/a25014326/orangutans-toolmaking-better-than-children/

[68] You Tube video of orang-utan attacking digger

This booklet could easily contain pages and pages on palm oil alone it is such an emotive subject, but instead will suggest that the best way to protect the orang-outans and the many other critically endangered species and the remaining forest, is to avoid, reduce, or completely reject (if that is available to you) the processed supermarket products that contain palm oil.

If such common snacks are a habitual pleasure or a comfort, this can be tough. However, more and more nutritious, delicious and truly sustainable snacks are becoming available. What's more, our health improves eating sustainably: palm oil is very high in the saturated fats linked to heart disease, liver dysfunction, obesity and type 2 diabetes.

Finally, by reducing or ceasing to consume palm oil, we are supporting not only the wildlife but also the local people who live and work in the forests since burning rainforests creates dense smoke, causing respiratory problems. In September 2019, despite several years of efforts of the RSPO, almost a thousand fires burned blanketing cities and whole islands in smog from slash and burn used to create agricultural land for the palm oil industry.

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