



The power of leading by example with high-impact
low-carbon behaviour: emulation, trust, credibility, justice

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Abstract

Leadership is said to be essential for addressing the climate crisis. Nations make claims of “leading by example” when they set climate targets and reduce greenhouse gas emissions. But leading by example is rarely discussed or researched at an individual level, despite established knowledge about leader influence and the need for society-wide behaviour change.

This thesis enters the gap. It presents mixed methods research exploring the effects of leaders who adopt visible high-impact low-carbon behaviour: flying less, eating less meat, improving home energy efficiency, living car-free, or choosing to have fewer children. The leaders in question are high-profile figures who advocate for climate action, specifically politicians, celebrities, and business leaders.

Four focus groups reveal a complex process of meaning-making when the public observes low-carbon action from leaders. Interviews (n=19) with UK Members of Parliament (MPs) show their caution about acting as environmental role models. A representative survey experiment (n=1,267) finds significant effects of leading by example, with members of the public expressing more willingness to adopt high-impact low-carbon behaviour if they observe a leader doing so. And a survey of people who stopped flying for a year (n=344) reveals how the behaviour of leaders had influenced them.

The evidence suggests leaders who lead by example enjoy much greater approval and are considered more credible leaders. They are perceived as more trustworthy, ethical, likeable; and as caring more about climate change, believing it's more serious, and being more knowledgeable about it. Leading by example is shown to be a *collective* act, not an individual one, because of its influence on peoples' attitudes and behaviours in relation to climate change.

There are many layers of complexity. The conditions under which leading by example inspires others to act are contingent on the specifics of the situation and the relationship between leaders and the public. The exploratory investigations in this thesis lay the ground for a broad spectrum of further research on the nature of climate leadership and the power of walking the talk.

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“Leaders of the world, you must lead. The continuation of civilisations and the natural world upon which we depend is in your hands.”

David Attenborough at the United Nations COP24 Conference of the Parties climate conference (*Carrington, 2018*).

“Considering the severity of the climate challenge, our leadership crisis is a species level adaptation failure that individuals and groups must take upon themselves to remedy.” **Michael Mann**, editorial in *Nature Climate Change* (Bateman and Mann 2016, p1052).

“I want you to act as you would in a crisis. I want you to act as if our house is on fire. Because it is.”

Greta Thunberg, speaking to leaders at the Davos World Economic Forum in 2019 (*Thunberg, 2019*)

These statements on leadership were spoken by one of the world’s foremost environmentalists, one of the world’s most prominent climate scientists, and perhaps the world’s most famous climate change campaigner. They convey several messages. First, there is a climate crisis. Second, leadership is needed. Third, leaders are not currently doing enough. Their words represent a rousing call to action. But the precise meaning of *leadership* is less clear and is rarely spelled out in these and many similar statements. Who are the leaders exactly? And what should they actually *do* to achieve the extremely rapid greenhouse gas emissions reductions that are necessary to avoid catastrophic climate change?

The novel research presented in this thesis examines a contested area: whether leaders should visibly reduce their own carbon footprints as an example to others, and what the effects of this might be. By and large, this form of explicit “leading by example” is not mainstream. For instance, of the three high-profile figures quoted above, only Greta Thunberg has stressed the importance of visible personal emissions reductions from high-profile figures, and she is very much an outlier at the time of writing. Much more common is a respectful silence on the subject of individual example setting by leaders, or an expressed view that a leader’s own carbon footprint is largely irrelevant, especially if the leader advocates for climate action at a societal scale. Some go further by arguing that it is counterproductive to focus on any individual’s personal emissions because it risks sowing division and diverts attention away from more important systemic and political changes (Mann, 2021; Mann & Brockopp, 2019). However, the current research explores two

important factors that such arguments overlook: first, the social, symbolic and moral signals sent by a leader taking personal action (especially in a crisis); and second, the idea that continued high-carbon behaviour by leaders will discourage others from making efforts to reduce their own carbon footprints because it does not seem fair to do so. Underlying both of these points are the very large differences in personal lifestyle emissions between those with the smallest 'carbon footprints' and those with the largest (Akenji et al., 2021; Baltruszewicz et al., 2023; Capstick, Khosla, et al., 2020; House of Lords, 2022; Newell et al., 2021; Nielsen et al., 2021; Oswald et al., 2020; Otto et al., 2019).

With very little research in this area, an exploratory approach is taken using mixed methods to gather both qualitative and quantitative data on the potential efficacy of leading by example. The problem is tackled from multiple angles aiming to shed light on how leading by example might work *in theory*, and how it works *in practice* to bring about behaviour change.

In the first phase of the research, **focus groups** with members of the public and **interviews** with UK Members of Parliament (MPs) address leadership from the bottom up and the top down. The focus groups provide evidence of the public's appetite for, and detailed responses to, examples of leadership from politicians, business leaders, celebrities and local community leaders. The interviews with MPs reveal their self-conceptions as role models and leaders, exploring the extent to which they believe they should lead by example on climate change, and the effect this might have. The findings of the focus groups and interviews are then used to design a **survey experiment** in phase two of the research, which tests whether politicians and celebrities "walking the talk" can stimulate emulation from others, and probes the processes involved. Phase two also features another **survey** exploring how people who gave up flying for a year because of climate change were influenced to do so by leaders, friends and family. This second survey, therefore, examines how actual behaviour change has occurred in response to leading by example. The findings from phase one and phase two are synthesised into conclusions about the potential efficacy of leading by example, with suggested avenues for future research.

The thesis makes a substantial contribution to existing knowledge by beginning to quantify the potential effects of leading by example with high-impact low-carbon behaviour. It also provides a rich body of data illuminating some of the complex political, social and cultural dynamics at play. The thesis closes with a discussion of "embodied" climate leadership that presents a vision and a challenge to climate leaders of all kinds.

Leadership is defined in broad terms throughout the research. A slight modification of Northouse's (2015, p6) definition is adopted as follows: "Leadership is a process whereby an individual intentionally influences a group to achieve a common goal." This definition allows leadership to be identified even among those who may more commonly be referred to as *influencers*. For instance Greta Thunberg can be classed as a leader because her influence is deliberate and has a particular goal in mind. Similarly, celebrities can be classed as leaders when they advocate for climate action because they are intentionally trying to influence others towards a common objective. The specific form of leadership explored in this research is leading by example with high-impact low-carbon behaviour enacted by political leaders, business leaders, community/religious leaders, and other figures who shape mainstream discourse, such as celebrities. The high-impact low-carbon behaviours in question are flying less, eating less meat, driving smaller cars or lower mileages, making homes more energy efficient, active travel, and limiting family size. These actions have been identified as having the largest potential to reduce an individual's carbon footprint (Whitmarsh, Poortinga, et al., 2021; Wynes & Nicholas, 2017a).

This introductory chapter and literature review will briefly outline **the necessity for lifestyle changes** to reduce greenhouse gas emissions, and explore how and why governments and politicians tend to downplay this necessity. Central to this are the **large inequalities between individual consumption levels** – a factor that until recently has received little direct attention in behaviour change policy and research. The current **absence of explicit leading by example at an individual level** will be contrasted with discourses of **national climate leadership** where leading by example is often stated as necessary and evident. The reasons for the contrast between national and individual leadership narratives will be explored, encompassing the role of consumption, power structures and social hierarchies. **Social influence and social norms** will then be examined as a means by which radical shifts in consumption could be achieved via leading by example. The sensitivities surrounding **moral judgements of appropriate personal behaviour** and that of others will serve as an overarching linking theme for the preceding literature review. Finally, research questions will be outlined along with an introduction to the subsequent chapters.

1.1 Global warming, and the need for behaviour change

Global warming presents multiple catastrophic threats to human societies and the ecosystems on which these societies depend, some of which are already playing out (Pörtner et al., 2022). With this in mind, the world's governments have pledged to limit global warming to well-below 2C, compared to pre-industrial levels, and to pursue efforts to limit

warming to 1.5C as laid out in the Paris Agreement (UNFCCC, 2015). Achieving this will require the near elimination of greenhouse gas emissions from human activities that cause global warming, such as the burning of fossil fuels for electricity generation, transport, producing consumer goods and industrial processes. Agricultural processes and land use change are also large sources of greenhouse gas emissions, particularly relating to the production of meat for human consumption (Masson-Delmotte et al., 2018).

The problem of eliminating greenhouse gas emissions is often divided into two distinct categories: supply-side, and demand-side. Supply-side measures reduce the emissions involved in the supply of energy, food, transport, infrastructure, goods and services. For example using renewable energy to create electricity instead of burning coal is a key supply-side solution. Demand-side measures involve reducing the quantity of energy, products and services that are consumed. For example, improving the energy efficiency of buildings or products so that they require less fuel, or people changing their behaviour and consumption patterns, are demand-side measures.

The research presented in this thesis focuses on demand, and particularly behaviour change, on the basis that this will be essential for achieving the rapid greenhouse gas emissions reductions required according to the UN's Intergovernmental Panel on Climate Change (IPCC) (Creutzig et al., 2022; Masson-Delmotte et al., 2018). The IPCC state that reductions in demand will help to avoid the “*major risk*” of relying on as-yet undeveloped Carbon Dioxide Removal (CDR) technologies, which feature in the IPCC's pathways to 1.5C (Masson-Delmotte et al. 2018, p34). Furthermore, the IPCC highlight “*pronounced synergies*” between lowering demand and the UN's Sustainable Development Goals (SDGs), which provide a framework for international development priorities aimed at eradicating poverty and reducing inequality (ibid, p21).

It might be expected, given the clear advantages of demand-side emissions reductions outlined by the IPCC, that behaviour change strategies and policies would be a prominent part of national and international responses to climate change, but this is not the case. While climate-related behaviour change has been well researched and receives some attention in the media, very little has been done at a governmental level to bring it about at scale. As a recent report by The Cambridge Sustainability Commission on Scaling Behaviour Change states:

“Behaviour change has not been given high priority in current climate policy strategies. Despite its huge potential, sustainable behaviour is often

downplayed in debates about climate mitigation. In the international climate policy arena, behaviour change has often been neglected and overshadowed by a focus on technology and market mechanisms. This has side-lined a greater focus on changing consumption and demand-side options, in addition to supply-side measures.” (Newell et al. 2021, p10)

This extract highlights a bias at governmental level in favour of solutions based on *technology and market mechanisms* in the *international climate policy arena*. In other words, governments have actively avoided grappling with behaviour change (Nelson & Allwood, 2021). This is despite the high levels of uncertainty surrounding many new or speculative low-carbon technologies, particularly the carbon dioxide removal technologies mentioned above. Such uncertainty contrasts with the large emissions reductions that could be achieved quickly if widespread behaviour change occurred, particularly among the world’s wealthier citizens (Akenji et al., 2021; Baltruszewicz et al., 2023; Barrett et al., 2021; Cass et al., 2022; Newell et al., 2021; Nielsen et al., 2021; Otto et al., 2019). A recent report entitled *Confronting Carbon Inequality* calculated that:

*“Reducing the per capita footprint of the richest 10% to the 1.5C-consistent level by 2030 **would cut annual carbon emissions by over a third** (>15Gt), and even reducing it just to the level of the EU average (8.2t/year) would cut annual emissions by over a quarter (c.10Gt).”*
(Gore 2020, p6, emphasis added).

Emissions reductions made in the near term are much more effective at preventing global warming than the same scale of reductions made at a later date, due to the greater accumulation of greenhouse gases in the atmosphere that results from delaying emissions cuts. This highlights how high-impact behaviour change by wealthier global citizens could make a major contribution to combating climate change and insure against the risk that as-yet unproven technology does not deliver to the extent to which it is relied upon in many emissions reduction scenarios (Nelson & Allwood, 2021).

It is in this context that leading by example is proposed as a way of initiating radical shifts in consumption to achieve substantial demand-side emissions reductions. Strong leadership signals could contribute to social tipping points where “a small perturbation can trigger a large response from a system” leading to an unusually rapid change to social norms (Lenton et al., 2022; Nielsen et al., 2021; Stadelmann-Steffen et al., 2021). In contrast, behaviour as usual from leaders may serve to insulate the high-consumption lifestyles of the wealthiest

citizens and act as a brake on behaviour change more widely (Nielsen et al., 2021; Otto et al., 2019; Stoddard et al., 2021).

1.2 Leading by example – national and personal

“The importance in leadership of setting an example as a model for the behaviour of followers is nothing new; it was recognised in ancient writings of Sun Tzu and Confucius.” (Gill 2011, p138)

“Most climate mitigation pathways that seek to keep temperature rise to within 1.5°C envisage a major role for lifestyle change.”

From 2020 UN Gap Report (Capstick 2020, p62)

The need for behaviour change outlined by the IPCC is countered by an enduring political aspiration that Western consumerist lifestyles should not be sacrificed in order to tackle climate change. This position was crystallised by George H.W. Bush’s statement at the Rio Earth Summit in 1992 when he said: *“The American way of life is not up for negotiation”* (Brown & Kasser, 2005). In 2007 former UK Prime Minister Tony Blair confirmed that politicians feel unable to discuss substantive reductions in consumption that would have a significant impact on individuals’ carbon footprints, such as flying less: *“You’ve got to do this together in a way that doesn’t end up actually putting people off the green agenda by saying ‘you must not have a good time any more and can’t consume’. You know, I’m still waiting for the first politician who’s actually running for office who’s going to come out and say it [people should consume less] – and they’re not. It’s like telling people you shouldn’t drive anywhere.”* In the same interview Blair spoke of a preference for developing new jet fuels and aircraft designs to make flying more energy efficient (Watt, 2007). Decades later, the same arguments are evident from world leaders, with former UK Prime Minister Boris Johnson justifying his domestic flight on a private government jet to a 2021 G7 meeting of world leaders by saying: *“If you attack my arrival by plane, I respectfully point out that the UK is actually in the lead in developing sustainable aviation fuel. One of the points in the 10-point plan of our green industrial revolution is to get to jet zero as well as net zero.”* (Westlake, 2021). Here we see again the aforementioned bias for technical solutions over demand-side behaviour change (Nelson & Allwood, 2021).

The statements by Bush, Blair and Johnson indicate why government leaders have not made inroads on behaviour change: it is presented as unacceptable to electorates, or simply off limits. This perspective is confirmed by research on UK politicians and official documentation that reveals a tendency to “tame” climate change as an issue by avoiding language that

connects it directly to people, their actions, or how they might be seriously impacted by its effects (Willis, 2017, 2022). UK Politicians have feared being labelled “freaks” and “zealots” if they advocate too strongly for environmental issues and have also felt they lacked a mandate from their electorate on climate change (Willis, 2018b), although this may have shifted somewhat since the high-profile activism of Greta Thunberg, the school strikes, Extinction Rebellion, and the findings of the UK Climate Assembly (UK Climate Assembly, 2020). Some world leaders have stated bluntly that consumption will have to be tackled head on. Juha Sipila, the Finnish Prime Minister (2015-19) said in a media interview in 2018: *“We have to do what we agreed to in the Paris agreement. We need to reduce our consumption, change our behavior”* (Rogin, 2018), and the Finnish Government’s *Medium Term Climate Change Policy Plan* states *“Consumers will continue to be encouraged to halve their carbon footprint”* (Finnish Govt, 2022, p12). But such specific calls for individual demand reduction are rare from those in power. The way in which politicians frame climate action will be further explored in Chapter 5.

In the UK, the political stalemate has been described as a “governance trap”. This sees *“governments and the public attribute responsibility for action to one another,”* with neither government implementing policies to change behaviours nor people choosing to do so of their own accord (Newell et al., 2015; Pidgeon, 2012, pS99). The public wants clear leadership on climate change and has expressed frustration that governments are both encouraging consumers to make green choices while also promoting consumption-based economic growth (Bedford et al., 2010; Bickerstaff et al., 2008; Hares et al., 2010; House of Lords, 2022; Kroesen, 2013; UK Climate Assembly, 2020). Research involving UK MPs supports the idea of a governance trap: *“Climate politics has become a silent standoff, with neither citizens nor representatives willing to make the first move. But this deeply unhelpful standoff does contain the seeds of a solution. If politicians have the confidence to lead, to see climate action as a social contract between citizens and politicians, then... they are likely to be supported.”* (Willis 2020, p82) Other scholars agree: *“many actors – including but not limited to politicians and publics – are engaged in a more subtle but nonetheless unproductive dance of partial commitment”* (Jordan et al., 2022, p9).

In contrast to the avoidance of individual behaviour change as a subject within mainstream political discourse, positive narratives about leading by example on climate change are very much present at a national and international level. The UK Government repeatedly presents itself as a climate leader that other nations should, and do, follow. In October 2021 in the run-

up to the COP26 climate conference, then Prime Minister Boris Johnson's foreword to the *Net Zero Strategy* contained the following passage:

*“The United Kingdom is not afraid to **lead the charge** towards global net zero at COP26 Indeed, as we **set an example** to the world by showing that reaching Net Zero is entirely possible, so the likes of China and Russia are **following our lead** with their own net zero targets, as prices tumble and **green tech becomes the global norm.**”*

(UK Government, 2021, emphasis added)

This self-declared leadership status from the UK Government comes with the backing from its official advisors, the Climate Change Committee (CCC), who asserted in their Net Zero report that leading by example from the UK enhances other countries' ambition: *“This leadership matters: UK activities support the implementation of the Paris Agreement and help other countries to increase their own ambition and action.”* (CCC 2019: p9). The CCC report makes several explicit mentions of the importance of the UK “leading by example”. Other UK government documents have cited the importance of leading by example to bring about behaviour change (Cabinet Office, 2010; Defra, 2008), and yet this has not permeated into official government policy or communications – indeed it is actively avoided. A parallel document to the *Net Zero Strategy* quoted above was published then hurriedly deleted from the government website (Laville, 2021). It said: *“Government institutions and **high-profile individuals should lead by example** and display committed and visible consistency with their own Net Zero narrative”* (BEIS, 2021, p25, emphasis added).

Claims of climate leadership at a national level are not unique to the UK. US President Joe Biden indicated a new era of self-anointed leadership on climate change, with this statement from his campaign material being echoed in subsequent speeches:

*“America will **lead by example** and rally the world ... from climate change to nuclear proliferation....”* (emphasis added). (Biden, 2020)

There is an obvious contrast between these national level claims of leading by example and the taboo around leading by example at a personal level, which is largely reflected in academic research too. The closest examples are experimental survey studies that feature vignettes describing climate scientists and advocates of climate policies who have either high- or low- emission lifestyles. Those advocates with lower emissions were viewed as significantly more credible and persuasive by members of the public, provided they weren't perceived as too “extreme” in their behaviour (Attari et al., 2016, 2019; Sparkman & Attari,

2020). Another study revealed that salesmen of solar panels were significantly more effective if they themselves had gone to the expense of fitting the panels to their own homes (Kraft-Todd et al., 2018). Research from my Master's dissertation indicated that people who have given up flying because of climate change influence others to fly less and also affect others' attitudes towards climate change. Furthermore, high-profile figures (leaders) were shown to have a greater influence than closer associates such as friends, family and colleagues. When asked about the leaders' influential qualities, "commitment" and "expertise" were cited as the most important (Westlake, 2017).

Painting a different picture of whose pro-environmental behaviour might influence others, a one-time survey by the UK Government found that the public said they were most likely to be influenced by friends and family, followed by scientists, the media, and local community groups. Politicians and celebrities were the lowest on the list (Defra, 2010). Further details of the survey are discussed in Chapter 7. In more general terms, qualitative research has revealed an appetite among the public for leadership from government when it comes to climate change, and a strong desire that societal changes be fair (Bedford et al., 2010; Bickerstaff et al., 2008; Demski et al., 2015; House of Lords, 2022; Pidgeon, 2012; UK Climate Assembly, 2020). This appetite is explored next.

1.2.1 Appetite for leadership

In the context of environmental behaviour, people themselves appear to *want* leadership, as evidenced by the "governance trap" mentioned above. A UK Government study titled *Motivations for Pro-environmental behaviour* based on 35 in-depth interviews and 10 focus groups with members of the UK public, included the heading, "Desperately seeking leadership?" above the following passage of analysis: "... a general lack of leadership was recognised by many of the respondents across the sample. Some of the less engaged groups of individuals felt government must get business to provide more leadership. Others in the sample perceived that government was unable to provide leadership within a global economic system." (Bedford et al., 2010, p95). Other focus group research has identified an explicitly expressed desire for leadership from government, with this quote cited by the authors as summing up the public mood: "... we don't really see it as our own individual responsibility. The problem has got to be solved by them, I think, and then we will be led by them" (Bickerstaff et al., 2008). Subsequent research on public attitudes to emissions from flying suggests the existence of an "appetite for leadership" that would provide a clear example of behaviour that is appropriate to the challenges of tackling climate change (Westlake, 2017).

This may indicate that politicians have a particular role to play in setting behavioural standards relating to climate change, perhaps because the nature of the problem requires wide-ranging interventions from governments and the reorienting of society towards more sustainable ways of living. Politicians, as representatives and leaders with responsibility for governance, may be seen as particularly important in signalling these changes through their behaviour. Similarly, other influential figures such as company bosses and celebrities have the potential to send strong normative signals through their behaviour. As will be discussed next, the potential of such leader influence has not been applied to low-carbon behaviour.

1.3 How has behaviour change been approached so far?

There follows an outline of the approaches that have been taken to theorise and implement pro-environmental behaviour change.

1.3.1 Knowledge deficit model

An assumption underpinning some theories of behaviour change is that people make behavioural choices based on a rational assessment of available information. According to these models, providing information about the risks of environmental damage, and how various changes in behaviour can reduce the risks, will result in people adjusting their behaviour accordingly because they simply lacked the appropriate knowledge. This can be summarised as a “linear-rational” model of behaviour that assumes people are rational actors who respond to information and incentives, and make decisions based on an evaluation of personal reward or utility (Jackson, 2005; Rayner & Minns, 2015). Such models have been critiqued, however, for omitting less rational drivers of behaviour such as emotional, moral and social influences. There is evidence that simply increasing public knowledge of climate change does not lead to pro-environmental behaviour (Kollmuss & Agyeman, 2002; Whitmarsh, Poortinga, et al., 2021; Whitmarsh & O’Neill, 2010), and indeed some of those with the highest levels of knowledge and concern about climate change also choose to maintain high-emission lifestyles (Whitmarsh et al., 2020).

1.3.2 Social marketing

An extension of the simple provision of information comes in the form of social marketing, which uses the principles of marketing to target particular segments of the population and attempts to change specific behaviours by providing information, highlighting the risks of not changing behaviour, and suggesting targets and solutions. It has been used extensively and successfully in the fields of health improvement, safety/injury prevention, community involvement, and to a lesser extent environmental protection (Mols et al., 2015; Peattie &

Peattie, 2011). However, the effects of social marketing to bring about pro-environmental behaviour have again been limited (Corner & Randall, 2011; Mols et al., 2015). Where significant progress in changing behaviours has occurred, in such areas as recycling and the purchase of energy efficient lightbulbs, the total effects are small because these actions, while arguably important, contribute only a small part of a person or household's total energy consumption (Peattie & Peattie, 2011). Research has also shown that the widespread adoption of such low-impact behaviours does not necessarily "spill over" into significant adoption of more high-impact behaviour (Nash et al., 2017). On the contrary, it has been shown that "moral licensing" can occur, whereby people feel their small pro-environmental actions give them license to continue with much higher-impact behaviours, such as flying (Meijers et al., 2019). A further complicating factor is that people tend to bracket their behaviours according to particular settings, such that pro-environmental behaviours at home are not necessarily matched by behaviour away from that setting, for instance flying for holidays (eg. Barr et al. 2011). Looking at the broad picture, scholars have concluded that social marketing will not be sufficient to bring about substantial lifestyle changes (Capstick et al., 2014; Peattie & Peattie, 2011).

1.3.3 Nudge

The concept of nudging people to adjust their behaviours was popularised by Thaler and Sunstein in their book, *Nudge*, published in 2008 and recently updated (Thaler & Sunstein, 2021). It has been widely adopted by governments as a seemingly unobtrusive strategy for achieving behaviour change. Fundamental to nudge approaches is changing the "choice architecture" to make favourable behaviours more likely without restricting freedoms (Hansen & Jespersen, 2013). For example people can be given the choice to opt-out of a more environmentally friendly option rather than having to opt in; a simple switch that often results in more people remaining opted in. Another nudge technique is to inform people about what others are doing, thus tapping into the powerful effects of social influence and social norms (more of which below). For instance a communication saying "85% of people in your area are making a particular choice" can have the effect of encouraging others to do so because they perceive it as the normal and socially acceptable course of action.

Nudge has been criticised on several fronts, however, with questions raised over its efficacy and ethics. It has been described as being paternalistic and restrictive on individual liberty because nudging involves unseen judgements made by institutions and governments about what behaviour is desirable and how people should be steered towards it (ibid). In addition, the altered choice architectures usually reflect economic, political and business interests,

and foreclose consideration of more radical ways of envisaging a sustainable future (Gumbert, 2019). Furthermore it has been argued that nudges are unlikely to bring about significant or lasting pro-environmental behaviour change because the values and goals underlying people's decisions are not being addressed (Capstick et al., 2014; Demski et al., 2015; Steg et al., 2014).

1.3.4 Environmental and social psychology approaches

Information provision, social marketing, and nudge approaches are all informed to a greater or lesser extent by environmental and social psychology scholarship, in which behaviour change has been analysed and predicted with the help of various models that segment contributory antecedents of behaviour and decisions, thus informing where change interventions may be effective. Such models include the Theory of Planned Behaviour, the Value-Belief-Norm theory, Transtheoretical Model and Protection Motivation theory and others (see Whitmarsh, Poortinga, et al., 2021 for a recent summary). The models take as inputs constructs such as attitudes, values, social norms, identity, and perceived behavioural control, which interact and result in decisions and behaviours. They have proved useful in some situations, for instance in relation to public health, but have been critiqued in the context of pro-environmental behaviour for being overly individualistic and omitting important factors such as situational specifics and inequality of consumption levels (Chatterton & Wilson, 2014; Steg et al., 2014; Whitmarsh, Poortinga, et al., 2021).

More recently, increasing attention has been paid to the potential of collective responses to behaviour change that tap into social identities (e.g. Fielding & Hornsey, 2016; Fritsche et al., 2018; Jugert et al., 2016; Sabherwal et al., 2021; Vesely et al., 2021). As Mols et al. (2015, p94) suggest:

“...policy makers seeking to secure lasting behaviour change should strive to engage with people not as individuals, but as members of groups whose norms they internalise and enact, and appreciate that lasting normative and behaviour change requires social identity change and the internalisation of new norms as an integral part of a person's social self-concept”.

The topic of social identity will be explored further in Chapter 2.

1.3.5 Practice theory

An alternative and largely complementary approach to behavioural analysis comes from Practice Theory, which posits that practices – defined as the multitude of activities and

related thoughts carried out by any given person – are deeply embedded in the structures of societies and their cultures. Practices are theorised as comprising three elements: *material* (the physical structures and objects involved in the practice), *meaning* (the mental aspects of the practice, such as motivations and emotions), and *competence* (the skills and abilities required to carry out the practice). In order for practices to change, these three elements, and the way they interact, need to be understood and reshaped (Kurz et al., 2015; Shove, 2012; Shove et al., 2015). The practice theory perspective challenges the models of behaviour change based on social psychology that tend to focus on consumption *choices* and *habits* (Shove, 2010). In doing so, practice theory emphasises that most of the time people are not making active, thought-based choices, and that practices are to a large extent bounded and reproduced by social, temporal and physical structures rather than involving moment-to-moment decisions. In order to achieve large-scale behaviour change, therefore, a systems approach is required. While practice theory and social psychology have been presented as distinct and even competing theories, others have suggested the benefits of drawing from both in order to advance changes in behaviours and practice (Kurz et al., 2015).

1.3.6 Missing dimensions: power, hierarchy, and justice

Recent critiques of traditional approaches to pro-environmental behaviour change have argued that there has been little progress because issues of power and hierarchy have remained largely unaddressed and unproblematised (Fuchs et al., 2016; Isenhour et al., 2019). High-impact low-carbon behaviours such as flying, car driving, diet choices, family size choices, and opting to walk or cycle all take place within social, cultural and infrastructural systems that are designed and propagated, to a greater or lesser extent, by powerful actors such as governments, corporations and social elites (Nielsen et al., 2021; Otto et al., 2019; Stoddard et al., 2021). Interlinking consumption practices and behaviours, such as the purchase and driving of cars, are often made necessary and promoted within these systems, and subsequently become embedded in people's lives, such that changing behaviours is not as simple as making different choices, because alternatives may not be physically available or socially desirable (Shove, 2010; Shove et al., 2015). Current growth-focused economic and social paradigms are heavily protected and promoted by corporate and political power. In contrast, *“the dominant disciplines focussed on changing behaviour (economics, psychology, marketing, etc) embrace a focus on individuals as the core unit of analysis and thus shy away from more challenging versions about structure, inequality and change in society”* (Hargreaves 2019, p87). Scholars who adopt this power-oriented

perspective have criticised nudge interventions because they “*center around the notion of the ‘individualization’ of consumption and the concealment of business interests*” (Gumbert 2019, p110). The absence of an explicit exploration of power has also been cited as a limitation of how practice theory has been applied to pro-environmental behaviour because it has adopted a “*‘flat’ view of social life [that] can make it difficult to account for questions of hierarchy and scale*” (Soron 2019, p55), although Bourdieu’s evocation of practice theory does encompass differences in power and agency between individuals (Bourdieu, 1977).

The IPCC also alludes to a missing power dimension in current research on how to bring about behaviour change. It says “*the focus [of existing research] is typically on enabling individual behaviour change, far less on enabling change in organizations and political systems.*” (Masson-Delmotte et al. 2018, p390). These critiques suggest that there has perhaps been too much of a focus on individuals in behaviour change research, along with an implicit flat depiction of society where consumers are treated *en masse* without disaggregating and problematising their very different consumption levels, responsibility, and agency. This has coincided with language in the discourse of climate change that has served to equalise and aggregate emissions related to consumer lifestyles and behaviour. If behaviour change is acknowledged as necessary, it is often in the context of phrases such as “we will need to fly less, drive less, and eat less meat”, which serve to cloud the reality that these activities are partaken of very unequally among populations and preclude precise discussions of who, if anyone, should act first and most. Just one example of these differences is evidenced by data indicating that 70% of flights in the UK are taken by 15% of the population (Devlin & Bernick, 2015), and around half of UK citizens don’t fly in a typical year (pre-Covid) (DfT, 2014).

The flat, aggregating approach to individual consumption and behaviour change contrasts once again with that taken at the national level, where countries assume different responsibilities in the scale and timing of their emissions reductions based on their historic emissions, current wealth and level of development. Known as “common but differentiated responsibilities and respective capabilities”, this approach was established in 1992 and is included in the Paris Climate Agreement (Dooley et al., 2021). Such differentiated responsibilities are not widely discussed in relation to individual behaviour, however – a *de facto* taboo that is consistent with politicians’ reticence on the subject of behaviour change, as mentioned earlier. This aggregation of lifestyle emissions, and the masking of the very large differences between individual carbon footprints, may become less and less sustainable as issues of equity and fairness increasingly come to the fore. The IPCC state:

“Social justice and equity are core aspects of climate-resilient development pathways that aim to limit global warming to 1.5°C as they address challenges and inevitable trade-offs ... between and within countries and communities, without making the poor and disadvantaged worse off.” (Masson-Delmotte et al., 2018, p24). The IPCC’s reference here to social justice and equity “within countries” is notable, and is likely to come into focus as governments grapple with the need for behaviour change. Tellingly, recent data shows the UK public has low confidence that net-zero policies will be fair (Ipsos CAST, 2022).

This thesis adopts a stratified view of society in relation to behaviour change, rather than a flat one. Leading by example is explored with a view to the elevated power, status and agency of leaders (which gives them more potential influence) and mindful of the large differentials in consumption between individuals (with leaders very likely to have higher-than-average lifestyle emissions). It is suggested that the *social status* of leaders combined with their *typically higher lifestyle emissions* creates substantial potential to either reinforce the status quo, or to challenge it (Nielsen et al., 2021; Rickards et al., 2014). Hence leaders are examined in this research as powerful agents whose high-impact low-carbon behaviour, should they choose to adopt it, could bring about transformative change. The mechanisms by which this may take place will be explored next.

1.4 Mechanisms of leader influence

So far the concept of leading by example has been presented as a potential route to unlocking a stalemate when it comes to low-carbon behaviour change. Existing research in this area is limited and there is no established framework suggesting how such a leadership process may take place specifically in relation to low-carbon behaviour. To provide a theoretical basis for the current research, the following discussions explore the relevant theories and influence mechanisms that inform the research design in this thesis.

1.4.1 Social norms

Social norms have been mentioned already in relation to existing theories of behaviour change. The concept rests on the idea that much of human behaviour is influenced by what others are doing, what they are thought to be doing, and what behaviour gains social approval or disapproval (Cialdini, 2003, 2007b; Henrich, 2015; Nyborg et al., 2016; Schultz et al., 2007; White et al., 2019). Scholars have described various ways in which social norms could stimulate low-carbon behaviour, often emphasising the link between social norms and morality. For instance, research suggests that durable pro-environmental behaviour is more likely to be encouraged by normative goals centred on how things *should* be, rather than by

“hedonic and gain” goals where the motivation to act is a desire to feel good or achieve personal gain (Steg et al., 2014). Others have argued that “anti-fossil fuel norms” could become part of “global moral norms”, in a moral shift that has parallels to that which occurred in relation to owning slaves and testing nuclear weapons (Green 2018). Gössling et al. (2020) also highlight the links between morality and social norms in connection with the “flight shame” phenomenon that emerged in response to Greta Thunberg’s high-profile stance on not flying, which resulted in a small reduction in flying in Germany (pre Covid pandemic) due to a shift in moral judgements about the appropriateness of flying due to its links to climate change.

The example of Thunberg highlights that leaders, as visible high-status individuals, can perform the function of indicating social norms of behaviour as they currently are (“descriptive norms”) or *as they should be* (“injunctive norms”) (Cialdini, 2003; Tankard & Paluck, 2016). Tankard and Paluck (2016) describe how the changing of social norms can hinge on “social referents” who have particular influence or social power within a group. Importantly, people’s perceptions of a social norm may not reflect the reality of the norm itself. For instance currently there may be a perception among some sections of the public, media or government that “most people fly regularly”, whereas in fact half the UK population doesn’t fly in any one year (Barasi & Murray, 2016). It is the perception of the norm that can guide behaviour, so that an example of a social referent who doesn’t fly may help to shift the perceived social norm (Westlake, 2017). Furthermore, people have different reference groups for different norms. For example college students will look to peers when deciding how much is appropriate to drink, but make reference to the norms of their parents for other behaviours (Tankard & Paluck, 2016).

At the moment, social norms in wealthy societies tend towards high-carbon rather than low-carbon behaviours, creating a situation where the social norm is working against the desired outcome (Gifford, 2011; Steentjes, Kurz, et al., 2017). In view of this, injunctive norms, which provide a clear signal about desired behaviour, could be especially highlighted by leaders due to their higher status. However, such signals also have the potential to cause “reactance” – a form of resistance to being told what to do (White et al., 2019). Reactance will be discussed in more detail below.

1.4.2 Elite cues

Analysis in the US has indicated that “elite cues” are one of the most influential factors affecting public opinion about climate change, over and above media coverage, extreme weather events, changes in GDP, and new scientific information on climate change

(Carmichael and Brulle 2017). “Elite cues” in the study in question are the words, messages and voting patterns of high-profile politicians. Elite cues have been shown to have more effect on public support for climate policies than providing descriptive social norms about what others support (Rinscheid et al., 2021). Furthermore, the effect of elite cues can transcend ideological preferences such that people form opinions based on what their trusted political messengers express support for, and these opinions do not have to fit with a person’s usual outlook and do not depend on the detail of a particular policy in question (Van Boven and Sherman 2021). Specifically relating to climate change: “*Emerging evidence suggests ... that elites influence public opinion about climate policy because elites signal social norms.*” (ibid, p85). As well as shaping public opinion and support for climate policies, elite cues may increase public willingness to change behaviour. In the EU, public concern about climate change and willingness to take personal action has been shown to be higher in countries where political elites are more united in their views on the threat of climate change, rather than sending mixed messages (Sohlberg, 2017). Messages from leaders have been effective in promoting energy saving behaviour in organizational settings too (Spence et al. 2018). Sweetman and Whitmarsh (2016) also found that high-status group members have the potential to encourage pro-environmental behaviour.

This evidence suggests that the signals, or cues, sent by elites are central to public responses to issues including climate change and to social norms. The current research will explore how leading by example with high-impact low-carbon behaviour functions as an elite cue.

1.4.3 Cultural evolution, credibility enhancing displays, and costly signalling

While elite cues have been shown to be important in shaping public opinion and social norms, Cultural Evolution Theory outlines an evolutionary mechanism that might explain why elites have this influence. The theory asserts that humans have evolved to respect and imitate prestigious leaders because doing so improved a person’s likelihood of survival (Henrich et al., 2015). In particular this theory posits that “credibility enhancing displays” may have evolved as a way of communicating a prestigious person’s genuine belief that a course of action is correct. Credibility enhancing displays consist of behaviours that seem in some way difficult or punitive for the person doing them, representing a sacrifice that conveys a level of commitment and belief that words alone cannot communicate (Henrich, 2009). Research has shown that this effect works in the context of pro-environmental behaviour: specifically, people were more likely to buy solar panels if the salesman of the product had themselves paid to fit the panels on their own homes, as mentioned earlier (Kraft-Todd et al.,

2018). According to the researchers, the process that caused the increased likelihood of purchase was “second order beliefs”, ie. the purchasers’ beliefs about what the salesman believed about the merits of the solar panels. By incurring the cost and fitting the panels themselves, the salesman signified their genuine belief that it was a beneficial and correct thing to do. Such mechanisms of social signalling and feedback are beginning to be included in climate modelling for emissions reductions (Moore et al., 2022). Common to these theorised influence processes is that the *actions* of a leader communicate valuable and salient information to followers, over and above the leader’s words. This is because words could be intended to deceive, or at least require less commitment to a particular course of action than carrying out the action itself. This signalling of commitment and belief through action is clearly relevant in the context of high-impact low-carbon behaviour where some choices, for instance giving up meat, flying less, living car-free, or having fewer children, might be seen as a sacrifice. In the context of the current research therefore, a leader who exhibits high-impact low-carbon behaviour could be seen as acting out a costly display, which has the potential to influence followers because it is perceived as a difficult thing to do. There is evidence of this enhanced influence in previous research on high-profile figures who stop flying because of climate change (Westlake, 2017).

If a leader’s action can enhance “credibility” it is important to consider the precise meaning of the term, although a systematic literature review has revealed that a consistent definition of leader credibility is lacking (Williams et al., 2022). Gill (2011) summarises credibility as involving “*honesty, inspiration and competence*” and “*leading from the front*” (p248/9). Kouzes and Posner (2004) state that “*credibility is the foundation of leadership*” (p498) and is dependent on a leader’s perceived trustworthiness, reliability, commitment to a direction of travel, knowledge and skill (ibid). It is this latter definition that will be adopted in this thesis because it allows for various ways of measuring and assessing leader credibility.

In relation to research into pro-environmental behaviour, “costly signalling” is a term more commonly used than “credibility enhancing displays”, but the processes are similar. Costly signalling by the conspicuous purchase of green products can convey not only a person’s environmental credentials but also their status, because the expense of the product indicates someone’s willingness and ability to absorb costs: “*From a costly signaling perspective, incidents of public self-sacrifice are associated with status because such acts demonstrate both one’s willingness and one’s ability to incur the costs of self-sacrifice for public welfare*” (Griskevicius et al. 2010, p394). Costly signalling by *not* consuming in particular ways may be more difficult to achieve, however. The very nature of prestige may make actions such as not

flying, not eating meat, not having a luxury car, or not having a large family difficult for a leader if such abstinence seems non-prestigious to followers. These (in)actions may inhibit the prestigious qualities that have made the leader attractive to emulate. This is because prestige itself may be enhanced by the possession of “prestige goods”, ie. the trappings of success, thus causing a drop in prestige for anyone who forgoes these trappings (Jackson, 2006; Plourde, 2009). This seems likely for celebrities, but also possibly for politicians and business leaders. It means that giving up flying, for instance, could undermine a leader’s prestige if followers see flying as a marker of success. Such an effect was found in research on students where consumption-intensive behaviours tended to convey higher status to those observing the behaviour than consumption-reducing behaviours (Brooks & Wilson, 2015). This raises the question of how social norms change, and what behaviour is viewed as aspirational.

1.5 Leading by example from institutions

There is further evidence that costly displays may be relevant in the context of action to tackle climate change. This is an extract from Evensen et al.'s (2018) focus group research exploring issues of justice relating to who should bear the cost of energy transitions:

“A London participant (male) linked cost acceptance and equitable cost sharing, stating, ‘When the survey was sent out, that was one of the questions: would you be prepared to pay more ... I said I'd be happy to pay more if the energy suppliers paid an increase, and the government.’”

(Evensen et al., 2018)

As well as a demand for fair treatment, this could be viewed as a desire for a costly display from energy suppliers and government to indicate commitment and sincerity by “sharing the pain”. Such a desire is supported by other research into the allocation of responsibility between individuals and institutions. The public view their own responsibility as related to that of institutions, and want to see institutions fulfilling their duties. Bickerstaff et al. (2008, p1327) found that, “...people's sense of personal agency was constructed in relation to perceptions of other responsible agents – most importantly, institutional actors - and of whether those agents are competent and trustworthy and can be expected to fulfil their duty of care.” Here again there appears to be a desire in the public for a display of action. But a potential problem with this desire to see institutions doing their duty could lie in the fact that institutions are disembodied and remote, inherently removed from ideas of personal, human behaviour. To bridge this gap, leaders of institutions could model symbolic, costly behaviour

in order to link the personal to the institutional, and therefore begin to dismantle the previously mentioned “governance trap” around behaviour change (Pidgeon, 2012). In this way, leading by example could be seen as a new form of public engagement on climate change – with public engagement being identified as increasingly necessary to advance action on climate change (Newell et al., 2015; UK Climate Assembly, 2020). This is consistent with the aforementioned published-then-deleted UK Government report that stated: “*Government institutions and high-profile individuals should lead by example and display committed and visible consistency with their own Net Zero narrative.*” (BEIS 2021, p25).

Confirming the current lack of trust in institutions, Willis (2020, p81) describes public meetings in the UK about climate change attended by ordinary citizens: “*One overriding feeling emerged from participants: confusion. ... They couldn’t understand why, if it was so serious, government was not taking a lead. They knew that there were things they could do for themselves – like recycling and driving less – but these seemed like insignificant contributions if they were not backed up by a coherent strategy, led by politicians. As one said: ‘the Government needs to lead by example – everyone from the top down needs to play their part’.*” Repeated public surveys have indicated that many people are in fact willing to reduce consumption to tackle climate change (Ipsos Mori, 2021), but that perceptions of fairness will be crucial (Demski et al., 2015; Parkhill et al., 2013; UK Climate Assembly, 2020). This raises the question of whether examples from leaders, and perhaps action that is viewed as some form of sacrifice or credibility enhancing display, could serve to increase trust in leaders and institutions, encourage behaviour change among the public, and increase a sense of “climate morale”. The idea of climate morale will be developed in Chapter 6.

1.6 Self-sacrifice and leadership

“The danger of global warming is as yet unseen, but real enough for us to make changes and sacrifices, so that we do not live at the expense of future generations.”

Margaret Thatcher, UK Prime Minister, November 1990.

(Sinha, 2010)

Sacrifice is a common but contentious word in climate discourse. On the one hand it is deployed emotively by leaders to evoke commitment and moral justification for climate action, as shown in the quote from Margaret Thatcher above. On the other hand it is rejected

as harsh and unnecessary, as Boris Johnson states in his foreword to the UK's Net Zero Strategy:

*"For years, going green was inextricably bound up with a sense that we have to **sacrifice** the things we love. But this strategy shows how we can build back greener, without so much as a **hair shirt** in sight."*
(UK Govt, 2021, emphasis added)

Here we are presented with a contrast between *good* and *bad* sacrifice, where good sacrifice is a noble and selfless endeavour, and bad sacrifice involves forgoing pleasure and enduring discomfort (Cannavò, 2010). Due to its contentious nature, a consensus has emerged to avoid the word sacrifice altogether in favour of focusing on the positives of reducing greenhouse gas emissions (e.g. clean air, improved infrastructure, healthier living etc), often referred to as "co-benefits" (e.g. House of Lords, 2022). Studies have revealed a preference among the public for "motivational" or government-led framings of climate action, rather than framings involving sacrifice or individual-focused actions, however, some of these studies have employed rather simplistic comparisons of *good/easy-sounding things* vs *bad/hard-sounding things*, with perhaps unsurprising results (e.g. Gifford and Comeau 2011; Palm et al. 2020). Other scholars highlight that sacrifice is already deeply enmeshed in our everyday lives and cultures as we continually balance one thing of value against another, for instance giving up time and freedom while parenting children (Peterson, 2010; Rajan, 2010). Scholars also point to the many sacrifices embedded in societal and physical structures, such as the sacrifice of clean air to breathe, green space, and safe active travel in favour of greater traffic flow in urban and sub-urban settings (Cannavò, 2010; J. Williams, 2010). Considering the cultural and social potency of sacrifice, it is not surprising that self-sacrifice has been the subject of leadership research, a few examples of which will be covered next.

Self-sacrifice is associated with some of the most renowned leaders who brought about significant social change, such as Gandhi and Martin Luther King, and has been cited as central to the efficacy of non-violent civil disobedience due to the powerful, morally-laden communication inherent to sacrifice (Pelton, 1974; Wapner, 2010). The following extract has clear resonances with the idea of "credibility enhancing displays" as outlined previously: *"Self-sacrificial leadership is generally unconventional and provocative... because incurring a loss to oneself is against most people's intuition. The literature suggests that a leader's unconventional behavior will be positively associated with the followers' perception of the leader's charisma"* (Choi and Mai-Dalton 1998, p492). A more recent definition has been proposed as follows: *"LSS [leader self-sacrifice] is a leadership behaviour embodied by*

leaders who put aside their interests, rights and privileges for the welfare of the group” (Yang et al., 2021, p2)

In an organisational setting, leader self-sacrifice has been found to be a more important factor in leader effectiveness when the leader is *not* viewed as highly similar to (i.e. not prototypical of) the members of the group being led (van Knippenberg & van Knippenberg, 2005). Similarly, “group serving behaviour” from leaders reduced the need for a leader to be prototypical of the group in order to be effective (Steffens et al., 2020). If this also applies to figures such as politicians and celebrities, where people’s sense of social proximity to them is lower, this could make self-sacrifice an effective means of leader influence. Also within an organisation or business setting, the effectiveness of leader self-sacrifice has been shown to be related to a follower’s tendency towards a “prevention focus” (avoiding bad outcomes) rather than a “promotion focus” (pursuing personal progress in the organisation) (De Cremer et al., 2009). This suggests that people’s desire for self-sacrifice from their leaders may be related to their goals, values and worldview (Lockwood et al., 2002). At times of uncertainty and crisis, self-sacrificial leadership may be effective and popular because it carries strong social and symbolic messages, and conveys and reaffirms values, both within an organisational context and in society more generally (Choi & Mai-Dalton, 1998; Halverson et al., 2004; Helsloot & Groenendaal, 2017). The subject of leader prototypicality and social identity will be explored further in Chapter 2.

The efficacy and meaning of self-sacrifice may be related to the human tendency towards reciprocity, so if a leader exhibits self-sacrifice, others may tend towards similar behaviour (Choi & Mai-Dalton, 1998). This could explain both why self-sacrifice is an effective leadership strategy and why it can trigger adverse reactions if others feel an unwanted obligation to follow. In a less transactional analysis than is implied by reciprocity, Grint argues that the culture of sacrifice and scapegoating, as expounded by René Girard, is inherently linked to leadership. Leaders can be the ones who preside over the sacrifice of others, or who are themselves sacrificed, or who partake of self-sacrifice on behalf of their followers. As such, “sacrifice is ... an essential mechanism for the performance of all forms of leadership” (Grint, 2010, p100). Cultural understandings of leadership therefore may have strong links to ideas of sacrifice. A systemic review of the literature on leader self-sacrifice found repeated evidence of correlations between self-sacrifice and leadership qualities such as charisma, legitimacy and effectiveness (Yang et al., 2021).

These extracts give a brief insight into why perceived sacrifice from leaders may be a powerful form of communication, while Cultural Evolution Theory provides a theoretical

underpinning of why we may be programmed to respond to sacrifice (Henrich, 2009). Embedded in the meanings of sacrifice are moral considerations (Wapner, 2010), which forms the final section of literature reviewed in this introductory chapter.

1.7 Morality and behaviour change

Questions of morality – of what is considered “good” and “bad” – are central to pro-environmental behaviour and to leadership (Ellemers & Van der Toorn, 2015; Graham et al., 2009; Jackson, 2005; Northouse, 2021; Spector, 2019). Based on cross-cultural research, Haidt and Joseph have proposed that moral judgements primarily stem from instant sensations and emotions in response to a particular issue or behaviour, and are subsequently rationalised into moral frameworks (Haidt & Joseph, 2004). This emotional foundation for morality may help to explain the intensity of some commentary on pro-environmental behaviour, which often features morally-charged language such as “virtue-signalling”, “shaming” and “moralising”.

Five primary domains of human morality have been identified in research, as follows: *harm/care*, which focuses on caring and protection of others; *fairness/reciprocity*, relating to issues of justice and treating people fairly; *group allegiance/loyalty*, concerning the maintenance of social cohesion; *authority/respect*, relating to duty, deference and hierarchy; and *purity/sanctity*, which relates to the preservation of that which is considered sacred (Feinberg & Willer, 2013; Haidt & Joseph, 2004). The relative priorities given to moral domains can vary depending on political outlook (e.g. Lakoff 1995), and this has been used to explain political polarisation on environmental issues and climate change (Wolsko et al., 2016). However, research has shown that there appear to be moral domains that can avoid polarization of attitudes towards climate change. For instance emphasising the moral dimension of purity/sanctity in the US “*largely eliminated the difference between liberals’ and conservatives’ environmental attitudes*” (Feinberg and Willer 2013, p56). In the UK, Whitmarsh and Corner (2017) found that narratives of *avoiding waste* along with a patriotic framing of energy provision, designed to appeal to people on the centre-right of politics, were less divisive along political lines than a narrative of *climate justice*, which has different moral overtones and is understood to be of greater concern to the left than the right.

1.7.1 Morality and the judgement of others

Responses to others’ behaviour is closely linked to ideas of morality. Relating specifically to the judgements of high-profile figures, Frimer and colleagues concluded that “*Liberals and conservatives alike rely on care, fairness, and purity when making moral judgments about*

influential people” (Frimer et al. 2013, p1040). More generally, Goodwin et al. (2014) found that moral characteristics predominate in the evaluation of another person and these are more important than warmth characteristics, such as sociability, extroversion, and optimism. A possible explanation for the primacy of moral characteristics is that some warmth characteristics do not necessarily imply that a person will act in the interest of others. However, even perceiving someone else as moral may not always lead people to conclude that a perceived person will act in the observer’s interest, if for instance they are less likely to engage in nepotism that might have benefited the observer (ibid). These examples highlight the complexity of moral evaluations of the actions of others.

Do-gooder derogation

Do-gooder derogation occurs when those who take action that is perceived as “morally superior” are derided or undermined. It is explained as a way of reducing uncomfortable feelings and maintaining a positive self-image when one perceives one’s own morally inferior actions are being implicitly criticized. Do-gooder derogation may take the form of denigrating the person taking the action, or portraying the action as ineffective or pointless (Minson & Monin, 2012; Zane et al., 2016). The perceived motivation of the “do-gooder” can be central to this response. For instance, Hoogendoorn and colleagues found that the benefit to the environment of somebody else’s behaviour was perceived to be greater when the person was believed to be taking the action due to self-serving motivation (meaning they were not perceived as morally superior), rather than for pro-environmental reasons (meaning they were perceived as morally superior) (Hoogendoorn et al., 2019). Conversely, when protecting the environment was the perceived motivation, observers felt more judged and less moral themselves, and deployed defence mechanisms to preserve self-image, one of which was to talk down any positive outcomes of the behaviour, thus making it less worthwhile in their eyes. This tendency towards preservation of positive self-image can also be seen in group settings, where those with strong cooperation tendencies are punished (termed “antisocial punishment”) in order that those who are less cooperative avoid feeling bad (Pleasant & Barclay, 2018). This has resonances with the accusations of “virtue signalling” mentioned above, suggesting that the modelling of high-impact low-carbon behaviour by leaders may backfire if people feel morally judged by it. Furthermore, morality can also feed into the dynamics that drive in-group/out-group polarisation and tribalism. Tansey and Kindsvatter say that: “*Morality binds and blinds. That is to say that a shared morally charged vision tends to create group dynamics in which group coherence is strongly enforced by group members, and in which it is very difficult for group members to*

understand those from whom they differ in nuanced terms. Indeed, they are quite likely to view “outside groups” as morally corrupt or even willfully maleficent” (Tansey and Kindsvatter 2020, quoting Haidt, p98). Such group dynamics and the potential for negative reactions would seem to warn against leaders setting a behavioural example that challenges social norms (Jackson, 2005).

Sparkman and Attari (2020) found that it was important for advocates of climate action to display consistency between their personal carbon footprint and their behaviour change message, but also found some evidence of do-gooder derogation if the advocate was seen to be “extreme” in their behaviour (Sparkman and Attari 2020). Similarly, in the context of leading organisations and businesses, Stouten et al. (2013) found that too much “ethical leadership” could backfire due to employees perceiving “moral reproach” from leaders, although importantly the study involved leaders who had power to punish employees for ethical transgressions – a form of “power over” that is absent in the current research. Do-gooder derogation does not always occur: when someone’s moral action does not pose a threat to an observer’s self-image, the moral actor is not viewed negatively (Bolderdijk et al., 2018). Furthermore, moral considerations can stimulate pro-environmental behaviour. Nielsen and Hofmann (2021) found that self-restraint was increased in relation to clothing purchases when the buyer’s decision-making involved moral factors based on environmental protection.

1.7.2 Morality and leadership

Role models have been described as central to moral education (Engelen et al., 2018), while leaders are key actors in the construction and continuation of group morals (Ellemers & Van der Toorn, 2015). Perceived leader morality has been shown to be a key factor in leaders being perceived as “one of us”, or “prototypical” of the group being led, more important than perceived leader competence (Giannella et al., 2022). Furthermore, the “moral salience” of climate change has been shown to increase upon exposure to images of Pope Francis (Schuldt, 2017). In the study, respondents who were exposed to an image of the Pope were more likely to say climate change is a moral issue than those who had not been exposed to such images.

Perhaps counter-intuitively, an observer may be more inclined to comply with social norms that are communicated by an example of moral behaviour from a person who is “non-close”, such as a politician or celebrity, rather than an example of behaviour from a close associate, such as a friend or family member. This is because the observer is more likely to indulge in “moral licencing” in relation to a close associate, such that the associate’s moral behaviour is

felt to license a less moral behaviour from the observer – in a process known as balancing or “moral offsetting” (Meijers et al., 2019).

Celebrities have used their “intimate stranger” relationship with followers to highlight the moral dimensions of climate change (Alexander, 2013; Doyle et al., 2017). Sweetman and Whitmarsh (2016) found in experiments that high status members of groups can increase pro-environmental behaviour from others in the group by making such behaviour seem morally preferable, while leaders who gave up flying because of climate change were said to have provided moral guidance to some of those who followed their example (Westlake, 2017). This evidence suggests a role for leadership behaviour to increase the moral salience of personal action on climate change, because people who believe climate change is a moral issue are more likely to take pro-environmental action (Markowitz, 2012).

The flow of morality may not be a simple top-down process, however. Research by Ahmad et al. (2020) indicates that moral behaviour by followers can lead to *less* moral behaviour from leaders, who feel they have moral license to act less ethically. This is especially prominent with leaders who show narcissistic tendencies. Caution is also required when leaders try to steer the morality of followers using their institutional power (Spector 2019), although in the case of leading by example, it is personal power at play by way of example setting rather than coercive power (as will be explored further in Chapter 2). Leaders instrumentalising morality can be dangerous, as exemplified by the extreme case of the Nazi leadership imbuing its following with a sense that they were “noble standard-bearers for a moral mission.” (Haslam et al. 2020, p189).

That said, Hourdequin (2010) makes a philosophical case that individuals have a moral obligation to reduce their own carbon footprints, and to set an example for others. To close this section on morality I will reference research that has suggested that young people may be suffering “moral injury” due to governments not taking action on climate change that is deemed to be sufficient:

“Failure of governments to protect them from harm from climate change could be argued to be a failure of human rights and a failure of ethical responsibility to care, leading to moral injury (the distressing psychological aftermath experienced when one perpetrates or witnesses actions that violate moral or core beliefs).” (Hickman et al., 2021, pe864)

Such evidence may provide increased incentives, and a moral imperative, for leaders to adopt high-impact low-carbon behaviour to signal their commitment and stimulate change,

despite the uncertain outcomes of moral signalling outlined above. The research presented in this thesis aims to shed light on what those outcomes might be.

1.8 Research questions and following chapters

The literature covered in this introduction has presented the context within which leading by example with high-impact low-carbon behaviour will be explored. It has revealed several substantial gaps in knowledge: the extent to which the public wants leaders to lead by example; what leaders themselves think about leading by example; and how much people's behaviour and outlook could be influenced by leading by example.

This introduction has also highlighted two key perspectives on low-carbon behaviour change that have had limited attention to date and will be challenged in this thesis. The first is the tacit taboo around the subject of individual leaders visibly reducing their own carbon footprints, which contrasts with popular narratives of leading by example at a national level. The second is the flat view of society and un-sequenced approach to individual emissions reductions in much existing research and discourse, which treats low-carbon behaviour change as something that consumers will do *en masse*, without paying attention to the size of each person's carbon footprint or the sequence in which people act.

The following research questions will be explored and expanded upon in the remaining six chapters.

- **RQ1:** How do the public interpret the actions of leaders who adopt visible high-impact low-carbon behaviours?
- **RQ2:** Are people more willing to adopt high-impact low-carbon behaviours if they observe a leader modelling such behaviour first?
- **RQ3:** How do leaders themselves view leading by example with high-impact low-carbon behaviour, and do they think it could be effective?
- **RQ4:** If a leader adopts visible high-impact low-carbon behaviour, how does this affect people's perceptions of the leader? How do these perceptions affect the extent to which people follow the leader's example?
- **RQ5:** Does leading by example with high-impact low-carbon behaviour have the potential to stimulate a faster societal response to climate change?

The next chapter will explore the concept of personal leadership in detail and present a theoretical framework for the thesis. This will be followed by a chapter outlining the research philosophy and methods. After this will come four chapters presenting findings from, respectively: focus groups with members of the public; interviews with UK Members of

Parliament, an experimental survey with a representative sample of the UK public; and a survey with members of the public who signed a pledge to not fly for a year. Finally a discussion chapter will synthesise these findings and lay out overall conclusions and directions for future research.

Chapter 2 Theories of leadership

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2.1 Introduction

*“Leaders’ deeds are far more important than their words when one wants to determine **how serious leaders really are about what they say**. Words and deeds must be consistent. Exemplary leaders go first. They go first by setting the example through **daily actions that demonstrate they are deeply committed to their beliefs**”*

(Kouzes and Posner quoted in Perry 2010, p27, emphasis added).

This chapter will examine in detail the concept of leadership, including how it is theorised and how leading by example with high-impact low-carbon behaviour may take effect. First, I will provide a brief recap of Chapter 1.

Chapter 1 introduced the social, political and theoretical context within which the research resides. Leadership was presented as an important concept in the context of climate change, not least because calls for climate leadership are common, both from the public and leaders themselves. It was established that the principle of *leading by example* is conspicuous in national narratives of climate leadership and emissions reductions, but explicit leading by example at a personal level is almost entirely absent from mainstream climate discourse. Pro-environmental behaviour change was established as an essential part of addressing the climate crisis because of its contribution to “demand-side” reductions in greenhouse gas emissions, while noting that very limited progress has been made in this area to date. The chapter explored the various ways in which behaviour change has been encouraged, using such approaches as the provision of information, social marketing and nudge techniques. Evidence was presented that politicians and governments have focused predominantly on technical solutions rather than demand-side measures, and the reasons for this were examined. Social norms were introduced as an important factor in shaping patterns of behaviour and consumption, and it was proposed that leading by example with high-impact low-carbon behaviour could be a means of changing social and moral norms. It is the potential effects of leading by example that this thesis explores. In particular, Chapter 1 discussed “credibility enhancing displays” and ideas of leader self-sacrifice as a mechanism by which leading by example may take effect.

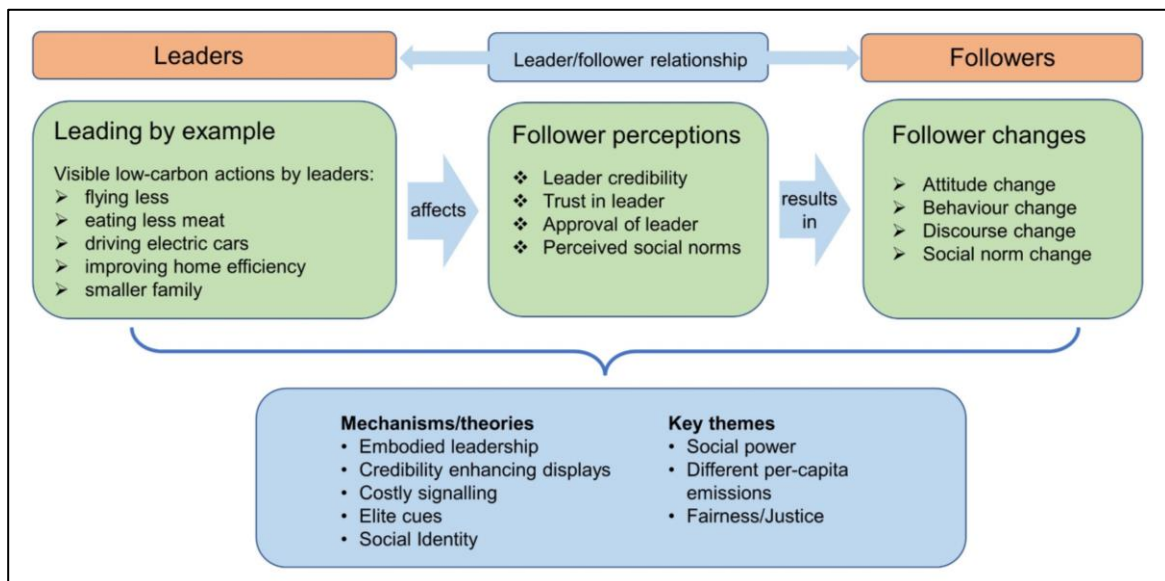
Various barriers to pro-environmental behaviour change were discussed, including the current political system’s reliance on continuous growth and increasing consumption, which works against efforts towards reductions in demand and encourages political reticence on demand reduction. Compounding this, it was suggested that those whose individual

consumption is greatest are those with the most wealth, influence and power, comprising a strata of society in which leaders are likely to reside, further reducing the likelihood that behaviour change is tackled at a systemic level. To close Chapter 1, research questions were presented centring around the potential effects of leading by example.

To position these questions within a theoretical framework, the next section will take a step back by exploring how the concept of leadership has been theorised, studied, and how it is understood by leaders themselves and by followers. By definition, leadership also involves people “following” a leader, and so the concept of followers will also be explored below. After this, an outline of the theoretical approach taken during this thesis will be presented.

A diagram of the framework can be seen in Figure 2.1. This presents a relationship between leaders and followers (top row of boxes), and suggests a cause-and-effect mechanism (middle row) that is explored throughout the research: i.e. that leading by example with high-impact low-carbon behaviour *causes* various outcomes in relation to followers. The cause-and-effect mechanism posits that leading by example with high-impact low-carbon actions affects followers’ perceptions of the leader, and perceptions of social norms. In turn this results in various effects among followers in terms of attitudes, behaviour, discourse, and social norms. The proposed cause-and-effect process is underpinned by mechanisms and theories (bottom box) including: embodied leadership; credibility enhancing displays; costly signalling, elite cues; and social identity theory. In addition, the bottom box contains key themes that are central to this research: social power; differences in per-capita emissions between individuals; and fairness/justice. Some of the contents of the theoretical framework

Figure 2.1 Theoretical Framework diagram



was explored in Chapter 1. The remainder will be explained throughout this chapter, and the diagram will be revisited at the end of the chapter to tie together key elements.

2.2 What is Leadership?

The concept of leadership pervades society, culture, history, politics, family life, work, entertainment, and community. Being such a universal concept, everybody has a relationship with leadership, including ideas of what leadership is, personal experience of leading and being led, attitudes about good and bad leadership, and even views on whether leadership is a helpful concept at all (Gill, 2011; Haslam et al., 2020; Northouse, 2021).

Some suggest there are almost as many definitions of leadership as there are people trying to define it (Stodgill cited in Northouse, 2015). In Chapter 1 a working definition of leadership was presented for the research in this thesis, as follows: “Leadership is a process whereby an individual intentionally influences a group to achieve a common goal.” This definition is adapted from Northouse (2015, p6) and its various elements will be explored below.

Throughout the chapter, reference will be made to “climate leadership” and “climate leaders”. These terms refer to individuals who have the broad goal of seeking to reduce the dangers of climate change by contributing to the overall reduction of global greenhouse gas emissions – also known as “climate mitigation”. Each leader’s contribution could take many forms including political leadership, research, development and advocacy for technical solutions, communication, raising public awareness, and so on. For the purposes of this research, anyone who states addressing climate change as an explicit goal can be considered a climate leader, even if tackling climate change is not their primary objective. For instance, senior executives of a company that has explicit corporate goals to address climate change can be considered a climate leader. Likewise a politician that overtly supports climate action, or a celebrity who makes statements about the necessity to tackle climate change, or a local community leader who advocates for local climate solutions, are considered climate leaders. The research examines the effects of such leaders taking visible high-impact low-carbon behaviour that significantly reduces their overall personal carbon footprint.

2.2.1 Origins of leadership – leadership as innate

Historic and anthropological studies indicate that leadership always tends to occur in human societies (Van Vugt, 2006). Although there are some differences across cultures, there are many commonalities, which indicates leadership is a fundamental element of human collectives. Even in groups that aspire to having non-hierarchical structures without leaders,

“stealth” leadership still tends to occur, whereby particular individuals have more influence over others in the group and inter-personal power is exercised by them (Shamir, 2007; Western, 2014). The universality of leadership suggests humans have evolved to form leader-follower relationships because such relationships aided group cooperation towards mutually beneficial outcomes (Van Vugt et al., 2008). Evolutionary theorists suggest that leadership status, as acquired by individuals with knowledge, skill and prestige, may have emerged because it provided survival benefits in the early history of humanity (Henrich, 2015).

Leader prestige according to this account evolved in concert with deference from followers, such that individuals wanting to determine who is a suitable leader to follow can observe “*the patterns of deference*” evident in a group (Henrich, 2015, p346). As this system develops, markers of prestige – or “prestige goods” – become symbols of ability and aptness to lead in various fields (Plourde, 2009). Thus those in leadership positions, as signified by deference from others or physical markers of prestige, have increased influence because of their leadership status, and this influence extends to areas unrelated to the leaders’ specific expertise. This helps to explain why celebrity endorsement works in advertising even when the celebrity’s status implies no special insight into the quality of the product being promoted (Henrich, 2015).

While prestige and leadership dynamics allow for hierarchies to be created on the basis of social status, research on hunter-gatherer societies suggests there was continual monitoring of such hierarchies and multiple mechanisms for the avoidance of dominance by leaders (Fritsche et al., 2018; Van Vugt, 2006). This may help to explain why much contemporary leadership does not seem to be defined by characteristics of dominance (Stodgill, 1948; Van Vugt, 2006). Contemporary societies, on the other hand, do exhibit extremes of hierarchy and social stratification (Gore, 2015), with politicians, business leaders, and celebrities likely to be at or near the top of such hierarchies. Some scholars suggest that this jars uncomfortably with our evolved expectations of, and responses to, leaders because of humans’ long evolutionary history in societies with much less entrenched hierarchy and inequality than is typical today (Van Vugt et al., 2008).¹

One of the implications of this is that modern manifestations of leadership that involve great inequality of wealth, agency and power may be in conflict with our evolved conceptions of

¹ Note: Recent scholarship warns against an overly simple depiction of pre-Agricultural societies as being small and largely hierarchy-free (Graeber & Wengrow, 2021, 2018).

how leadership *should* work. In a similar vein, *fairness* has been identified in many other studies as being central to people's expectations of, and responses to, leaders (Haslam et al., 2020).

This brief introduction to leadership as rooted in human evolutionary processes provides a starting point from which to consider the potential for leading by example with high-impact low-carbon behaviour. It suggests leadership emerged as a way of learning survival skills from others and in order to foster group cooperation in deciding a wise direction of travel, avoiding intra-group conflict, and dealing with external threats. While leaders are imbued with prestige and status, excessive social stratification may be detrimental to leadership. In a contemporary setting, this may suggest that leaders who are seen to voluntarily reduce consumption, thus giving up the trappings of high status, may be viewed with approval. Interestingly, the idea that leaders should not be overly revered contrasts with one of the most prominent leadership theories: the "Great Man" theory. This, and other theories of leadership, will be explored next.

2.2.2 Great men and heroic leadership

"From its infancy, the study of history has been the study of leaders – what they did and why they did it." (Bass quoted in Gill 2011, p2).

Traditionally, leadership has been studied in such a way that events of history are attributed to the plans, actions and qualities of "Great Men" with heroic, sometimes God-given qualities (Callahan et al., 2007). Closely linked to the imagery of the Great Man are ideas of *heroic* leadership that involve strength and courage, overcoming threats, saving the day, and leading followers to victory. While the Great Man theory is viewed as outdated, not least due to its patriarchal assumptions and "*lack of scientific rigor*" (Spector, 2016, p256), theories of heroic leadership are more durable. Central to these theories are the leader's "traits" – the supposedly innate personal characteristics that set leaders apart as exceptional individuals who were born to lead: often traits such as intelligence, strength, charisma, self-confidence, determination, sociability, dominance, ruthlessness (Northouse, 2015; Spector, 2016). However, the trait theory has long been rejected as too simplistic and not supported by evidence (Stodgill 1948). Instead, research points towards leadership as an ever-changing relationship between a leader and followers that depends on the characteristics, actions and desires of both leaders *and* followers. But while the over-simplicity of the heroic leader tends to obscure the complexities of social dynamics and cultural context, the idea continues to thrive in theories such as "transformative" leadership, which emphasises the charisma of a

leader who motivates followers and raises their aspirations, moral standards and performance (Alvesson & Einola, 2019; Spector, 2016). Similarly, although the idea that leaders *cause* events and outcomes is considered outdated in leadership literature and some business settings, it still pervades popular discourse and culture, particularly in portrayals of heroic leaders in fiction and biographies, team sports, and even politics. Indeed David Attenborough's call for climate leadership as quoted at the start of Chapter 1 is a good example of leaders being portrayed as having transformative, heroic power. He said: "*Leaders of the world, you must lead. The continuation of civilisations and the natural world upon which we depend is in your hands.*" Furthermore, with contemporary leaders such as Donald Trump, Vladimir Putin, Boris Johnson and others on the world stage, the great man² framing remains relevant, not least due to the self-perceptions of some leaders who may believe they possess special traits and destinies, and who may be perceived this way by some followers (Collinson et al., 2018). The same is true in the world of business, where "*the search for a hero to "save" failing companies still exerts considerable appeal.*" (Spector, 2016, p256)

2.2.3 Post-heroic leadership

As leadership theory and research has evolved, other broad categories have emerged, some of which reject heroic depictions of leadership and are therefore classed as "post-heroic". Such theories often view leadership and followership as in balance, with followers attributing leaders their influence and power, at least to some extent. This thinking counters a historic tendency to focus almost exclusively on leaders rather than followers, which has been criticised for creating an unrealistic dualism of leaders and followers (Collinson, 2005; Lemke, 2001). Western (2019) condenses these different theories of leadership into three overarching discourses that have enjoyed pre-eminence at different times. These discourses capture the underlying thinking behind the theories: Leader as Controller – where the leader has explicit power over followers; Leader as Therapist – where the followers needs are prioritised; and Leader as Messiah – where the charisma of the leader stimulates an ongoing transformative process. Other scholars place studies of leadership into three alternative categories: heroic, post-heroic, and critical studies (Collinson, 2018). Messianic or spiritual elements of leadership are a persistent theme throughout leadership theory: "*There is a strong parallel with the reciprocal relationships people have with their gods and their leaders.*" (Cuilla, 2005, p173). Indeed Grint (2010) argues that leadership involves elements of the "sacred", and he says that dispensing with the somewhat unfashionable ideas of

² Of course "great" in this this context should not be taken as synonymous with "good".

heroic leadership may be inappropriate because it would ignore a great deal of the leader's potency to bring about social change.

2.3 What leaders do

The previous sections focused broadly on theories about what leaders *are*. Another way of exploring leadership is to look at what leaders *do* and the functions they perform. The following list is typical, stating leaders are responsible for: envisioning goals, affirming values, motivating, managing, achieving workable unity, explaining, serving as a symbol, representing the group, renewing (Gardner, 2009). Similarly, Northouse (2021) summarises a leader's tasks under three headings: **establishing direction** (which includes creating a vision, clarifying big picture, setting strategies), **aligning people** (including communicating goals, seeking commitment, building teams and coalitions) **motivating and inspiring** (which includes inspiring and energizing, empowering followers, satisfying unmet needs). Haslam and colleagues focus on the psychological mechanisms of leadership (2020), saying: "*Leadership... is not simply about getting people to do things. It is about getting them to **want to do things. [It] concerns the shaping of beliefs, desires, and priorities.***" (Haslam et al., 2020, pxvi, emphasis in original with bold added).

The functions of leadership are said to be especially important during times of crisis, an idea supported by evolutionary theories of leadership (Fritsche et al., 2018; Van Vugt, 2006). Crises often require rapid decision-making and are times of uncertainty where "*leaders are challenged to present a compelling story that describes what the crisis is about: what is at stake, what are its causes, what can be done.*" (Boin et al., 2017, p17). The following extracts argue that **meaning making** is the *most* important leadership role during "flash" crises, and is more important than decision making. I have highlighted sections that are particularly relevant to the climate crisis:

*"A crisis entails a breakdown of symbolic frameworks that legitimate the pre-existing socio-political order. The pillars of "normal" life have come down; **what remains no longer seems to work.** Crises cause **multiple levels of uncertainty.** At the personal level, affected **individuals face cognitive conflict:** they still believe in the "normal" order but they confront repeated and **undeniable information that things are seriously wrong.** At the societal level, this cognitive conflict is emulated in the activities of **multiple groups and organizations espousing different definitions of the situation** – offering different claims about its causes, impact, and*

*further development, and **advocating alternative and often conflicting strategies to deal with the situation.***

(Helsloot and Groenendaal, 2017, p71, emphasis added)

*“...most crises quickly turn into **a symbolic contest over the social meaning of an issue domain.**” (Boin et al., 2017, p79, emphasis added).*

The uncertainty caused by crises, as described in these passages, creates fertile ground for leaders to create meaning. Leadership figures are used as a means to link events in the minds of followers, providing a coherent explanation for how situations unfold and what events mean (Meindl, 1995). As Shamir puts it: “*Leadership is a conveniently available explanation category.*” (Shamir, 2007, p xv). The cognitive conflicts, multiple levels of uncertainty, and contestations over meaning can be seen in responses to the climate crisis and have clear synergies with Brulle and Norgaard's (2019) depiction of climate change as involving “cultural trauma”.

However, while climate change is often described as a crisis, and involves very clear flashpoints such as extreme weather events, it is not a “flash” crisis with a likely end point as defined by Helsloot and Groenendaal above, and the timescales of climate change are clearly much longer than most other crises. Perhaps due to this difference, political leaders have exhibited a tendency to “tame” climate change and shield followers (and perhaps themselves) from its implications, especially when it comes to behaviour change, as discussed in Chapter 1 (Willis, 2017, 2020). This could be viewed as leaders not actually treating climate change as a crisis, or acting as such. Certainly this is the implication of repeated calls to leaders from the likes of Greta Thunberg, as quoted at the start of Chapter 1: “*I want you to act as you would in a crisis. I want you to act as if our house is on fire. Because it is.*”

The desire for leaders to make sense of a crisis and act accordingly ties into a psychoanalytic perspective on leadership where “*our anxieties, needs, desires and fantasies*” are projected onto leaders (Tomkins 2020 p333). Responses to leaders can stem from parental archetypes, such as “*an all-powerful father-figure and/or an all-loving, caring, accessible mother-figure*” (ibid, p334), although the father-figure is far more closely associated with cross-cultural orthodoxies of leadership. Tomkins describes how leaders’ action or inaction at times of stress, anxiety or crisis can lead to very powerful feelings, including abandonment (Tomkins, 2020). This may go some way to explain the moral trauma

of young people in response to a perceived (or real) lack of government action on climate change (Hickman et al., 2021), as mentioned in Chapter 1.

The research in this thesis explores how leaders' actions are interpreted in the context of the climate crisis. Leading by example with high-impact low-carbon behaviour will be assessed against the broad tasks of leadership identified so far: providing a direction of travel, a sense of clarity and meaning, a feeling of collective endeavour and common purpose, a motivating vision, an inspiring story – especially in a time of crisis.

2.4 Followers and leaders

Implicit in much of the preceding discussion is that “followership” is an integral part of leadership. Indeed leadership has been defined as “*the process of being perceived by others as a leader*” (Lord et al quoted in Haslam et al., 2001, p193). Lord and colleagues pioneered *leader categorization theory*, according to which followers assess a leader's apparent attributes and behaviour against personal “schemas” of leadership, that is, what followers think leaders *should* be. The primary characteristics of leaders identified in these schemas are: sensitivity, dedication, tyranny, charisma, strength, masculinity, intelligence, and (latterly) creativity (Keller, 1999; Lord et al., 1984; Offermann & Coats, 2018). Other lists have been compiled of the traits that followers prefer their leaders to possess. Spanning a period of several decades, Kouzes and Posner polled over 75,000 respondents around the globe asking them to select “*the qualities they most look for and admire in a leader – someone whose direction they would willingly follow*”. The results for the 2002 iteration of the survey are shown in Table 2.1. The rankings shown in the table have been largely consistent over time (Kouzes and Posner, 2004, p495). The list reveals a combination of characteristics related to personal competence (e.g. forward-looking, competent, intelligent) and relational/social qualities that might increase confidence and trust in a leader (e.g. honest, inspiring, fair-minded, supportive).

Summarising their survey results amassed over two decades, Kouzes and Posner (2004, p498) assert that people's “*desire for honest, forward-looking, competent, and inspiring leaders has remained constant during two decades of growth and recession*”, and they observe that these attributes align closely with the idea of “*source credibility*”, which is fundamental to trust. Literature on the evolution of leadership states that “*good leaders should be perceived as both competent and benevolent because followers want leaders who can acquire resources and then are willing to share them. ... Leaders' willingness to share is reflected in such traits as trustworthiness, fairness, generosity, and self-sacrifice—*

universally desirable leader attributes.” (Van Vugt et al., 2008, p190). The concept of trust in relation to leadership will be returned to below.

Table 2.1 Desired leadership qualities

Qualities people say they want from leaders (traits)	% of respondents (followers) who chose this trait
Honest	88
Forward-looking	71
Competent	66
Inspiring	65
Intelligent	47
Fair-minded	42
Broad-minded	40
Supportive	35
Straightforward	34
Dependable	33
Cooperative	28
Determined	24
Imaginative	23
Ambitious	21
Courageous	20
Caring	20
Mature	17
Loyal	14
Self-controlled	8
Independent	6

Source: Kouzes and Posner (2004)

Transactional theories of leadership frame the leader-follower relationship as an exchange of value where a leader aims to maximise follower rewards, which depend on each followers’ priorities, for instance making money, career progression, having a sense of belonging (Haslam et al., 2020). In contrast, “transformational” leaders tap into people’s higher values that create “a connection that raises the level of motivation and morality in both the leaders and the follower.” (Northouse, 2021, p211) Transformational leaders are said to: model the way; inspire a shared vision; challenge the process; enable others to act; encourage the heart (ibid). Another strand of leadership theory focuses on the *situation* in which leaders act and the characteristics and competences of their followers, which goes a long way to determine what type of leadership, or even what leader, is suitable in a particular situation. According to this approach, different leaders and leadership styles are appropriate for different circumstances or groups of followers (Gill, 2011; Haslam et al., 2020; Northouse, 2015; Stodgill, 1948). These theories paint a picture of dynamic relationships between leaders and followers that are contingent on different personalities, priorities, and situations.

2.4.1 Charisma

An influential contribution to the follower perspective was Meindl's portrayal of *The Romance of Leadership* (Meindl, 1995). This perspective holds that leadership is socially constructed by followers, rather than being either a set of attributes possessed by leaders, or a process enacted by leaders upon followers. For instance, Meindl said that the charisma of a leader is created by the dynamics within a followership group that generate a collective sense that the leader is charismatic. This contrasts with the idea that charisma is *possessed* by the leader, or is a result of the relationship between the leader and the followers. Meindl suggested the "psycho-physiological arousal levels" of followers are central to the constructions of these perceptions of charisma (ibid, p335). This arousal level, which can include heightened emotions, depends on the traits of the followers (ie. whether they are easily or not easily aroused) and also on the situation – whether it is arousing or not. For instance, when there is a crisis, followers are likely to be in a state of high arousal and therefore may tend to seek out and effectively "create" charismatic leaders out of fairly ordinary people. This is an idea supported by other leadership scholars who assert: "*charismatic effects are more likely to occur in contexts in which followers feel distress because in stressful situations followers look to leaders to deliver them from their difficulties.*" (Northouse, 2015, p165)³. An example of follower-created charisma relating to climate change could, once more, be Greta Thunberg, who rose quickly to lead a global youth movement. The rapid emergence of her status and following among youth and adults around the world can perhaps be attributed, at least in part, to the latent energy and climate concern within followers, for whom Thunberg became a focus and expression, rather than to the intrinsic charisma of Thunberg herself. This is not to downplay Thunberg as a charismatic figure or orator. In fact scholars have observed that Thunberg's combative rhetoric displays key charismatic traits that are linked to populism (Nordensvard & Ketola, 2021). The "romance" perspective on leadership is useful because it suggests that followers play a crucial role in the construction of leadership, and that the emotional experience of followers is central to this.

Charisma is prominent in leadership literature and is central to wider society's understanding of leadership. Its initial popularisation as a concept is attributed in large part to the writings of Max Weber (Antonakis et al., 2016). Weber associated charisma with great leaders who possess God-given qualities, while also, like Meindl, suggesting that charisma is a *perception*

³ Northouse is referring to an argument by Robert House from his "Theory of Charismatic Leadership".

among followers (Grabo et al., 2017). An alternative view is that charisma stems to a large extent from leaders' behaviour:

*“First, [charismatic leaders] are **strong role models** for the beliefs and values they want their followers to adopt. For example Gandhi advocated nonviolence and was an exemplary role model of civil disobedience. Second, charismatic leaders appear **competent** to followers. Third, they **articulate ideological goals that have moral overtones**. Martin Luther King, Jr’s famous ‘I have a dream’ speech is an example of this type of charismatic behaviour. Fourth, charismatic leaders **communicate high expectations for followers**, and they exhibit confidence in followers’ abilities to meet these expectations. The impact of this behaviour is to increase followers’ **sense of competence and self-efficacy** (Avolio & Gibbons, 1988), which in turn improves their performance.”*
(Northouse 2015, p164, emphasis added)

In the extract above, Northouse’s depiction of charismatic leaders as role models is consistent with leading by example where the leader’s action is underpinned by a moral cause. Other effects of charisma on followers are said to include increased: trust in the leader, affinity, affection, obedience, emotional involvement, and confidence (Northouse, 2021).

Based on a review of literature, Antonakis and colleagues attempt a narrower definition, saying “*Charisma is values-based, symbolic, and emotion-laden leader signaling.*” (Antonakis et al., 2016 p304) The word “signaling” is crucial to this definition because it specifies that charisma involves deliberate signals sent by the leader using words, body-language, interactions, and appearance, etc (Tur et al., 2021). Taking a different perspective, Northouse links charisma with followers’ identity, saying: “*Charismatic leadership works because it ties followers and their self-concepts to the organizational identity.*” (Northouse, 2015, p165). The connection between leadership and identity will be explored further below.

In relation to the current research, the question is whether leading by example with high-impact low-carbon behaviour might increase or decrease a leader’s charisma, and how this relates to the efficacy of leading by example. If charismatic leaders are “strong role models”, as Northouse asserts above, this suggests leading by example might increase perceptions of leader charisma. Alternatively, low-carbon actions by leaders may work against perceptions of charisma by removing established markers of status and prestige. As a simple example,

the imagery of a world leader stepping off a train may be less charismatic than waving from the doorway of a large aircraft, or likewise a large SUV may be seen as a more charismatic form of transport than a small electric car. Charisma will not be measured directly in this research due to the complexities and uncertainties surrounding the construct (Antonakis et al., 2016), but it will be discussed in relation to other perceptions of leaders. For instance, Northouse suggests charismatic leadership increases: trust in a leader's ideology; belief in the similarity between leader and follower; unquestioning acceptance of the leader; affection toward the leader; obedience; identification with leader; emotional involvement; heightened goals; and increased confidence (Northouse, 2015, p165).

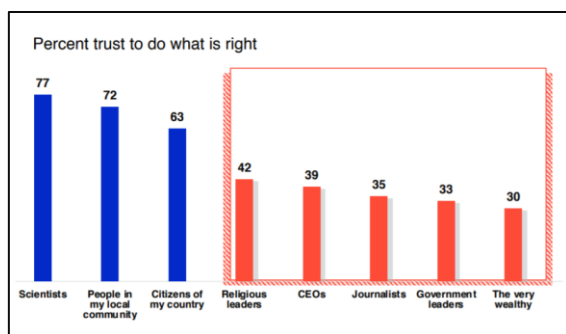
2.5 Trust and leadership

Trust is fundamental to leadership because followers must have some level of belief that leaders are working in their interests (Haslam et al., 2020). However, political and corporate scandals involving high-profile dishonesty from leaders, such as the Enron, VW, and UK MPs expenses scandals, have coincided with an increased focus on the integrity of leaders and a general loss of trust (Hosking, 2014; Northouse, 2015). "*In the western world there is a crisis of trust*" states Hosking (2014) in the opening sentence of his book entitled *Trust: A History*. He goes on to cite polls showing that "[only] 18 per cent of British citizens trust politicians to tell the truth, fewer even than trust estate agents (24 per cent), journalists (21 per cent), and bankers (21 per cent)." Hosking cautions that the crisis may be exaggerated, however, as it would be impossible for society to function without trust (Hosking, 2014). That said, survey research indicates that belief that UK politicians are "merely out for themselves" is at an all-time high, with 63% of respondents agreeing with this statement in a large representative survey in 2021 (Quilter-Pinner et al., 2021). In a global survey, 73% of UK respondents and 66% of global respondents agreed with the statement "*I do not have confidence that our current leaders will be able to successfully address our country's challenges*" (Edelman, 2020b). Figure 2.2 and Figure 2.3 show the low levels of trust in leaders "to do what is right", with the least trusted being Government leaders (33%) and "the very wealthy" (30%), in the UK and globally. UK citizens have the second lowest level of trust in NGOs, business, government and media, after Russian citizens (ibid). In contrast to political leaders, scientists (77%), local community members (72%), and fellow citizens (63%) are trusted more. If lack of trust in leaders turns to active distrust then there is the potential for widespread cynicism and disillusionment, which is likely to affect the ability for leaders to address the climate crisis and other societal issues (Quilter-Pinner et al., 2021). In this context, the current research explores whether leading by example with high-impact low-carbon behaviour increases trust

in leaders, and how this might relate to followers' intentions to take similar action. In order to do this, a further brief exploration of trust as a concept is useful.

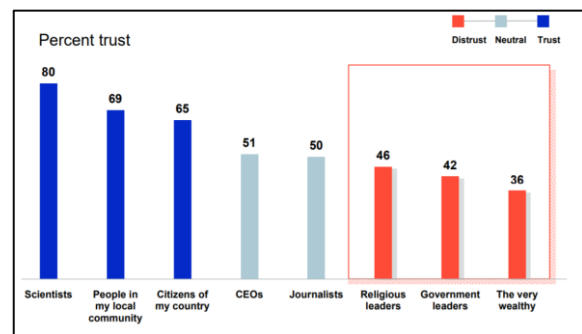
Trust has been theorised as multidimensional in both psychology and sociology, comprising different levels of social trust such as “interpersonal” versus “institutional/social,” or “local” versus “global”. Trust in leaders can be based on: personal values that are shared with the leader; calculations made on the basis of evidence, for instance observations of leader performance; an ongoing relationship with the leader; or on a culture of trust within and towards institutions such as companies, governments or other authorities (Rousseau et al., 1998; Siegrist et al., 2000). Of course trust is not an all-or-nothing attribute, especially when it comes to politicians, governments and related institutions. Poortinga and Pidgeon (2003,

Figure 2.2 UK public perceptions of trust



Source: Edelman (2020a)

Figure 2.3 Global public perceptions of trust



Source: (Edelman, 2020b)

p971) talk of *critical trust* which “can be conceptualized as a practical form of reliance on a person or institution combined with some healthy scepticism.” And in practice trust is not easily maintained because leaders in organisations and elsewhere often find themselves in situations where they have conflicting demands requiring decisions and behaviour that will harm the trust of one constituency or another. These have been termed “trust dilemmas” (Dirks & Skarlicki, 2004). Such dilemmas may present a stumbling block for leaders wishing to adopt high-impact low-carbon behaviours if some followers perceive such behaviour as not in their interests for various reasons. For instance, businesses linked to high-carbon activities such as flying might not appreciate leaders discouraging such activities, and likewise individuals who enjoy high-carbon lifestyles might not react favourably to a leader’s implicit invocation to reduce personal emissions. These topics of trust are explored from both a leader and follower perspective in the thesis. Considering the centrality of politicians to government policy and the global response to climate change, politicians are leaders of particular interest, in spite of the low levels of trust they apparently inspire.

2.6 Social identity and leadership

Much of the research into pro-environmental behaviour change, as referenced in Chapter 1, has focused on drivers and barriers to *individuals* adopting pro-environmental behaviour. Included in this analysis is literature on individuals' identity, which reveals that a person's pro-environmental identity is a strong predictor of support for action on climate change and intention to adopt pro-environmental behaviour (e.g. Vesely et al., 2021). In response to the limited success of the individual approach to bring about significant change, research is now increasingly focusing on collective responses that encompass social identities (e.g. Fielding & Hornsey, 2016; Fritsche et al., 2018; Jugert et al., 2016; Sabherwal et al., 2021; Vesely et al., 2021).

Social identity theory provides evidence that leadership is intimately related to the identity of followers, such that effective leaders must understand and work with followers' identity in the context of the group that is being led, be it at national, organisational, club or even friendship level (Haslam et al., 2020; Steffens et al., 2020). Haslam and colleagues suggest leaders must tap into followers' identity, and also shape it through "identity entrepreneurship". Leaders aren't always obliged to act in the direct interest of followers, but they must be seen as "*doing it for us*" when they take action that may not seem directly beneficial to followers. (Haslam et al., 2020, p114). Central to the social identity theory of leadership is evidence that successful leaders tend to be prototypical of the group they are leading (ibid; van Knippenberg, 2011), particularly when the prototype is defined in aspirational terms (Steffens et al., 2020). In other words the leader possesses and expresses qualities that group members identify with and aspire to – such that group members feel that the leader is *like them* and represents the best qualities of the group (ibid; Haslam et al. 2020). This sense of prototypicality may be easier to achieve in smaller or well-defined institutional settings such as companies or the armed forces for example, rather than wider society in which political leaders operate and celebrities create their brand image. Identity leadership also involves the *performance* of leading, and that performance can involve sacrifice, as the high-profile examples of Gandhi and Martin Luther King exemplify (Haslam et al., 2020).

Other scholars agree that a leader's actions must walk a fine line between shaping group identity and conforming to it (Ladkin & Taylor, 2010). This suggests that, while identity provides a potentially powerful lever to promote pro-environmental behaviour through leadership, group identity may limit the actions leaders can exhibit while still representing a group. Furthermore, group identity as a mechanism by which leading by example may be effective also encounters a potential confounding effect for those who do not identify with a

particular group or leader. This potential for polarisation in response to leaders (or “role models”) has been cited as a limiting factor for leading by example because of “*the inherent tendency towards social differentiation and intergroup conflict*” and “*cultural protest*” that means some may follow the leader’s example and others will likely rebel against it, with the polarising effect exacerbated in highly stratified societies (Jackson, 2005, p83).

The link between group identity and responses to climate change is evidenced by a study showing that people can turn to in-group-oriented ethnocentrism as a "symbolic" solution to anxiety caused by receiving threatening information about climate. This ethnocentric response can happen instead of an increased willingness to adopt pro-environmental behaviour (Uhl et al., 2018). In contrast, other research has indicated that social identity and group associations can increase an individual’s intentions to act in pro-environmental ways if the individual compares their own group to a group who the individual perceives to be less pro-environmental, thus raising the individual’s own sense of pro-environmental identity (Rabinovich et al., 2012). This adds weight to the idea that leveraging social identity as a mechanism to encourage the emulation of pro-environmental behaviour runs the risk of working only for a subset of the population. This may point towards the need for a wide range of leaders from different groups to lead by example if it is to be effective. Such leaders may include those representing different political standpoints, geographical areas, and interest groups such as celebrities, sports stars and musicians (e.g. Corner et al., 2022). Leaders on the political right may have particular potential were they to lead by example, due to the generally lower levels of climate concern of those with right-leaning political tendencies (Hornsey et al., 2016; Lee et al., 2015; McCright et al., 2016; Newman et al., 2020; Poortinga et al., 2019). Indeed research in the US indicates that perceptions of social consensus can increase climate concern and policy support, especially for those on the right of politics (Goldberg et al., 2020). Different leaders modelling behaviour has the potential to tap into and cut across the multiple identities people hold (Epitropaki et al. 2017).

These ideas of leadership and identity raise a few important issues in the context of the current research. First, that leading by example is only likely to be effective if followers identify with the leader as representing them in some way, and just as importantly, they do not consider the leader to represent an out-group. Secondly, leaders do not act simply to please group members, but they help to morph the (group) identity of followers towards a collective identity that is more likely to take low-carbon action. This second point is important in the context of political leadership and representative democracy where politicians may argue that their job is to do what constituents want them to do, rather than leading in a way

that may challenge constituents and shape their values. This will be explored further in Chapter 5 featuring interviews with UK Members of Parliament.

The preceding section on identity stresses clearly that leadership is linked to groups of people, and group identity is a strong force. In the current research, which focuses specifically on leaders such as politicians, business leaders, celebrities, and local community leaders, the strength of group associations are likely to vary considerably. Importantly, the research methods used do not intend to create very strong in-group associations, but rather to avoid out-group associations. The reason for this is that the intention of the research is to concentrate on the actions of leaders who may be relatively remote from followers, rather than leaders who have a close personal connection with followers.

2.7 Embodiment and leadership as an “over-cognitived phenomena”

In the current research, the focus rests on what the leader *physically does*, and the effect this has on followers, as opposed to other leadership functions that are defined by, for instance, visionary narratives, strategic organisation, forward planning and relationship management. As such, I position the research within the category of “embodied leadership”, and I use this as an overarching theme that aims to unite the various sub-themes and theories that have been mentioned above and in Chapter 1. The term “embodied leadership” within leadership literature tends to refer to the bodily experience of leaders, and how the interplay of bodily movements and gestures between leaders and followers affects the leadership process (e.g. Sinclair 2005; Bonaccio et al. 2016; Parra Vargas et al. 2023). As just one example of this, when Hillary Clinton displayed emotion through the physical response of crying, it sent strong signals about her authenticity and leadership qualities that were interpreted both positively and negatively (Ladkin & Taylor, 2010). Embodied leadership has also been examined in relation to “embodied cognition” – an area of study that explores the body as central to the cognition process and the acquisition and use of knowledge (Glenberg, 2010; Knights, 2021; Lord & Shondrick, 2011).

In this thesis I propose an evolution of the term embodied leadership in relation to climate change, focusing specifically on how a leader’s low-carbon or high-carbon actions represent an embodiment of their approach to climate change, and how this embodiment is interpreted by followers. A recent parallel example of this kind of embodied leadership could be seen at the beginning of the Covid pandemic in 2020 when various world leaders “embodied” the crisis by visibly wearing masks, or not (Peeples, 2020). Below I will briefly outline relevant

literature on the body and embodiment, before detailing the novel definition of embodied leadership applied within the thesis.

Scholars have suggested that *the body* is an under-represented focus of leadership research (e.g. Knights, 2021; Melina, 2013; Sinclair, 2005). An absence of the body can be seen in the political leadership that was explored in Chapter 1, where proposed solutions to climate change are overwhelmingly technical and technocratic, and narratives are focused on economic processes rather than the actions of people or leaders themselves (Willis, 2020). It has been argued that the neglect of the body in leadership theory likely has its roots in the Cartesian separation of body and mind⁴, with the mind elevated as the apex of cognition and meaning, and the body subordinated to the status of mere matter. Knights argues that this duality epitomises masculine logics of leadership that seek control and domination. He says the duality overemphasises rationality and underplays affect and “embodied reasoning” in the leadership process, diminishing the importance of emotions, feelings and embodied energy (Knights, 2021). In a similar vein, Pullen and Vachhani (2013, p315) suggest leadership is “*an over-cognitivised phenomena [sic]*” and propose a counter perspective that rests on “*the basic assumption that leadership is embodied – leadership is practised through and between bodies, where matter matters*”. This is important to the current research because, as Ladkin and Taylor (2010, p66) suggest, “*in assessing a leader’s level of authenticity, in the first instance followers will scrutinise their bodily signals.*” The term “bodily signals” could encompass a great deal of course, from tiny facial expressions, to overall physical stature, to symbolic behavioural gestures and actions. Similarly, embodiment can encompass the actions of the person in a performative sense – how their actions are interpreted by others, and also what such action means for the actor themselves. This perspective holds that somebody *is* what they *do*, and in the case of a leader (and in fact everyone) their actions reflect their history and also their visions of the future (Holzmer, 2013). Discussing gender identity and its manifestation in performative behaviour, Judith Butler (1988) writes:

*‘As an intentionally organized materiality, the body is always an embodying of possibilities both conditioned and circumscribed by historical convention. In other words, the body is a historical situation ... and is a manner of doing, dramatizing, and **reproducing** a historical situation.’*
(Butler, 1988, emphasis in original, with bold added for clarity)

⁴ as encapsulated in Rene Descartes’ famous statement: “I think therefore I am”.

If Butler's reasoning is applied to a leader's action, it suggests that what leaders do with their bodies reproduces the past and has the potential to dramatize the present and possible futures – "dramatize" in the sense of making issues physical, tangible and meaningful. Leaders, through their superior influence on others and their norm-setting power, are therefore perpetually recreating behavioural norms and to some extent creating the future with their bodies through performative action. Holzmer suggests that such embodied leadership is especially important and relevant in the current "time of liminality" – meaning a time where economic, political and environmental disruption is increasing globally, not least due to the realities of climate change (Holzmer, 2013).

It is important at this point to highlight a distinction between performative behaviour from leaders that is acted out purely for the benefit of observers, which might be classed as inauthentic or "just for show", and behaviour that has a deeper connection with who the leader is and what they believe about themselves and the world, as alluded to in Butler's quote. An example of this distinction might be seen by comparing (1) a political leader who for the sake of the cameras travels on a bus but usually travels in a large-engine SUV (2) a leader who regularly travels by public transport instead of chauffeur-driven cars or private jet flights. Both situations may involve some level of performativity, but the latter example is likely to carry more embodied meaning for both the leader and followers. This has been likened to the difference between acting and *method* acting, the latter involving an embodiment of the role where "*physical actions incorporate the intention by which they are fuelled, their purposes, as well as the surrounding circumstances of their manifestation.*" (Ladkin and Taylor, 2010, p68) Proponents of "authentic leadership" describe a leadership performance where actions align with, and stem from, the genuine self-identity of the leader. It is argued that this link between deep-seated motivations and embodied actions allows followers to distinguish between authentic and inauthentic leadership (ibid, Northouse, 2021).

In reality, however, it may not be simple for a leader to embody a cause, even one they are sincerely committed to, because performative action can be viewed by some followers as inappropriate and not "leaderly". The example cited above of travelling by bus may be one such instance. "Leaderly choices" according to Ladkin and Taylor are those that are seen to be appropriate for someone in a leadership position, and these choices may deviate from absolute consistency with a particular perspective or position. It is plausible that in the current context of pro-environmental behaviour, some followers may not view favourably a leader's overt low-carbon action, even though such action might, on the face of it, seem

consistent with the urgent need to eliminate greenhouse gas emissions. As discussed above in relation to identity, this is the tightrope leaders must continuously walk, balancing different constituents' priorities.

For the purposes of the research in this thesis, a new and relatively narrow definition of embodied leadership will be used: the overt low- or high-carbon actions adopted by the leader will be considered as an *embodiment* of a leader's response to climate change. While such actions can be considered in purely physical terms, it is suggested that they may carry a deeper meaning for both the leader and followers that involves emotional and somatic understanding (Ladkin & Taylor, 2010). Embodiment in this sense is viewed separately from other climate leadership functions such as: strong rhetoric about the urgency of the climate crisis; the promotion of research and development of climate solutions; the fostering of multi-level cooperation; and the formulation of strategies to bring forward technical solutions and organisation-level targets and emissions reductions, to name a just few. These are undoubtedly crucial leadership functions, but all may be conducted without the leader overtly enacting or embodying a reduction in personal emissions by way of significant low-carbon actions. In fact it is commonplace that there is a separation made between broader leadership functions and a leader's potentially high-carbon personal behaviour. It is suggested that this can create a ***contradiction of leadership*** if leaders are both working towards a low-carbon future while continuing to exhibit high-carbon behaviour. While this contradiction (if it is viewed as such) may be tolerable and rationalised by both leaders and followers – for instance because leaders occupy a special position, or due to a belief that individual behaviour change is not necessary for overall climate progress – at an *embodied* level the contradiction may carry deeper significance for leaders and followers because leadership, according to its simplest definition, involves a direction of travel where the leader is physically closer to the destination than followers, in effect showing them the way. This type of physical leadership is exhibited in primates where a group follows a particular individual. As such, a physical contradiction of a leader failing to embody motion and progress towards a declared destination may work against progress towards the target because the physical contradiction is *felt* and *understood* by leaders and followers. This may also help to explain why examples of so-called hypocrisy from leaders are so often seized upon in relation to climate change – because a leadership contradiction is apparent, and carries embodied meaning that overpowers rational justifications that a leader's individual emissions are not important.

An overarching theoretical position is proposed as follows: in a time of crisis and liminality where meaning is uncertain and cultural trauma is present, how leaders “embody” the climate crisis may inform whether requisite rapid societal transitions take place. As a stark example at of one end of the embodiment spectrum, Jeff Bezos, the owner of Amazon who was given a platform at the COP26 climate conference, recently flew into space to promote space tourism, which is said to emit 100 times the CO₂ per passenger as conventional air transport (Marais, 2021). Around the same time, UK Prime Minister Boris Johnson chose a private jet flight from COP26 in Glasgow to London when alternative rail travel was available and practical. Both are leaders who can be considered to be embodying particular responses to the climate crisis that do not involve or promote low-carbon personal choices. It can be (and is) argued that this is irrelevant because technical solutions will usher in a future where such activity is part of low-carbon, sustainable lifestyles. Alternatively, the embodiment of high-carbon activities by leaders may, at a deep level of human understanding, be working against a rapid societal shift to a low-carbon future because the apparent *contradiction of leadership* symbolises a lack of direction, urgency, clarity, and commitment, and an absence of a crisis.

2.7.1 Embodiment and power

It has been argued that treating leadership as disembodied may tacitly serve the purposes of certain interests:

“Leadership ... has been constructed as an activity of brains without bodies. This construction is not accidental. By elevating leaders as beyond the impermanent bodily matter that constitute them, the interests of leaders and the people who study them are advanced. Paying attention to bodies then becomes a political act with political consequences. ... If one is male, powerful and senior, then one is more likely to be portrayed as bodiless – and this is precisely the point.” (Sinclair 2005, p403).

It is suggested in this thesis that current climate leadership has been constructed predominantly as “*an activity of brains without bodies*”, to use Sinclair’s words. This lack of embodiment has many manifestations, such as the causes of climate change being attributed to countries, sectors of the economy, industries, types of technology, but very rarely people. As discussed in Chapter 1, this may reflect a reluctance among leaders to confront consumption as a problem that causes climate change, and at the same time leaves unscrutinised the large differences in individual consumption levels between and within

nations. A disembodied perspective on climate leadership protects the stratified economic structures leaders reside within and represent. In the current context therefore, leading by example with high-impact low-carbon behaviour presents a physical, embodied challenge to the political taboo around the need for behaviour change, as explored in Chapter 1. As such, embodied leadership as defined here can be viewed as “*a political act with political consequences*”, to quote Sinclair again.

The idea of embodied leadership therefore links the other themes and theories in the research. It encompasses the themes of power, inequality of emissions, credibility enhancing displays, sacrifice, emotion, trust, identity and meaning making via the physical enactment – embodiment – of the climate crisis through personal behaviour. The power of leading by example can be viewed as residing in the leader’s body and expressed by their modes of travel, how they live, how they structure their family life. It is suggested the influence exerted by leading by example goes beyond a narrow definition of leaders sending signals through their behaviour, or making symbolic gestures, and rather points towards a deeper, embodied, understanding of the climate crisis and appropriate responses to it – a response that removes the cartesian duality of mind and body. Drawing a connection to the previously mentioned “meaning-making” role of leadership, especially in times of crisis, it is posited that clear embodied action from a leader has the potential to cut through the noise and confusion of modern life and global-scale problems such as climate change. As Bhattacharyya says: “*in the era of uncertainty, the body re-emerges as the place where we may begin to know again*” (Bhattacharyya cited in Pullen and Vachhani, 2013, p315). As such, leading by example simplifies the confusion and complexity of climate change by establishing a physical, embodied connection between a global-scale problem and everyday life. Leading by example presents people with a story, a challenge, it prompts affect and emotional responses, it creates meaning, and it gives clarity. It is in this sense that embodied leadership provides an overarching theory for the present research.

2.7.2 A final word on emotions

As is clear from the previous discussion of embodied leadership, emotion is embedded in the leadership/followership dynamic, and also strongly related to motivation and behaviour. Emotional responses to leadership messaging and behaviour must therefore be considered as an important factor when assessing the effects of leadership (e.g. Dono et al. 2010; Ferguson and Branscombe 2010; Harth et al. 2013; Robertson and Barling 2013; Onwezen et al. 2014; Bissing-Olson et al. 2016; Wang and Wu 2016).

Emotions (or “affect”) are entwined with cognitive and motivational processes, including in relation to climate change. A review of research in this area concludes that negative emotions such as fear or guilt are more strongly correlated with pro-environmental behaviour change than positive emotions (Brosch, 2021). Positive emotions such as hope can lead to complacency and inaction if the hope is connected to the idea that risks will simply not manifest (“false” hope), as opposed to the hope that collective action towards climate mitigation is possible (“constructive” hope). Focusing on messages of hope and progress has been shown to weaken people’s motivations to adopt pro-environmental behaviour and did not increase feelings of efficacy (Hornsey & Fielding, 2016), while in contrast feelings of guilt can stimulate pro-environmental behaviour (Harth et al., 2013; Skatova et al., 2017; Swim & Bloodhart, 2013). That is not to say negative emotions alone are sufficient, or can’t be problematic. A sense of self-efficacy (feeling one’s actions can make a difference) and outcome efficacy (that a positive outcome is possible) are necessary too (Brosch, 2021). Emotions that are anticipated to result from pro-environmental behaviour can also affect the likelihood of someone adopting such behaviour. The anticipation of positive emotions has a stronger motivational effect for people who are already engaged in pro-environmental behaviour, whereas the anticipation of negative emotions as a result of not acting is a more powerful stimulus for those not already engaged (Oudou & Schill, 2020). The temporary nature of emotions is an important factor because people tend to act on emotion within a short window of feeling the emotion (Schwartz & Loewenstein, 2017).

While it may be problematic for leaders to deliberately exploit negative emotions, leading by example may stimulate self-reflection in followers that could induce feelings of responsibility and guilt. If this leads to feelings of obligation, the impulse to act can be powerful (Cialdini 2007). Some religions are infused with narratives of guilt and obligation, and religious leaders have great potential to influence the behaviour of others, as evidenced by the Pope’s well publicized encyclical (Francis 2015) and ability to raise the moral salience of climate change (Schuldt, 2017). These insights into the motivating power of emotions suggest another mechanism by which leaders have the potential to stimulate change.

2.8 Critical approach to leadership

“Leadership scholars generally produce all sorts of beautiful images of leadership” (Spoelstra and ten Boc quoted in Alvesson, 2020, p11).

There have been significant critiques of leadership theory, arguing that the importance of leadership is often overstated, and that it tends to protect power and maintain oppressive

social structures relating to race, class, gender and other categorisations (e.g. Collinson 2012). Leaders are often considered in polarised terms as being either heroes or villains, while the persistent fixation on the idea of the “heroic leader” results in a tendency to exaggerate the role of the leader in both successes and failures, where in fact they may have had little effect on outcomes (Collinson, 2005). Furthermore, several popular theories of leadership in organisational or business settings, such as authentic leadership or transformational leadership, have been criticised as involving an embedded assumption that leadership is inherently good. *“By assuming that leaders invariably produce beneficial outcomes, these theories have tended to purify... the concept of leadership to such an extent that it has typically been viewed primarily in terms of its inherently positive ‘influence’, whilst questions of power, paradox and contradiction have disappeared from view.”*

(Collinson, 2012, p98). An overly positive depiction of leaders in leadership literature can exist in a circular relationship with leadership behaviour, such that positivity comes to be viewed as an unquestionable requirement of leadership, in potentially problematic ways. Collinson has termed this excessively positive leadership as “Prozac” leadership that numbs leaders and followers alike, closing down challenge and causing alternative options and solutions to be overlooked. Collinson recently applied this critique to the Covid pandemic which saw some world leaders choose positive messages in preference to scientifically informed analysis, with apparently fatal results (Collinson, 2020). Such Prozac leadership messages have been seen in climate discourses too, with leaders often stressing the need to be positive in order to protect the feelings and perceived interests of followers and constituents, and thus downplaying the severe risks of climate change (Willis, 2020).

It has been argued that paternalistic, protective and heroic concepts of leadership among both leaders and followers can result in “learned helplessness” among followers and situations of dependency (Gemmill & Oakley, 1992). This sees followers using leaders to insulate themselves against uncomfortable feelings, or projecting hope onto the leaders, with the leader becoming a “messiah” or a “therapist” for the followers – roles that correspond with the overarching discourses of leadership mentioned earlier (Western, 2019). *“The projection of power onto leaders, deities or celebrities endows the venerated other with the power to absorb or ‘save’ us.”* (Adams 2021, p115). Such critiques question whether such “infantilizing managerial” leadership models have the capacity to bring about a just and sustainable future (Bendell et al., 2018). Gemmill and Oakley (1992) say there is an inherent “deskilling” process involved in the follower-leader dyad, with followers becoming less functional as they attribute responsibility to the leader rather than themselves. This deskilling

process could potentially take effect within nations. If nations are perceived by their citizens as international leaders on climate change, a perception that is often fuelled by governments' own claims, citizens and institutions may feel less obliged to take action themselves because their country is in control and "has it covered". Such a situation would serve those invested in the behavioural status quo.

The foregoing literature paints a picture of leadership and its study as something to be approached critically, and that is the stance adopted in this thesis. The first step is to exercise caution around any assumption that leadership, even leading by example, is inherently good and necessary, and results in positive outcomes. A related step is to question current manifestations, positions and norms of leadership as exhibited by politicians, business leaders, celebrities and others who can be considered leaders in the context of climate change. If the common goal of climate leadership is eliminating greenhouse gas emissions and successfully avoiding the risk of severe climate breakdown, it can be argued that leadership to date has failed, or is in the process of failing, because the emissions that cause climate change have continued to rise for the three decades since climate change was identified as a serious threat.

The exploratory research in this thesis takes a pragmatic, critical approach that encompasses these perspectives. This is laid out in more detail in the next chapter. A starting position is adopted acknowledging that: leadership is ubiquitous throughout societies; it manifests in formal positions (such as politicians and business leaders); and it pervades popular consciousness. From this position, the research will explore whether those who can be considered to be current leaders (politicians, business leaders, celebrities, local community leaders) can exert power through their visible behaviours, and what the effect might be.

2.9 Power and leadership

As described in Chapter 1, the case has been made that the current failure to achieve significant progress towards low-carbon behaviour is partly due to issues of power being overlooked (Fuchs et al., 2016; Isenhour et al., 2019). Some examples of power in this context are: decision processes that shape society through the building (or not building) of infrastructure that would facilitate low-carbon behaviour; the services and products that are made available (or not) to citizens; the presence or absence of legal frameworks that promote or inhibit low-carbon behaviour (Hargreaves, 2019; Isenhour et al., 2019). In addition to this, and of particular interest in the current research, power is at play in the

setting and maintenance of social conventions and norms of consumption and behaviour (Nielsen et al., 2021; Stoddard et al., 2021). This is where leaders come in. As leadership involves influencing others towards a specific goal, it can be viewed as an exercise of power. At the same time, followers are said to attribute power to their leaders through the act of following (Northouse, 2015). Taking this perspective, leaders who adopt role model behaviour with a view to influencing others to follow suit are exercising power. By extension, any behaviour from a leader that might influence others is a use of power, even if that behaviour simply reinforces the status quo.

Of course power is a contested term with many potential meanings both in society generally and in academic literature (Avelino, 2021; Lukes, 2005). Avelino suggests that “*rather than trying to capture the essence of power in one, all-encompassing definition, the challenge is to construct a local language that is suitable in a specific context.*” (Avelino, 2021, p2). It is the “local language” of power relevant to the current research that will be laid out next, without attempting to cover all definitions of power.

Power can be viewed as residing within individuals or collectives who have agency to use power to serve their interests. A contrasting view is that power resides in social structures or hegemonic worldviews that constrain or facilitate action and privilege certain outcomes and vested interests (Avelino, 2021). The extent to which individuals have the capacity to act freely and exercise power within such structures is central to discussions around structure and agency. For the purposes of the current research, a position is taken, similar to Avelino’s, that individuals *do* have personal power to act and bring about change within structures, but that this power varies a great deal between individuals (ibid). Avelino puts forward three types of power in the context of social change and innovation, focusing on whether the exercise of power tends to maintain the status quo, or to bring about change. The three types are: *reinforcive power*, *innovative power* and *transformative power*. Reinforcive power “is the capacity to reinforce and reproduce existing structures and institutions”, and Avelino highlights the agency of individuals to use this kind of power. Innovative power is “the capacity to create new resources”, such as electric vehicles and charging technology that will influence people’s lives. Transformative power is the capacity to change social structures and institutions or, in the case of the present research, social norms (Avelino, 2017, 2021). Taking Avelino’s three classifications in relation to the research in this thesis, the behaviours of leaders can be assessed according to whether they tend to **reinforce** or to **transform** current structures and norms of behaviour and practice.

2.9.1 Power in individual leaders

With regard to the power held by individual leaders, six “bases” of power have been identified: legitimate, coercive, reward, information, referent, expert (see Table 2.2) (Gill, 2011; Northouse, 2021). These six categories each reside within another two high-order categories: **position** power, or **personal** power, reflecting whether each type of power is dependent on the position a leader holds, or flows from their personal qualities. Legitimate, coercive, reward, and information power are often linked to the leader holding a particular **position**, whereas referent, expert, and perhaps information power stem from the **personal** respect or warmth felt towards a leader, regardless of any formalised hierarchical position. The distinction between position and personal leadership power has also been termed **formal** or **informal** power (Tur et al., 2021). There can be overlap between these types of power. For instance a leader with legitimate power, such as a senior figure in a company, is also likely to have some level of coercive and reward power over subordinates within the company. In contrast, while an elected politician has legitimate power based on their position and influence over policy, they do not have direct reward or coercive power over constituents.

In the context of the present research, the power categories of interest from this list are in the *personal* (informal) category – i.e. referent power, expert power and information power, which do not require a formalised position of superiority in a social organisation. This is because the research is looking at the potential for social influence (via leading by example)

Table 2.2 Types of individual power

Type of power	Personal or Position	Basis of the type of power
Legitimate power	Position	Based on formal status (e.g. a boss or politician)
Coercive power	Position	Based on the ability to penalize
Reward power	Position	Based on the ability to provide rewards
Information power	Position/Personal	Based on the possession of valuable information
Referent Power	Personal	Based on identification and respect
Expert power	Personal	Based on perceptions of competence

Source: Adapted from (Northouse, 2021). Position power is power that comes by way of holding a particular position, for instance a senior role in an organisation that allows direct influence over others. Personal power comes from being liked or enjoying the respect of others, but without requiring a formalised hierarchical position.

to result in voluntary behaviour change among followers, where coercion or obligation is absent.

2.9.2 Power in social structures and systems

As well as power being viewed as residing within individuals, it can be said to be embedded within social structures and cultural systems. Power was described by Antonio Gramsci as residing in ideologies, such that citizens comply with certain ways of being and behavioural norms because this is experienced as the natural order (Daldal, 2014). Such normalised power may be more or less apparent and acceptable to those under its influence (ibid). Those who have capacity to influence ideologies, for example leaders in politics, business or popular culture, can therefore be viewed as having power over citizens. In the present situation, with a rapidly diminishing carbon budget, it can be argued that a hegemonic ideology of unlimited freedom to consume works in the interests of those with most wealth and influence because it avoids attention being paid to the lifestyles of those who consume at a much higher rate than others. This idea of “*the field of visibility*” was highlighted by Foucault as being “*a crucial mechanism of power*” (Hargreaves, 2019, p95). Climate leaders who choose not to focus on individual consumption, both their own and society’s as a whole, are therefore exercising power with this choice. This leads to another conceptual framework of power, that of Steven Lukes.

Lukes’ influential contribution describes three dimensions of political power, which range from the activities of powerful parties working to further their interests, to more subtle and unseen manifestations of power (Lukes, 2005). The first of Lukes’ dimensions involves overt and observable behaviour (by individuals or collectives) that influences outcomes to favour certain parties over others. In this dimension, the contestations and conflicts through which power is exercised are overt rather than being unseen or hidden, and the interests of each of the parties are also overt. This means it is clear to everyone who is seeking which objectives.

The second dimension involves less visible manifestations of power, such as: *non*-decision making that serves the interests of certain parties; conflicts which are not overt, thus making the workings of power less obvious; and conflicts that are avoided altogether by, for instance, ensuring that certain contestable subjects and issues are not raised at all. In the context of this thesis, the absence in climate discourse and policy of a focus on the large differences between individuals’ emissions, thus avoiding the potential for constraints on high-emitters, can be viewed as a manifestation of the second dimension of power.

The third dimension of power according to Lukes adds more subtle exercises of power that are harder to identify. Primarily this dimension involves the shaping of people's preferences and consciousness such that they go along with certain societal conditions and do not contest decisions because it doesn't even occur to them to do so. For instance, if a population comes to believe that unlimited consumerist culture and GDP growth is in their general interest, or is simply the natural way of things, this serves certain political and commercial interests by avoiding substantial opposition or alternative ways of living from being seriously discussed or gaining traction (Fisher, 2009; Hickel, 2020; Raworth, 2018). This dimension has clear synergies with Gramsci's ideas of power residing in ideologies.

The significance of these dimensions of power can be observed in relation to debates around low-carbon behaviour, as was explored in Chapter 1, where the dominant solutions to climate change are technical and technocratic supply-side measures involving as little disruption to individual consumption patterns as possible, rather than demand-side measures that would primarily affect the wealthiest nations, and the wealthiest citizens within those nations, if applied in relation to the scale of individual emissions. An important characteristic of power in this sense is that it does not have to be wilfully exerted by a party. Power can be at play if certain actions or discussions are kept away from the arena of contention out of deference to the assumed wishes of powerful actors (Lukes, 2005). Power is therefore involved in the shaping and maintenance of norms and taken-for-granted ways of behaving and thinking.

2.9.3 How power is viewed in this research

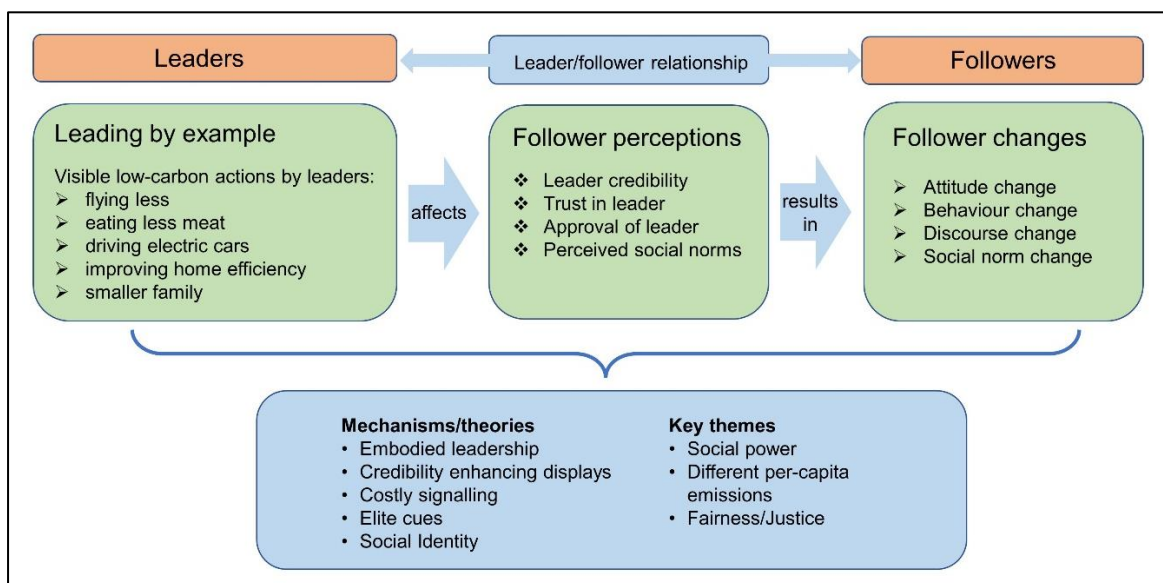
For the purposes of this thesis, power will be framed as the influence leaders may have over followers, and how that power relationship is perceived and understood by followers and leaders. Of particular interest is the "power" of the example of leadership behaviour. In Avelino's terms, the research may reveal that leaders have **reinforcive** or **transformative** power when it comes to influencing others to adopt pro-environmental behaviour. Leaders may believe they have such power, or they may be unaware they possess it, or they may believe that do not have such power. If they believe they possess such power, they may choose to exercise it, or not. Leaders may feel enabled or restricted by systemic power, for instance the power of the media, or the attitudes of peers, or the physical restrictions on some choices. In addition, the idea will be explored that leaders and followers have power through their actions to influence society, social norms and social discourse in relation to low-carbon behaviour. Leaders' actions may have direct effects on followers who are inclined to emulate the leaders' behaviour or perhaps rebel against it. Leaders' actions may

also have communicative effects that change the context in which behaviour takes place, for instance making certain behaviours seem more normal, acceptable, aspirational. Finally, leading by example with high-impact, low-carbon behaviour will be considered in relation to the power of ideologies, and the resistance that may be encountered when power is used.

2.10 Theoretical framework of leading by example

This chapter has explored leadership as a concept, examining ideas of what leaders are, what they do, and how they may influence followers. Theories of leader charisma, trust and identity were examined, along with issues of embodiment and power. Together with the contextual background laid out in Chapter 1, these concepts and theories provide a framework for the research, as shown once again in Figure 2.4.

Figure 2.4 Theoretical Framework diagram



In Figure 2.4. the theoretical **relationship between leaders and followers** is depicted in the top row of boxes. The central boxes show the proposed **cause-and-effect process of leading by example** that is under investigation. The bottom box summarises the key mechanisms and theories that may explain how this cause-and-effect process takes place. It also contains themes that are central to the positioning of this thesis.

Having established the theories and theoretical framework upon which the research is based, the next chapter will lay out the research philosophy in terms of its ontological and epistemological perspectives, along with the methodology and methods used.

Chapter 3 Research worldview and methodology

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3.1 Introduction

The previous two chapters have outlined the objectives of the research and described the broad societal, political and theoretical contexts for the thesis. In this chapter I will explain the research philosophy I adopted, and how this has been translated into a methodological approach. There are a few important points to emphasise from Chapters 1 and 2. First, the research is attempting to reveal whether leading by example with high-impact low-carbon behaviour could stimulate significant behaviour change among the public – behaviour change that has been elusive to date. The research therefore has a purpose, or aspiration, in terms of helping to address global warming. Second, because leaders occupy a position towards the top of social hierarchies, and because such a position almost inevitably corresponds to higher energy consumption, the research problematises the large inequalities between individual per-capita emissions (Akenji et al., 2021; Nielsen et al., 2021; Oswald et al., 2020). These inequalities are embedded in the political and social power structures that have determined the limited progress on behaviour change to date (e.g. Fuchs et al., 2016; Isenhour et al., 2019). Such factors will be included within the research philosophy explored below.

3.2 Research worldview

Establishing a research worldview provides a framework within which to consider the nature of reality and how knowledge is created via research. The term “worldview” in this context is broadly synonymous with “paradigm” or “epistemology and ontology”. Four worldviews have been described upon which research can be based (Creswell 2013). These are: postpositivism, constructionism⁵, transformative, and pragmatism (see Table 3.1). The research in this thesis adopts a **pragmatic** worldview that includes elements of the others. A pragmatic worldview involves a focus on “what works” when considering the problem under investigation. For this thesis, that means examining how high-impact low-carbon behaviour change can be achieved, specifically focusing on the potential effects of leading by example. The topic is approached using a combination of constructionist methods (focus groups and interviews) and positivist methods (a survey experiment and a traditional survey). Indeed constructionist and positivist methods are not completely distinct, meaning there is some overlap between them in theory and in practice. Connected to the *what works* objective is an explicit focus on issues of power, politics and inequality in relation to different individual emissions levels and personal agency. It is the focus on power and inequality that

⁵ The terms “constructionism” and “constructivism” are synonymous in this context.

encompasses the transformative research worldview and the *critical* approach to leadership described in Chapter 2. There follows a more detailed summary of each worldview and how they will be applied to the research in this thesis.

Table 3.1 Research worldviews

Postpositivism	Constructionism
<ul style="list-style-type: none"> • Determination • Reductionism • Empirical observation and measurement • Theory verification 	<ul style="list-style-type: none"> • Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Transformative	Pragmatism
<ul style="list-style-type: none"> • Political • Power and justice oriented • Collaborative • Change-oriented 	<ul style="list-style-type: none"> • Consequences of actions • Problem centred • Pluralistic • Real-world practice oriented

Notes: Under each heading are the foundations of the worldview in terms of its focus, objectives, and methodological approach. Source Creswell (2013, p6)

3.2.1 Postpositivism

Postpositivism is a worldview that underpins what is often considered to be “tradition science” or “the scientific method”. Based on the natural sciences, it seeks to use empirical observation and objective measurement in order to access universal scientific facts about the world. Postpositivism takes a deterministic standpoint whereby a process of cause and effect can be examined using a reductionist approach to filter and define the factors involved. The “post” part of postpositivism reflects a movement beyond pure positivism, by recognising that all claims to knowledge are subject to revision should contradictory evidence come to light. Therefore the construction of knowledge according to this worldview involves testing theoretically-based hypotheses using suitable instruments to gather data, and then assessing that data using objective, rational, and value-free analysis. Postpositivism is most often associated with quantitative research methods that attach numbers to measured items allowing conclusions to be drawn based on numerical comparisons and assessments of scale. It aspires to reveal “*the objective reality that exists ‘out there’ in the world.*” (Creswell, 2013, p7)

Postpositivism therefore tries to partition and simplify the world into explanations of cause and effect by testing and verifying theories. It is perhaps already clear how this worldview is useful for the research in this thesis. The overall research questions laid out in Chapter 1 can be slightly rephrased as follows to fit a postpositivism worldview:

- could leading by example with high-impact low-carbon behaviour *cause* others to emulate such behaviour?
- what are the underlying processes that cause this to happen?

3.2.2 Constructionism

Constructionism represents a contrasting worldview to postpositivism. It asserts that the social world does not consist of objective facts and rules “out there” that can be observed and measured using the same approach as the natural sciences, but rather is continuously constructed and negotiated by people, and is “*in a constant state of revision*” (Bryman, 2016, p29). “*Social constructionists believe that individuals seek understanding of the world in which they live and work... Often these subjective meanings are negotiated socially and historically*” (Creswell, 2013, p8). Two key distinguishing factors of constructionism are immediately apparent in these quotes from Creswell and Bryman. First, constructionism highlights the ever-changing nature of the social world and therefore it questions the existence of enduring social facts. Second, this worldview emphasises that meanings are located within a social and historical context, which challenges the idea that autonomous individuals act independently and make “rational choices” in the present moment. This has important implications for theories of how behaviour change may occur by foregrounding the collective nature of meaning and behaviour. The constructionist outlook also suggests that researchers should allow meanings to emerge from their research subjects rather than imposing prior theoretical structures that may constrict potential findings and fail to represent subjects’ own understandings of the world. Thus qualitative research methods that focus on theory *generation* are consistent with a constructionist approach, rather than the theory *verification* approach favoured in the postpositivist worldview. The aim of constructionism is to reveal the complexities of the social world rather than seek to simplify and reduce social processes into a set of solid and testable rules (Bryman, 2016; Creswell, 2013).

Constructionism is a valuable perspective for the research in this thesis because leadership can be viewed as socially constructed, in the sense that leaders and followers are involved in a relationship where each party contributes to the leadership process of influencing and being influenced. Furthermore, there is often a significant element of self-reflection and meaning-making involved in both leading and following, as discussed at length in Chapter 2. So when addressing the question of whether leading by example will result in others emulating the leader, the socially negotiated meanings attached to a leader’s actions are

likely to inform followers' responses. In order to understand if and how leading by example works, therefore, the qualitative methods associated with constructionism are appropriate.

The interpretation of qualitative research involves an "interpretivism" approach, which asserts that there is a clear difference between studying people and studying objects, and "requires the social scientist to grasp the subjective meaning of social action". (Bryman, 2016, p26). A key aspect of the research in this thesis is the **subjective meaning of leaders' actions** as understood by those observing the actions.

Importantly, the theoretical and practical distinctions between postpositivism and constructionism are not absolute, such that the two worldviews can overlap during research (Creswell, 2013). For instance, qualitative methods associated with constructionism can also test theory, while quantitative methods, such as surveys, often seek to enhance meanings.

3.2.3 Transformative worldview

A transformative worldview has an explicit change agenda by addressing issues of power and injustice. It therefore extends its reach beyond the sole aspiration to produce knowledge. Research in this genre emerged in the 1980s and 90s and included feminist, racial, queer, and disability discourses and theory. It placed an emphasis on research methods that sought to include and empower those being studied in order to avoid reproducing exploitative and extractive power structures and to give research participants a voice and advance their interests (Creswell, 2013).

"A transformative worldview holds that research enquiry needs to be intertwined with politics and a political change agenda to confront social oppression at whatever level it occurs. Thus the research contains an action agenda for reform that may change lives of the participants, the institutions in which individuals work or live, and the researcher's life... Specific issues need to be addressed that speak to important social issues of the day, issues such as empowerment, inequality, oppression, domination, suppression, and alienation. The researcher often begins with one of these issues as the focal point of the study." (ibid, p10)

For this thesis, the research has transformative inclinations, while not replicating the approach in its entirety as laid out by Creswell above. In Chapters 1 and 2 I discussed at several points the very large differences between individual emissions and how these differences are mostly overlooked in climate discourse and policy. From a certain perspective, this omission can be viewed as an injustice because it avoids allocating

responsibility to those who have the greatest negative environmental impact via larger lifestyle emissions, which usually correlate with greater wealth. Leaders, in the form of politicians, senior business executives, and celebrities, are likely to reside in social strata with the highest lifestyle emissions, while also having the most agency to adjust their lifestyles, and having more power to bring about change or maintain the status quo (Nielsen et al., 2021; Otto et al., 2019; Stoddard et al., 2021). It is suggested that behaviour change policies have been mostly absent to date because the large differences between individual environmental impacts would be brought into focus by such policies, and such a focus challenges the immediate interests of those in power or those they represent. Exploring elements of this process as it relates to leading by example is one of the aspirations of the research and, as such, represents “a political change agenda”. This is relevant to the research questions because differentials in lifestyle emissions may impact *if* and *how* leading by example works. This is because leading by example with high-impact low-carbon behaviour involves followers observing the behaviour and inferring what it means (if anything) for the followers’ own behaviour and society’s response to climate change. During this process of meaning-making, a leader’s other lifestyle habits and environmental impact may affect whether the leader’s behaviour is viewed favourably, should be emulated, or can be dismissed or ignored by observers. Considerations of justice, equity and fairness may be integral to this process of meaning making.

The research in this thesis can be said to depart from a full-throated transformative approach in that it only indirectly seeks to raise up those who suffer due to inequality. Rather, the research attempts to shine a light upwards towards the responsibilities of leaders, by revealing the extent to which they may have power to bring about change via leading by example, should they choose to use it.

3.2.4 Pragmatic worldview

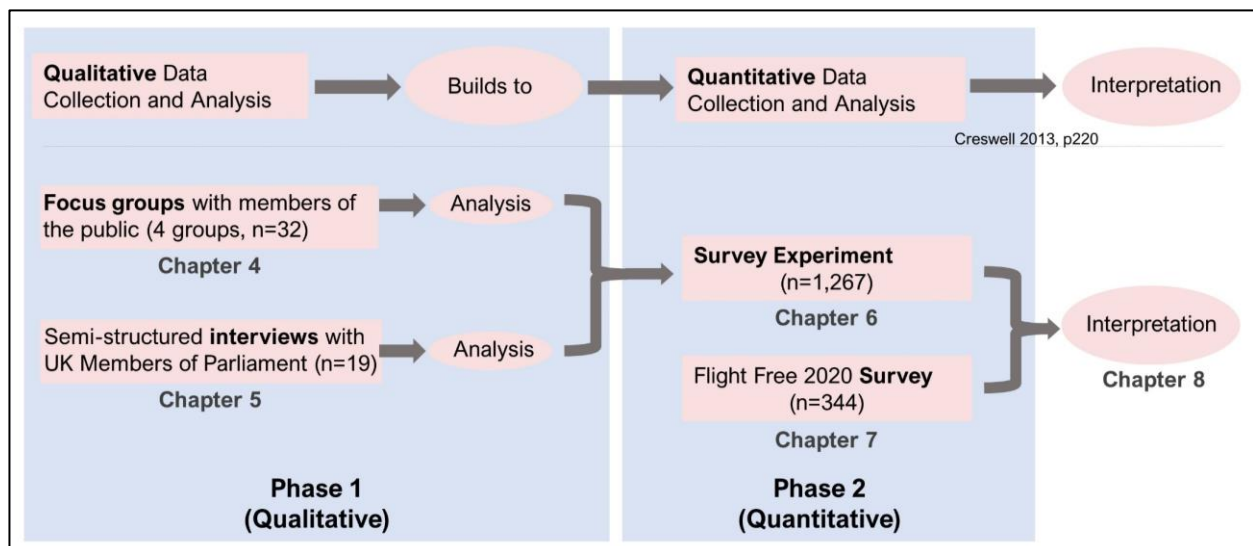
The preceding sections explained the relevance of postpositive, constructionist and transformative worldviews. Combining elements of each, a pragmatic worldview is adopted in this thesis seeking to shed light on “what works”. Broadly I adopt a “non-Cartesian social ontology” that seeks to avoid rigid polarities of: social structure and personal agent, system and actor, collective and individual (Creswell, 2013; Waquant, 1992). This rejection of duality also underpins the theory of “embodied leadership” as explored in Chapter 2.

3.3 Research design

A pragmatic worldview lends itself to a **mixed methods** research design where constructionist, qualitative data gathering is combined with positivist, quantitative methods and statistical analysis. The structure and ordering of this combining process can vary depending on the research questions and theoretical approach. For instance mixed methods data gathering phases can take place in parallel or sequentially according to how each set of data relates to the others (Creswell, 2013).

The current research adopts an “exploratory sequential mixed methods approach” as depicted in Figure 3.1. This comprises a qualitative phase (Phase 1) using **focus groups** with members of the public, and **semi-structured interviews** with leaders, specifically UK

Figure 3.1 Research design



Notes: The top section of the diagram shows the “exploratory sequential mixed methods” design as described by Creswell (2013). The bottom section shows how this design is applied in the current research, with respective thesis chapters indicated for each stage of evidence.

Members of Parliament. These two complementary datasets are used to inform the design of **a survey experiment** that aims to measure the effectiveness of leading by example, by testing various hypotheses based on existing theories of social influence and leadership, as well as incorporating findings from Phase 1. In addition to the survey experiment, Phase 2 also features a **Flight Free 2020 survey** involving participants who had signed a pledge not to fly for a year, which is viewed as a form of high-impact low-carbon behaviour change. Table 3.2 shows how the research questions are addressed by each of these four stages of data gathering. The choice of these research methods is considered further below.

This design was considered appropriate for the **exploratory** nature of the research. While theories of leadership and social influence are well developed, as laid out in Chapters 1

and 2, they have not previously been examined in relation to leaders adopting high-impact low-carbon behaviour. Prior to testing elements of these theories therefore, it was appropriate to explore the social dynamics between leaders and followers when leaders are seen to adopt overt and specific low-carbon behaviours.

The process of leadership involves a relationship and cooperation between leaders and followers. To explore this relationship, Phase 1 of the research sought to shed light on how each party perceives the issue of leading by example in relation to climate change, and what meanings they construct. The data from the focus groups and interviews was analysed with reference to the theories of leadership and social influence. Synergies and contrasts between the focus group and interview data were identified. This process provided a rich body of data on *how* and *why* leading by example might or might not “work”. Using these insights, an instrument (the survey experiment) was designed to measure various effects of leading by example and test if and how the process might take effect. The experiment design allowed for the testing of several exploratory hypotheses about how leading by example may trigger a response in followers and society more widely.

The Flight Free survey was used in parallel with the survey experiment to provide additional quantitative data based on actual, rather than theoretical, behaviour change. Rather than testing a-priori theories in a “laboratory” setting, this stage of data gathering was largely

Table 3.2 Research questions addressed in each stage of data gathering

	Focus groups	MP Interviews	Survey Experiment	Flight Free Survey
RQ1: How do the public interpret the actions of leaders who adopt visible high-impact low-carbon behaviours?	Y	N	P	P
RQ2: Are people more willing to adopt high-impact low-carbon behaviours if they observe a leader modelling such behaviour first?	P	N	Y	Y
RQ3: How do leaders themselves view leading by example with visible high-impact low-carbon behaviour, and do they think it could be effective?	N	Y	N	N
RQ4: If a leader adopts visible high-impact low-carbon behaviour, how does this affect people’s perceptions of the leader? How do these perceptions affect the extent to which people follow the leader’s example?	P	N	Y	P
RQ5: Does leading by example with high-impact low-carbon behaviour have the potential to stimulate a faster societal response to climate change?	Y	Y	Y	Y
Research question answered in dataset?	Y	Yes		
	P	Partially		
	N	No		

exploratory, examining the extent to which people who have changed their behaviour were influenced by others to do so, and the form this influence took. This provided the opportunity to triangulate findings from the focus groups, interviews and survey experiment. For instance the mixed emotional reactions to leaders' low-carbon behaviours in the focus groups were compared to respondents' emotional responses to influential figures in the Flight Free Survey. Findings from all four stages of data collection were synthesised to arrive at: conclusions about the potential effects of leading by example; recommendations to leaders; and suggestions for future research.

3.4 Methods

3.4.1 Phase 1: Focus groups

Focus groups were considered optimal for this exploratory research due to their suitability for "*studying how meanings, interpretations and narratives are socially constructed during group interactions*" (Denzin and Ryan 2007; Caillaud and Flick 2017: 157). Focus groups are also used widely to inform political and corporate decisions by exploring public opinions and attitudes in a discursive setting (Stewart & Shamdasani, 2014), and so their use in this research allowed more positivist conclusions to be drawn about what low-carbon action from leaders might or might not work to bring about similar low-carbon behaviour from followers, to prompt discussion, or to increase trust. Group processes encountered in focus groups are sometimes considered biases, but they were viewed to have a specific benefit in this research because leadership is often experienced and discussed in a group context (Caillaud & Flick, 2017).

Alternatives to focus groups were considered, such as interviews with individuals and exploratory surveys. Interviews may have allowed for more in-depth and personal data to be gathered, perhaps avoiding tendencies for group members to moderate or self-censor their views to avoid conflict or social judgement (Bryman, 2016). However, as the topics being discussed were not particularly sensitive it was judged that the focus group setting would provide enough opportunity for relevant themes of leadership to be explored. In addition, the focus groups would allow for an efficient engagement with a relatively large number of participants (n=32) during this exploratory phase. A survey could have been designed using open and closed questions, however, this would have involved prescribing research themes in advance and imposing a structure that was likely to lead respondents and prompt social desirability effects (Bryman, 2016). So, while a greater number of people could have been engaged using a survey, this was not deemed suitable for the initial exploratory phase. However, a short survey was included at the end of the focus groups to provide another

measure of participants' responses to the leadership examples provided in the cue materials, thus adding a quantitative element to the qualitative data.

Phase 1: Semi-structured interviews with politicians

UK Members of Parliament were chosen as the most appropriate leaders to investigate in this phase of the research. The literature laid out in Chapters 1 and 2 established that politicians hold a particularly relevant position with relation to climate change and low-carbon behaviour. As legislators and representatives of governments, politicians are in a position of responsibility to steer society's response to climate change, engaging in discourse and making decisions about the type of solutions and laws that are appropriate. In this sense MPs are the physical, personal embodiment of the institutions that are responsible for addressing climate change. They are also perceived as the ruling elite. In a 2019 survey asking members of the UK public who they considered to be members of the "ruling class", MPs came out top, with 68% believing they fell into this category, compared to 56% for CEOs in second place, and 52% for bankers in third place (YouGov, 2019). Previous research has shown that the public wants clear leadership from government, but what this desire for leadership means for individual leader behaviour has not yet been explored. Action by individuals is a key area of contention in relation to climate solutions because personal behaviour is tied up with issues of individual responsibility and freedom – both of which are central to politics and culture. Because politicians reside at the fulcrum of law-making and setting the standards for society, they were deemed the most appropriate group of leaders to research.

As explored in Chapter 1, politicians have to date generally attempted to "tame" climate change so as to present a manageable and unthreatening story to the public that does not involve disruption to society in general or lifestyles in particular (Jordan et al., 2022; Willis, 2017, 2020). As such, politicians may feel it is inappropriate for them to attempt to send strong signals about preferred low-carbon behaviour via their own actions. These subjects were addressed in the interviews. Semi-structured interviews were chosen because they allow potentially sensitive topics to be explored in a confidential setting. This was important due to the public-facing nature MPs' jobs and the caution they may feel about stating certain opinions on the record.

3.4.2 Phase 2: Survey experiment

Building on the evidence from the focus groups and interviews, a survey experiment was designed to probe the processes through which leading by example might result in increasing willingness among the public to emulate the leaders' behaviour. A survey

experiment was chosen as a suitable instrument that could build on the constructivist findings from Phase 1 by using a postpositivist approach to explore cause-and-effect mechanisms. Podsakoff and Podsakoff (2019) make a strong case for using experimental methods in leadership research, and such experiments are common in environmental psychology research (e.g. Steentjes et al., 2017; Whitmarsh and Corner, 2017).

The survey tested 12 hypotheses based on the behavioural literature and the findings from the exploratory focus groups and interviews. The high number of hypotheses reflects that the survey experiment itself is exploratory because of the novel nature of the research area. It probes various themes of leadership, morality, identity, and people's feelings about the future in the context of climate change. In view of the number hypotheses, they were placed into three categories:

- **Category 1:** hypotheses relating to respondents' **willingness to act** by adopting low-carbon behaviours
- **Category 2:** hypotheses relating to **perceptions of leaders** who do or do not lead by example
- **Category 3:** hypotheses relating **personal perspectives** such as pro-environmental identity, "climate morale", concern about climate change, and support for climate action

Two primary hypotheses were tested in the survey experiment, falling within Category 1:

Hypothesis 1: Leaders leading by example with high-impact low-carbon behaviour increase respondents' willingness to adopt such behaviour, compared to leaders who do not lead by example.

Hypothesis 2: Leading by example with high-impact low-carbon behaviour increases respondents' willingness to adopt such behaviour, compared to "leaderless" statements about the need for lifestyle change.

As indicated by these hypotheses, respondents' willingness to adopt high-impact low-carbon behaviour was the primary dependent variable in the experiment. A number of secondary dependent variables were also included relating to perceptions of the leader and how these differ when the leader is seen to lead by example or not. These variables tested well-established metrics from the leadership literature, for instance effectiveness, warmth and competence, trustworthiness, and popularity. Chapter 6 contains a complete description of the design and implementation of the experiment. In order to maintain the integrity of the

experiment, the survey design and hypotheses were registered on the Open Science Framework (OSF) after its design and prior to implementation. The documentation for the OSF registration can be found in Appendix C.

3.4.3 Phase 2: Flight Free 2020 survey

The focus groups, MP interviews and survey experiment comprise an interlinking mixed methods research design that progresses from exploratory to explanatory data on how leading by example might be effective. This approach probes the meanings people attach to leadership and leaders' behaviour, before investigating potential cause-and-effect relationships using experimental methods. A limitation of these phases of data gathering is their "ecological validity" because they are not dealing with actual behaviour change (Bryman, 2016). In order to bridge this gap, a further body of data was gathered using a survey of people who signed a pledge not to fly in 2020 to avoid the environmental damage of flying. The "Flight Free" pledge was first initiated in Sweden in 2019, and taken up in the UK and other countries in 2020. By choosing not to fly, these people had taken action to avoid a high-carbon activity because of climate change. The survey was designed to explore their motivations for doing so, and the extent to which they had been influenced by other people, including those that could be classed as "leaders", along with friends, family and colleagues. Nine post-hoc hypotheses about the influence of the leaders were tested. This data was used to triangulate the findings of the focus groups and survey experiment, adding extra validity to conclusions about the potential of leading by example and "what works".

3.5 Critical approach

The transformative worldview described earlier in the chapter has noticeable similarities with a critical approach to research, in that both have an explicit change agenda. In Chapter 2 I suggested that, in simple terms, climate leadership to date can be said to have failed because during three decades of leaders at the highest levels advocating for climate mitigation, emissions have continued to rise towards what many are describing as a crisis point. With this as a starting position, the current research adopts a critical approach drawing on critical theory and based on the five broad principles laid out by Death (2013). These principles are: researcher reflexivity; a focus on power differentials; conflicts and contradictions; a big picture analysis; and the acknowledgement of normative judgements within the research. I will briefly address each of these principles.

Researcher reflexivity is required because researchers are "*present within both the social world under study and the text produced through that study*" (ibid p5). Researchers

themselves can wield power through their research choices and their potential to contribute to what is considered knowledge, and so have a responsibility to be open about their potential biases. For instance, the particular themes and evidence to which I pay attention are informed by literature but also involve personal judgements and the prioritisation of some results over others, which may involve normative and emotional responses of which I am more or less aware. I elaborate on this in the section of *Motivation* below, and in Chapter 8. Reflexivity is particularly relevant in relation to the fourth principle of a critical approach: **normative judgements**. I am approaching the research from the standpoint that very significant behaviour change is likely to be required to address climate change (Creutzig et al., 2022) and that leaders' current behaviour may be serving to slow down widespread behaviour change among the public while simultaneously maintaining power structures and inequalities that perpetuate a destructive status quo. This standpoint clearly has deep implications for the design of the research, the analysis of the results, and indeed for readers' interpretation of the work. Throughout I have strived for reflexivity relating to my own thought processes, prejudices and normative aspirations, and to make these explicit as far as possible, with a view to allowing readers of the research to interpret the results in full view of my research standpoint. While these normative judgements are explicit, I attempt very deliberately not to impose conclusions onto the data to fit normative aspirations. Central to this, particularly with regard to the qualitative data gathered in focus groups and interviews, and open questions in the surveys, is to explore a "null hypothesis" that leading by example is *not* a significant contributor to low-carbon behaviour change or indeed that it could be counter-productive. Objectivity therefore remains an aspiration of the research, with an acknowledgement that it is unattainable in a critical approach (Hammersley, 2011). This area is explored further in the next section.

The focus on **power differentials** has already been explored in Chapters 1 and 2 and mentioned above. Further to this, a critical perspective is applied to the "flat" view of society that currently sees consumers treated as a mass bloc rather than being disaggregated according to individual levels of personal consumption and the environmental impact of that consumption.

The research will also seek to explore **conflicts and contradictions** of climate leadership. One of the reasons climate change has been referred to as a "super-wicked" problem is that those with most power to solve it simultaneously have the most responsibility for causing it (Levin et al., 2012). Although they may be undertaking work that aspires to a low-carbon future, many leaders' high-consumption lifestyles can be viewed as simultaneously working

against their stated goals in the present (Nielsen et al., 2021; Otto et al., 2019). This is the suggested “contradiction of leadership” explored in Chapter 2. Other conflicts and contradictions are identified during analysis of the data.

3.5.1 Theory-driven research

While the research in this thesis is exploratory, it is also theory driven. The overarching theory to be tested is that leading by example with high-impact low-carbon behaviour carries meaning and can result in emulation. Underlying this overarching theory are sub-theories of leader influence and credibility enhancing displays which may help to explain how leading by example works in this context, if indeed it does work. This theory-driven perspective, when combined with the critical approach described above, necessitates some important considerations in relation to the use of the qualitative methods in Phase 1 of the research, particularly the need for researcher reflexivity and care to avoid imposing the theory on the data and prevent “*a particular framework from becoming the container into which the data must be poured*” (Lather quoted in Creswell, 2013, p67, emphasis added). Conducting qualitative research with strong a-priori theories and critical positions runs a risk of reductionism which “*aims to reduce complex phenomena to more fundamental, underlying (usually material) causal factors. These tend to be seen as pre-existing, self-contained and as such not subject to feedback loops*” (Rogers and Willig, 2017, p11). To mitigate the tendency towards such reductionism, the analysis of the focus groups and MP interviews will be presented in both a broad brush and a detailed fashion with the intention of conveying to the reader the overall themes and narratives of the data, along with a more granular analysis of the specific data relating to the research questions (Stewart & Shamdasani, 2014).

3.5.2 Researcher motivation and further reflexivity

The research project presented in this PhD thesis leads on directly from previous research I undertook for a Masters Degree dissertation in 2017. The dissertation also explored leader influence and was titled: “*A counter-narrative to carbon supremacy: Do leaders who give up flying because of climate change influence the attitudes and behaviour of others?*”. That project was conceived because I had been personally influenced by a high-profile climate scientist, Professor Kevin Anderson, who had given up flying because of climate change and who was quite outspoken about the contradiction, as he saw it, between climate concern and continuing with elective high-carbon activities, flying in particular (e.g. Anderson, 2013). This contradiction struck a chord with me because, during my Masters studies, I too felt a dissonance between my climate concern and my previous frequent flying lifestyle. It also seemed very strange to me that no immediate plan was in place to reduce emissions from

aviation in particular. On the contrary, emissions were (and still are) projected to rise dramatically over the coming decades, often being described as “hard to abate” (e.g. Shell, 2022) despite the obvious solution of people flying less.

The aligning of words and actions exhibited by Anderson and others gave me clarity over my own behavioural choices, and at that point I stopped flying, a position I have maintained so far. I was interested to know how widespread such behavioural influence is and what form it takes, which led me to conduct the dissertation research. The results indicated that many people who know someone who has given up flying because of climate change report that their attitudes and behaviour have changed to some degree because of the leaders’ non-flying stand. The effects appear to be greater if the leader is high-profile (Westlake, 2017). Several factors became apparent during this project. First, very little research has been done on the knock-on effect of leaders adopting high impact low-carbon behaviour because of climate change. Second, such behaviour appears to have a potentially strong effect on others. Third, despite the lack of research, there appears to be considerable interest in the area of leading by example with high-impact low-carbon behaviour. Fourth, there is considerable push-back in some quarters against a focus on individual behaviour change because it is argued to be divisive, distracting, and counter-productive (Mann, 2021; Mann & Brockopp, 2019; Mundy, 2022). Fifth and finally, the very large differences between individual lifestyle emissions receive very little attention in policy and political circles. This seems likely to be a political omerta that reflects the power and interests of those involved. Taken together, these factors provide the motivation for the research in this thesis.

3.6 Conclusion

This chapter has outlined the reasoning behind the pragmatic and critical research worldview adopted in this thesis, and the mixed methods chosen to fulfil the research objectives. The next chapters will lay out the two phases of the research: the initial exploratory phase comprising focus groups (Chapter 4) and MP interviews (Chapter 5), and the subsequent quantitative phase comprising the survey experiment (Chapter 6) and the Flight Free survey (Chapter 7).

Chapter 4 Focus groups

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“If they're in that position of power ... I'd almost rather they didn't stop flying and they got everybody else to stop flying, but then everyone would call them a hypocrite...” (Female, FG 3).

4.1 Introduction

This chapter presents the evidence from four focus groups conducted with members of the public. The focus groups were the first stage of data collection in the exploratory phase of the research, aiming to delve into the primary research question:

- **RQ1:** How do the public interpret the actions of leaders who adopt visible high-impact low-carbon behaviours?

The area of study is novel, meaning that very little (if any) data exists that directly addresses this research question. While there are large bodies of literature on both leadership and pro-environmental behaviour change, these subjects have not previously been brought together in the context of high-impact low-carbon leading by example by individual leaders. Chapters 1 and 2 laid out the overall context of the research and presented relevant theories. In relation to these theories, the focus groups were also used to begin to explore further research questions:

- **RQ2:** Are people more willing to adopt high-impact low-carbon behaviours if they observe a leader modelling such behaviour first?
- **RQ4:** If a leader adopts visible high-impact low-carbon behaviour, how does this affect people's perceptions of the leader? How do these perceptions affect the extent to which people follow the leader's example?
- **RQ5:** Does leading by example with high-impact low-carbon behaviour have the potential to stimulate a faster societal response to climate change?

The focus groups were run in two halves. The first half featured a general discussion on the topic of “What is leadership?”, followed by four fictitious quotes from leaders who had adopted a high-impact low-carbon behaviour because of climate change. These leaders were: an MP flying less; a company director giving up meat; a celebrity choosing to have only one child; and a Local Community Leader choosing to live car free. The second half of the focus group consisted of short extracts from real media stories relating to leader behaviour and the environment. These stories featured: an MP taking a helicopter ride to a climate event; Greta Thunberg crossing the Atlantic by boat to reach a climate conference; Prince Harry and Meghan Markle saying they will have only two children because of the

environment, and “BirthStrikers” saying they will have no children; and the Pope being urged to go vegan by an environmental campaign group.

4.2 Procedure

Two focus groups were held in Cardiff, Wales, and two in London, England. As leadership in this context was neither considered a sensitive topic, nor specific to a certain sector of society, heterogeneous focus groups were chosen in order to seek a variety of perspectives and attitudes (Stewart & Shamdasani, 2014). Recruitment was conducted face-to-face in Cardiff city centre and the Kings Cross area of London, along with the use of flyers that were left in public areas such as libraries, community centres, as well as at the reception of company buildings. A particular segment of the population was not being sought, so face-to-face recruitment was deemed an appropriate method that would facilitate the participation of members of the public who might not ordinarily sign up to a focus group recruitment scheme or answer an advert. Participants were invited to take part in research about “Leadership and the Environment”, with little other information given in order to avoid pre-empting the discussions. The flyers, along with information and consent forms that were provided to participants, can be found in Appendix A. Participants for focus groups 1 and 2 were given an incentive of £30, and those in groups 3 and 4 were given £35 because the latter groups were slightly longer due to an additional discussion at the end, which is explained below. For each group, a reasonably even gender and age balance was achieved. Table 4.1 shows the demographics of the four focus groups.

Table 4.1 Focus group participants

Focus Group		Number of participants	Ages	Mean age	Mean income (approx)	Income brackets
1	Total	6				
	Female	3	26 - 32	35	£37k	3 x £15k-30k, 2 x £30k-£45k, 1 x £80k+
	Male	3	29 - 47			
2	Total	9				
	Female	4	20 - 52	32	£13k*	7 x £0-15k, 1 x £15k-£30k, 1 x £30k-£45k
	Male	5	20 - 58			
3	Total	8				
	Female	5	24 - 30	36	£32k	3x £15k - £30k, 5 x £30k - £45k
	Male	3	26 - 70			
4	Total	9				
	Female	5	24 - 69	33	£32k	3 x £15k - £30k, 5 x £30k - £45k
	Male	4	24 - 37			

Notes: Approximate mean income was calculated using the mid point of the income brackets. *This figure of £13k may be an underestimate as it is likely that participants have an income towards the top of this bracket.

4.2.1 Cue materials design

This phase of research was designed to examine the responses and meanings participants attach to leaders exhibiting four “high-impact” low-carbon behaviours: not flying, a plant-based diet, ceasing car use, and having one fewer child – actions that have been shown to considerably reduce a person’s total carbon footprint (Dubois et al., 2019; Wynes & Nicholas, 2017b). Two sets of cue materials (vignettes) were used to provide participants with a wide range of stimulus. Set 1 featured a fictitious quotation from four different leaders with each leader describing their reasons for adopting one of the high-impact low-carbon behaviours. The four fictitious scenarios were designed to explore abstracted ideas about leadership, allowing participants to engage with their conceptions of the leaders and the actions in question. Set 2 featured five real media stories taken from the previous six months showing high-profile figures exhibiting pro- or anti-environmental behaviour. The “real world” media stories were included to allow for comparisons and reflections on the responses to the fictitious quotations in Set 1. It is contended that most people’s engagement with political leaders, business leaders and celebrities will occur via such media stories and quotes in the media, meaning these cue materials are suitable for prompting relevant discussions. The vignettes were presented in turn on pieces of paper. They can be found in Appendix A. The sources of the media stories were not included in the cue materials. Some participants did identify and comment on the source, but only for one of the stories.

Cue materials Set 1: statements of actions from leaders

The language used in each leader statement was designed to avoid rhetorical, charismatic or persuasive characteristics that may have been perceived as an explicit “call to action”. Using quotes from non-partisan, anonymous, fictitious leaders was intended to reduce responses from participants based on the “framing” of the information provided, as often happens with stories in the media (Cappella & Jamieson, 1996).

Vignette 1

Member of UK Parliament (MP) says: "Climate change is a serious problem, and in April the UK Parliament declared a Climate Emergency. So I am going to stop flying – except for real emergencies. Sometimes it might be a challenge, but I think it is necessary. I am also trying to reduce my overall carbon footprint in other ways."

Vignette 2

Director of a big company says: "Climate change is a serious problem. Our business is trying to be more sustainable, and personally I am adopting a plant-based diet because of

the environmental impact of meat production. I like meat so it may not be easy, but I think it's necessary. I am also trying to reduce my overall carbon footprint in other ways."

Vignette 3

Celebrity says: (e.g. TV presenter, actor, musician, sportsperson) "Climate change is a serious problem. My partner and I have thought about having a second child, but we are choosing not to because of the environment. It is a big decision, but we are happy it is the right thing to do. We are trying to reduce our carbon footprint in other ways too."

Vignette 4

Local community leader says: "Climate change is a serious problem. Because of this, I am giving up my car and will use public transport as much as possible. The car is really useful, but this feels like the right decision. I am trying to reduce my overall carbon footprint in other ways too."

Cue materials Set 2: Real media stories

The actual stories used can be seen in Appendix A.

Media example 1

Headline: Deputy PM squirms as he admits flying to Manchester to discuss climate change

Subhead: David Lidington took a government helicopter to the northern city

Body text: David Lidington was left squirming after he was challenged on taking a helicopter on a visit to discuss climate change. The de facto Deputy PM was visiting central Manchester to discuss the Northern Powerhouse and reducing carbon emissions.

Picture with story: portrait of David Lidington looking awkward.

Media example 2

Headline: Climate activist Greta Thunberg will use eco-friendly yacht to sail to New York for UN summit

Body text: Greta Thunberg, the Swedish teenage climate activist who prompted a global movement, will embark on a two-week journey from the UK to the US on a high-tech racing yacht next month in order to attend a UN climate summit without resorting to plane travel.

Picture with story: portrait of Greta Thunberg

Media example 3 – (two stories were discussed concurrently)

Story 1

Headline: Prince Harry says he is only having two children “maximum” for the sake of the planet

Body text: Prince Harry has said he plans to have two children at the most, as he revealed his increasing concerns for the future of the Earth.

Picture with story: portrait of Meghan Markle and Prince Harry (holding their new baby)

Story 2

Headline: BirthStrikers: meet the women who refuse to have children until climate change ends

Subhead: A movement of women have decided not to procreate in response to the coming ‘climate breakdown and civilisation collapse’. Will their protest be a catalyst for change?

Picture with story: portrait of a BirthStriker

Media example 4 – Pope and World Leaders have moral obligation to go vegan

Headline: World leaders ‘have a moral obligation to go vegan’

Body text: Many of our world leaders have remained almost silent about the UN warning that we have just 12 years to halt a climate catastrophe. That’s why the Million Dollar Vegan campaign offered \$1m to charity if Pope Francis chooses to eat only plant-based foods during Lent, and encourages Catholics around the world to do the same.

Picture with story: portrait of the Pope

After the first two focus groups were complete, an initial analysis of the data suggested it might be interesting to provide participants with information about the relative impacts of each behaviour being discussed, because some participants had expressed uncertainty about the environmental consequences of the behaviours. In order to retain consistency across groups, an infographic was introduced and discussed after the final media example in groups 3 and 4.

4.2.2 Structure and moderation of focus groups

Each piece of cue material was provided in turn by the moderator and the discussion was initiated with a simple phrase such as, “What is your reaction to this?”. The discussions for each vignette or media story lasted for around 10 minutes each. The moderator took a

largely non-interventionist approach as appropriate for exploratory research so as not to lead participants untowardly (Stewart & Shamdasani, 2014).

4.2.3 Analysis of focus groups

Thematic Analysis (TA) was chosen as an appropriate technique for pragmatic research because it can simultaneously support both positivist and social constructionist epistemologies (Braun & Clarke, 2006; Clarke & Braun, 2017). This allowed the research to produce recommendations for steps leaders might take if they wanted to lead by example by adopting low-carbon behaviour thus tending towards a “pragmatic/interventionist” outcome for the research, while also allowing for “critical/emancipatory goals” in the shape of insights into new conceptions of what might constitute climate leadership (Fairhurst and Grant, 2010, p177).

The focus groups were transcribed by the researcher and a Thematic Analysis process undertaken as laid out by Braun and Clarke (2006): data familiarisation, generation of initial codes, search for themes, review themes, define/name themes, report production. The software programme NVivo was used to aid the coding and organisation of themes. There was considerable consistency across the focus groups, with very little redundant or irrelevant data. After the initial generation of themes, a short summary report of the focus groups was produced that included the themes identified from each of the eight 10-minute sections. This summary can be found in Appendix A.

4.3 Results

4.3.1 Discussion on “What is Leadership?”

The focus groups began with a general discussion about leadership. The functions of leadership cited by participants included providing a direction of travel, a vision, securing group cooperation, motivating followers, and making decisions. They discussed the natural basis for leadership and followership, leader charisma, the love/hate relationship between leaders and followers, and the importance of leading by example, which participants linked directly to the legitimacy, credibility and authority of leaders. This was also framed from the opposite standpoint: an absence of leading by example was associated with a lack of legitimacy, credibility and authority. Participants’ ideas of leadership broadly concurred with the leadership literature in Chapter 2 (Gill, 2011; Northouse, 2015; Western, 2019).

4.3.2 Interpretation of leaders’ actions

The idea that participants should consider or discuss whether they themselves might adopt the action displayed by the leader was not suggested in the cue material nor mentioned by

the moderator. Participants were simply asked: “What is your response to this?”. Therefore any consideration by participants of what the leaders’ statements or actions might mean in terms of participants’ own behavioural choices or the behaviour of people in general was inferred by the participants. In fact, much of the discussion *did* revolve around such considerations of personal behaviour generally, not just the leaders’ behaviour. This indicates that a simple statement from a leader about their own action and reasoning prompted participants to reflect on personal behaviour and contemplate whether emulation of the leader was appropriate or not. This suggests an important communicative effect of leaders’ personal behaviour.

4.3.3 Collective effort, and credibility

The following overtly positive comment was the first response in focus group 3 to the scenario of the MP saying that they would give up flying because of climate change. It represents a trusting response to the statement and seems to indicate the MP is viewed as credible by this participant.

“Well I think it's a great idea. It's a great way to try to solve this problem, this unsolvable problem that is climate change, doing every little thing that we can do, every individual.” (Female, FG3)

This comment suggests that the MP’s action communicated a “*great idea*” and a solution to “*this unsolvable problem*”. The individual action described by the MP has been interpreted by the participant as a “*thing that we can do, every individual*”, thus providing inspiration for action that others can also take collectively. Other participants also said the MP’s actions had the potential to be emulated by others.

“It is good that they are doing personal changes that would ripple out to the wider population.” (Male, FG1)

“And I think that doing it personally, people might think... ‘ok well I could... these are actionable steps’ and yes it’s not going to make a major difference but I think it keeps people more engaged if [they see] things that you could do.” (Female, FG1).

Several leadership themes are in evidence in these comments. The positive response to “*personal changes*” by the leader clearly links to the potential “*ripple*” effect of leading by example. The signalling effect of behaviour is apparent with the leader’s action being a form of communication sending the message that “*these are actionable steps*” that might “*keep*

people engaged". This also suggests there is a motivational function to the leader's action that increases a sense of agency among followers. The language of *doing* in the above quotes ("*doing every little thing*", "*doing personal changes*", "*doing it personally*") emphasises the embodied nature of the leaders' actions, as distinct from what they might be saying or planning.

Participants also made broader connections to the leaders' action. For instance in the following quote the participant spontaneously connects the action of the MP with Greta Thunberg's boat trip across the Atlantic, where the Swedish climate campaigner conspicuously avoided flying. At this stage of the focus group, Thunberg had not been mentioned and participants were not aware that a media story involving Thunberg would be used in the second half of the focus group.

"I think this links quite nicely to Greta Thunberg. Like she's stopped flying and she's just left on the boat from Plymouth to America and I think that she's really, well for me personally, I never really felt, and I feel quite stupid really, that flying was that bad, and then when she started talking about it and I saw it all the time on my social media, it definitely showed me more that we need to stop flying." (Female, FG2)

This reveals the clear communication to this participant via Thunberg's behaviour that a previously acceptable social norm of flying is problematic. Furthermore, by connecting the MP's statement to Greta Thunberg, this participant highlights how behaviour from one person can be associated with another person or group, potentially weakening group divisions and increasing the credibility of the statement or action. In this case, the MP's action which "*links quite nicely*" may be viewed more favourably by the young, female focus group participant by association with Greta Thunberg, of whom the participant spoke favourably later in the discussion. It's worth noting that this sort of association could have a reverse effect, for instance if the MP's actions are associated negatively with environmental campaigners (which is how Thunberg is viewed by some).

Leading by example was mentioned specifically by participants in relation to the MP's actions, and this was considered to add to the leader's accountability:

"We were talking about leading by example [previously] and once it's out there [the leader's declaration of personal action] then at least they're accountable and they can be held to this, and it's somebody actually saying 'I'll do something'. ... Somebody's got to start somewhere I think, and even

if it's a little bit flimsy and we don't trust anyone in Parliament about anything anymore, at least somebody's making a step which I consider to be in the right direction.” (Female, FG4)

In this extract the participant suggests it is significant that the leader's action is a commitment to which they can be held “accountable” later, with commitment being one of the constituents of leader credibility. There is also approval that the leader is actually *doing* something, presumably in contrast to perceived leader inaction. Again, the embodiment of action seems to send important signals. However, the commitment here is considered to be “a little bit flimsy”, reflecting the general attitude among respondents that the leaders' statements were not particularly inspirational or charismatic. The topic of the language used by leaders will be returned to below.

The next participant approves of the link between a particular problem (climate change) and the MP's choice of behaviour (not flying where possible), and implies that the link is based on an ethical stance from the leader – something the participant would like to see more of. This extract points towards the moral dimension of behaviour and the significance of leaders embodying ethical values.

“They [the MP] do seem to have an internal nexus. An external event is going to influence their behaviour, individually. Personally I'd like to see politicians on both sides of the pond behaving more ethically, and saying things that you can believe” (Male, FG1)

The participant also appears to be making a link between “behaviour ethically” and “saying things you can believe”, thus seemingly connecting embodied action to trustworthiness. The following extract shows how the statement from the company director to adopt a plant-based diet could give extra credibility to their claims that the company itself is being more sustainable.

*“I think it's nice to see what they are personally doing in addition to what their business is doing because I think if it just had the business line [“Our business is trying to be more sustainable”] you'd think, “Ah it's just a tickbox exercise,” whereas if you're making a change in your own life as well, whether or not they're actually doing that we don't know, but I think it feels like they have a bit more conviction in what they're saying.”
(Female, FG3) (Others: “mmm, mmm” [in agreement])*

The suggestion here is that “*making a change in your own life*” adds “*conviction*” and makes other claims by the leader more credible because they are personally embodying their company’s policy. The next extract raises the idea that the effect of the leader’s action may depend on the level of identification between the leader and followers. This was in response to the company director vignette:

“It might depend on who they're talking to as well. If that was a message for their staff ... they might find it a bit more personally inspiring that their director is looking at their own personal carbon footprint.” (Male, FG3)

This introduces the important theme of how followers identify with leaders, which will be returned to below.

4.3.4 Credibility and sacrifice

The following analysis explores to what extent participants view the actions in the scenarios as representing a personal sacrifice by the leaders, and what effect perceptions of sacrifice might have. The word “sacrifice” was raised spontaneously in all focus groups in relation to the vignettes without prompting from the moderator. It tended to arise when participants were comparing the actions of one leader to another. The following comments about the community leader giving up their car shows how the level of effort, personal cost, or sacrifice involved has an impact on how the action is viewed.

“It does feel quite inspiring because that is obviously a big sacrifice this person is making [to give up their car]. Yeah, I don’t know, maybe it’s just because I think it’s a less sensitive thing than saying you’ll only have one kid (slight laugh).” (Female, FG1)

“It feels like a bigger sacrifice for some reason (Other: “yeah”), I don’t know if it’s because to me community leader reminds me of... I grew up in a smaller town so that could be the vicar or something like that... As opposed to the second child or not taking flights unless it’s an emergency, this feels like a bigger gesture.” (Female, FG4)

*“This would impact your everyday life wouldn't it, like every day.”
(Male, FG4) (Others: “yeah”, “mmm”)*

Several factors are in evidence in the extracts above including the scale of the sacrifice, the subject of the sacrifice being less “*sensitive*”, and the participants feeling a personal connection with the local community leader, which made the sacrifice more meaningful and

relatable. Giving up the car is described favourably as “a *bigger sacrifice*” and “a *bigger gesture*” than the actions in the previous vignettes, and this makes it more “*inspiring*”. In this way, the scale of the perceived level of sacrifice seems to add to the leader’s credibility. The extent to which the action is perceived as a social norm that is being sacrificed also seems important. These themes are also expressed by the next participant:

“I personally like this one the most out of all of them because we can all do it [go car free], it's relatable in that sense. It is a sacrifice. Local community leader, I'm not sure who that would necessarily be, but I guess it's the trust thing maybe. When there's like a big [company] director or someone you think 'well you don't really know what life's like for just regular people', whereas this feels a bit more relatable for me.” (Female, FG3)

The following participant says they would be more impressed if it was a friend who was making the sacrifice of not flying, as opposed to the MP.

*“When it's coming from an MP you're kind of thinking 'what kind of incentive have they got to say it?' whereas if it was a close friend that hadn't flown for say three years and had missed out on loads and loads of holidays and great times, and things like that, that would be much more of a motivator for me to actually like 'ok I should probably think about this'. You've actually seen someone do it and they've done it for very transparent reasons, whereas I think if I read this [statement from the MP], it would be a bit like, 'mmm, what are getting what are you getting out of it?’”
(Female, FG3) (Other: “What are you trying to sell me?” laughter)*

This participant is suspicious of the MP’s decision not to fly on the basis that there may be some unseen compensation for their action and so it cannot be taken at face value. In contrast, the costly action of a friend “*who had missed out on loads of holidays and great times*” is deemed to be a more powerful personal sacrifice and one which might lead the participant to re-evaluate their own behaviour. This statement also reiterates the perceived social norm of flying for “*loads of holidays*”, which the sacrifice challenges. Importantly, the friend is viewed to have taken action “*for very transparent reasons*”, revealing the importance of the perceived motivation for the sacrifice. However, other participants also discussed whether stopping flying is a sacrifice at all, highlighting that perceptions of social norms are different and are a key factor in judging whether the action sends a credible signal.

“It feels a bit weak to me because making a personal change isn’t going to have the same impact as an MP suggesting policy change. I mean I appreciate that if everyone makes small changes, that will have a larger change, but from an elected MP I’d want to see something more radical.”

(Female, FG1)

“I do feel it’s weak as well, however, because how often do people fly? I mean obviously MPs maybe more than me, but you know, riding a bike as opposed to driving would be a more, you know, an everyday thing as opposed flying once a month, once every six months.” (Male, FG1)

The quotes above reveal that some participants see not flying as a “small change” and an inconvenience that would only be experienced occasionally, whereas in fact many MPs fly regularly (Kennedy, 2019). The perceived sacrifice involved in limiting family size (i.e. number of children) highlights again how the **relative** level of sacrifice involved in an action and perceived social norms are important considerations.

*“I don’t feel like that’s a sacrifice [referring to Harry and Meghan having two children], **that** is a sacrifice (referring to the BirthStriker) (Other: “yeah exactly”) ... The average family is 2.4 children and they’re just having two, it’s like they’re not really doing anything.”*

(Female, FG3, emphasis is participant’s)

The above extract was part of a discussion where it was mentioned that for the BirthStriker to make a point, they had to make a bigger sacrifice to get noticed; a recognition both that sacrifice can be a form of communication, and that the status of the person in question may determine its impact. Having only one child, or the BirthStrikers not having any, was generally considered to be the biggest personal sacrifice in the vignettes and media stories presented to the focus groups. It was described by one participant as being a “severe” level of sacrifice.

“They’re sacrificing their own life really because if they really want a child and they’re not having a child for those reasons, well then... they may never help climate change...” (Female, FG2)

“[There are] thousands of factories spewing out pollutants in the world, like having a child isn’t gonna, you know [make any difference]” (Female, FG2)

Above we see that the sacrifice is judged against its likely success, and is seen in negative terms if the sacrifice is perceived to be in vain. Questioning the efficacy of someone else's sacrifice can be a defence mechanism to allow people to retain a positive self-image. It can be a form of "do-gooder derogation" that allows someone to dismiss a morally motivated act by another person in order that the observer of the action avoids a sense of moral threat (Minson & Monin, 2012). It is by no means certain that this was the case for the participants quoted above, however.

In the next extracts we see that sacrifice is related to trust and commitment, with the disapproving observation that the Deputy PM was "*not willing to sacrifice his time for climate change*" and was not leading by example:

"Well this goes to leadership in a nutshell. 'Deputy PM squirms as he admits flying to Manchester to discuss climate change.' As I said previously, you know, he's not willing to sacrifice his time for climate change. He'd rather fly to Manchester instead of taking a car or something that would take lower emissions to get there. He'd rather get there quickly and be done with it. ... They say what they want you to hear, but they're not actually willing to put their front foot forward and actually lead by example." (Male, FG2)

"It's just kind of lazy" (Female, FG2)

The above extracts suggest that sacrifice, or at least some appropriate level of visible effort, is expected of leaders, and furthermore that the absence of sacrifice and leading by example may decrease a leader's credibility. This highlights the symbolism of how leaders embody a response to climate change, with the expectation that leaders visibly act in a way that is deemed consistent with their leadership goals. The Deputy PM appears to have transgressed a leadership norm.

The following exchange expands on whether sacrifice is a desirable feature of leadership. The first participant says they think world leaders, because of their privileged positions, should make sacrifices, whereas the second participant says the opposite – that they should make small relatable changes that everyone can follow.

"I think by default as well, world leaders have a lot of privilege that the rest of us don't, so actually yeah, I would like to see sacrifice"
(Female, FG3)

“I’d almost go the opposite... I understand what you’re saying but I think I would look to a leader to do something that’s achievable, that I could also do. So, obviously we’ve got Greta who’s sailing in her yacht and that’s great because she can do that, but we can’t do it. What is Greta doing in her day-to-day life that I could also be doing?” (Female, FG3)

This final quote below relating to sacrifice illuminates some of the complexities and ambivalence that was expressed in the focus groups as participants worked through the meaning of the leaders’ actions. As well as quite emotionally charged responses, respondents considered carefully the reasoning behind leaders’ actions and the potential effects.

“The BirthStrike is interesting because, like, I don’t know how many there are. If there’s 12 [BirthStrikers] then 12 people have not had kids, well 24 if you include all the imaginary dads... so however many kids haven’t been born, so however many kids haven’t flown etc, so there’s like that carbon footprint. ... There’s also the added thing of like they might be raising awareness, so they’re really doing their bit and I can’t help kind of admiring the self-sacrifice really, because I don’t want to join the BirthStrikers...”
(Female, FG3)

This extract highlights the signalling and communicative power of sacrifice due to the costs of undertaking the action.

Sacrifice conclusion

The previous extracts reveal that perceptions of sacrifice were important to the meanings that were attached to the personal actions of leaders. The scale of the sacrifice was measured against the practicalities of the situation, the level of inconvenience, the social norm being transgressed, the leader’s status, and any loss incurred. In addition, the person doing the sacrificing, and the extent to which participants identified with that person, was deemed to be important. The effect of the sacrifice may be communicative if people notice it, talk about how appropriate and effective it might be, and what the person is trying to achieve by making the sacrifice. The effect might also be inspirational, if people assess their own behaviour in light of the leader’s sacrifice. Explicitly at least, sacrifice was often described as being appropriate for a leader and a potentially positive part of communicating through behaviour. However, if the sacrifice was seen to be too difficult or inappropriate, the effect

may be counterproductive. Sacrifice, then, is a complex area of leadership, the effectiveness of which is contingent on many factors.

4.3.5 Morality

The ethical and moral dimensions of leaders' behaviour arose spontaneously in the focus groups and were also addressed explicitly in the final vignette. As seen above, one participant expressed a desire for more overt ethical behaviour from politicians and linked this to leaders "*saying things that you can believe*" (Male, FG1). Another participant stated that world leaders' moral obligations lie more in bringing about structural change rather than enacting personal changes. This view was countered by others who said personal action was a moral imperative for world leaders due to the size of their following:

"I don't think you can force anyone to do absolutely anything, but they [world leaders] do have a moral obligation to at least improve their carbon footprint, at least try to cut out meat, do something, because they are figures that have a big following. Like the Pope is a figure that has a big following. Obama for example is a person that has a big following so they do have a moral obligation to be better." (Female, FG3)

Another participant drew distinctions between different types of leaders, arguing they have varying levels of responsibility to show moral leadership.

"They all have different responsibilities within leadership. With politicians we expect policy and legislation. And then with celebrities, and somewhat the Pope as well, it's kind of a moral authority. No ok, it's quite different, celebrities don't have moral authority ... we're not entrusting them with power to make decisions but we should expect them to still lead by example. But I think it should be really down to the people that we elect to represent us. They're the ones that really should be using their position because we entrust [them with] power. And if they aren't doing anything and they are doing stuff like this (pointing to the Deputy PM's helicopter ride) then actually it's damaging the trust that we give them as our elected leaders." (Male, FG3)

The above extract points towards the extra responsibility and expectations of leadership laid at the door of elected politicians. Another participant highlighted the multiple moral demands made of world leaders, of which sustainability is only one:

“I think world leaders have a moral obligation to be good, they have a moral obligation to do everything that's positive. So they have a moral obligation to improve the economy, to make our homes affordable, and all of these things. But the question is, because they're expected to do everything good, how much effort are they focusing on sustainability?”
(Male, FG4)

These extracts reveal participants' nuanced interpretations of leadership morality and acknowledgement of the multiple demands on world leaders.

4.3.6 Leader behaviour as communication

The analysis so far has revealed how the statements about personal action, and the examples of action in the media, send signals to others, raising awareness, providing examples of behaviour, and provoking personal reflection among focus group participants. The following analysis focuses on whether the actions described by the leaders perform a role of communicating the seriousness of climate change and the need for a personal action. This includes exploring perceptions among the participants that the behaviour from the leaders is in some way *instructing* them to act.

The following extract was in response to the celebrity statement about limiting their family size to one child:

“It's a good way of raising awareness though because Harry and Meghan came out and said that they weren't going to have more than two children and it was everywhere, and people heard about it.”
(Female, FG3) (Other: “yeah”)

Responding to the same vignette, the following participant states that they were unfamiliar with the idea that having fewer children might be viewed by some to be helping the environment, indicating a communicative function to the celebrity's position:

“That's actually never crossed my mind that it would help the environment, but interesting to find out.” (Female, FG4)

Quotes that were included earlier in the chapter indicate the communicative effect of the leaders' actions, for instance: “... *these are actionable steps*”; “*It is good that they are doing personal changes that would ripple out to the wider population*”; “*I think it's a great idea... doing every little thing that we can do, every individual.*”

Some participants expressed negative responses to the perceived message that was being sent by the leader's action, with the term "*preaching*" used, along with "*virtue signalling*" and "*sacrifice*" (as laid out above). These words are loaded with moral and possibly religious overtones, highlighting the communicative power of someone else's action, and how this can be challenging and uncomfortable. It is worth reiterating here that neither the statements from the leaders nor the media stories contained instructions that other people should consider adopting the behaviours in question. For instance, the vignettes didn't say anything along the lines of: "others should do this too". The closest to this instructional effect might be the words "...I think it is necessary" that featured in vignettes 1 and 2, "we are happy it is the right thing to do" in vignette 3, and "it feels like the right decision" in vignette 4. Although these are not direct instructions, participants in the focus groups inferred that the action was something they should also consider for themselves, as the following examples reveal:

"I think it's a bit preachy and potentially a bit insensitive [that the celebrity talks about having only one child]. I think I question the need to say 'it's the right thing to do' because that's a personal decision. That's fine, and that may be the reason, but I think it sort of implies that people shouldn't be having more than one child, and that's... I just wouldn't want that kind of advice from a celebrity, personally." (Female, FG1)

Here we can see that the statements made by the leaders about their personal choices are not simply being judged on whether it is appropriate for the leader to take the action, but also on what it means for others' behaviour. In contrast, the Local Community Leader's statement was considered *not* to be preaching because the participant had made a connection between the leader and somebody they knew. This highlights the relevance of social identity in response to a leader, which will be explored further below.

"I don't feel that this is very preachy, because that's the person I have in mind. But it might be for yourself [referring to another participant] if you don't know who your community leader is, and you heard this, and you'd be like 'well, they're preaching to me'." (Female, FG1)

Participants also discussed the messages they thought the leaders were trying to send and the effect it might have. They were highly attuned to publicity stunts from politicians, business leaders and celebrities, but also reflective about the issues being raised. Referring to the stories about Prince Harry and Meghan Markle saying they will have only two children and the BirthStrikers avoiding children, one participant commented:

“I mean both things feel quite like stunty... but I think it's more than that, it's about creating a conversation isn't it. I think all of these things, the statements we saw earlier and these, I think it's just re-evaluating the things we take for granted and think we're entitled to. Actually they are luxuries, like, eating meat every day is a luxury, it's too cheap, it shouldn't be that cheap. Travelling the world is a luxury and having a family, it's not, no one's entitled to have a family, these are things we are lucky to have and I think it's, I don't know, I just think it makes you think about what we think we are entitled to and what things we can re-evaluate.” (Male, FG4)

Here the participant observes that the leaders' statements and actions are trying to “create a conversation” and trigger a reflection on personal behaviour and social norms. The following participant assesses which leaders might send the strongest signals to inspire change in others, citing the celebrity as the most probable role model:

“I guess they're all kind of leading by doing, saying 'I'm going to do this', and maybe trying to influence other people to make a change. And I feel like a celebrity would probably have a bigger impact, definitely than a director of a big company. I don't know if anybody would say 'Oh, that director is doing that, I'll do that'. I guess [the celebrity] gets it in the news, it gets people talking about it. That's awful, but I feel like I might be more inclined to do something that a celebrity does.” (Female, FG4)

Below we see a comparison of the necessary level of “extremeness” that is deemed to be required in order for the leaders to get their message across. Prince Harry and Meghan, as very high-profile members of the Royal Family, can say something relatively unremarkable (having two children) and this will have a strong communicative effect because of media amplification, whereas the BirthStrikers are deemed to have to go to an extreme. This assessment presupposes intent to communicate on behalf of both leaders, that they are speaking out in order to achieve some effect, rather than simply stating their personal position.

“The thing with Prince Harry, it's going to have more impact because he's a Prince, he's a celebrity [whereas] the unknown people have to go to an extreme to make an impact. So the BirthStrikers have to go to the extreme. ... Both of them are still showing their support against climate change but one of them is more privileged than the other.” (Female, FG3)

4.3.7 Trust in the leaders

The signalling effect of the leaders' statements and actions depended heavily on the level of trust expressed towards them. As mentioned above, when a trusting perspective was adopted by participants, the leaders' actions were shown to have the potential to influence others' attitudes and behaviours. The level of trust expressed fluctuated a great deal, often dipping very low, with the exception the Local Community Leader and Greta Thunberg who enjoyed greater levels of trust. Trust in the leaders appeared to be contingent on several factors, including how much people identified with the leader, the group classification they were assigned to (e.g. politicians, celebrities), and the perceived motivation of the leader for taking the action.

Motivation and second-order beliefs

Central to the perceptions of trust were the leaders' perceived motivations and second-order beliefs, i.e. what participants believed the leaders believed.

“You can't be anything than profoundly sceptical about MPs if they didn't already have a background of leading by example on environmental measures... The wealthy and the influential will carry on flying as they always have done. There are a few who have got good environmental credentials, but I'm very sceptical.” (Male, FG2)

In the above extract, the past history and presumed high social status of the MP is important to whether they can be trusted to follow through on their promise to not fly. The statement that *“the wealthy and the influential”* will not change their behaviour demonstrates a lack of faith in leaders or elites, with only *“a few”* having good environmental credentials. This might suggest that a leader that did change their behaviour could send a powerful message, but that any action or communication from a leader needs to be consistent over time if it is to be credible as a call to action. Conversely, the Deputy PM's helicopter flight confirmed and justified a general lack of trust in politicians:

“...it just kind of just puts another nail in the coffin really for people trusting politicians.” (Male, FG4)

Participants were highly attuned to leaders *“jumping on the bandwagon”* and taking part in publicity stunts, with the politician, the celebrity, and Greta Thunberg suspected of seeking publicity with their actions:

(Relating to the company director) *“It kind of feels like jumping on the bandwagon. There’s been load of that recently like equal [pay] for women... one company releases its results and all the other companies seem to jump on board. It’s kind of like ‘Ah climate change is a serious problem, [speaking fast]: this-is-what-I’m-doing-this-is-what-I’m-doing-this-is-what-I’m-doing.’ You’re kind of just getting... bombarded.”* (Female, FG1)

(Relating to Greta Thunberg’s boat trip) *“It’s a publicity stunt isn’t it? {Other: “yeah”} I feel like if she’d come out and said ‘I’m refusing to go to the conference, I’m going to participate via Skype’ that would have had more of an impact.* (Female, FG1)

However, some participants expressed more trust in the celebrity’s statement because celebrities might be less likely to have an ulterior motive, while several participants expressed strong confidence in Greta Thunberg’s intentions:

“I do think it’s good that this is coming from a celebrity though because I think there’s a lot of people who just don’t want to listen to politicians or big companies anymore and so it’s a way of reaching a certain group of people who are kind of fed up with hearing from experts.” (Female, FG3)

“I’m a huge fan [of Greta]... she has that kind of authenticity, people listen to her, and seeing what she’s like on [social media], the kind of response she gets, people are so behind her. I see her as a future leader - 100%. I believe everything that she says. I think there’s no ulterior motive.”
(Female, FG3)

In contrast, the credibility of the celebrity’s action was questioned in light of presumptions about their high-consumption lifestyle:

“Yeah I think it depends who it’s coming from doesn’t it, like if they’re taking their private jet around (Other: “right, exactly”) and then saying they’re going to have less children...” (Female, FG3)

These extracts have shown that there is a great deal of scrutiny of the motivations of the leaders, particularly those in positions of power, reflecting the declining levels of trust in politicians and elites (Edelman, 2020a, 2020b; Hosking, 2014). It is the issue of power that we will turn to next.

4.3.8 Power

The relative position of the leader with respect to participants appears to be an important factor in how the statements and actions are perceived and appraised. The focus groups revealed some important power dynamics mentioned in Chapter 2 in relation to leaders who, to varying extents, represent institutions of power: national and local government, corporations, and celebrity culture. Focus group participants explicitly and implicitly referred to the power of the leaders in question and how this affects their responses to the leaders' personal behaviour. The large inequalities between individual emissions, particularly relating to celebrities, often cropped up in the discussions:

“It's all very well saying 'oh I'm going to change the world and I'm going to do good' but, you know, bloody, what's his face from Coldplay, Chris Martin, he did a concert for climate change, flew on to America, realised that his kid has left his favourite teddy back in the UK and then flew his private jet back to the UK to pick the teddy up and flew back to the US again, I mean, [laughs] it's backwards.” (Male, FG2)

While many participants said that leaders taking individual action was a good thing as far as it went, a common sentiment was that leaders should use the full scope of their “power”, which extends beyond individual action, as the following extracts exemplify.

“I think it is good to lead by example but ... for an MP you would expect them to be championing the cause in some other way and trying to change things in a more significant way for everyone, rather than just sort of doing their own little bit.” (Male, FG3)

“If they're in that position of power ... I'd almost rather they didn't stop flying and they got everybody else to stop flying, but then everyone would call them a hypocrite...” (Female, FG3)

Here we see the desire for a politician to use their *position* or *formal* power (Northouse, 2021) to change the structures within which consumer activity takes place. This can be viewed as questioning the hegemonic power of unlimited freedom to consume in environmentally damaging ways. This sentiment was echoed by other participants and reflects the well documented desire among the public that government should make systemic changes rather than an exclusive focus being placed on individuals to change (Bedford et al., 2010; Bickerstaff et al., 2008; Pidgeon, 2012). Further above, however,

participants also identified the leaders' *personal* or *informal* power to influence others through their behaviour and leading by example. The quote above highlights the challenge for politicians who advocate for climate policy changes that might seem inconsistent with their own lifestyles, and the perennial risk of accusations of hypocrisy. In similar fashion, the company director's personal action was not deemed a sufficient use of their power.

“They could also be doing more. They could be saying the whole business at lunch time in the cafeteria is going to serve plant-based [food], so that they've got more of an impact than it just being one person. I completely agree that if someone's doing it themselves then that's a good thing, but when they are a leader and a director of a large company they could be making a huge impact.” (Female, FG2)

Interestingly, the part of the director's statement saying “our business is trying to be more sustainable” was often overlooked or considered too vague or non-committal. In contrast, the celebrity's choice of limiting their family size, while distasteful to several participants, was seen as powerful in terms of its potential to influence others. Similarly, Greta Thunberg's choice to take a boat across the Atlantic was seen by participants as using her personal power as the figurehead of a global movement to influence others.

*“She is a leader of a generation... I don't think she's actually advocating that we all go on holiday in America in a yacht. I think what she is doing well is using her publicity to draw more attention... she's got two weeks now of publicity of her being seasick on the boat... She is punching above her weight. Her impact is not that [she's] saved the carbon emissions from not being on the jet, it's this echo out from what she's done.”
(Female, FG2)*

While several participants were very favourable towards Greta Thunberg and acknowledged she was using her personal power and “*punching above her weight*”, some scepticism was also expressed towards her. For instance the word “*preachy*” was mentioned, while another participant commented “*accidentally or potentially on purpose it's been politicised with Greta*”. These responses perhaps represent a reaction and resistance to Thunberg's exercise of personal power.

In the following extract relating to the Pope being called to go vegan by a campaign group, the participant sees leaders' power as residing clearly in their position, rather than related to personal leading by example.

“World leaders have this moral obligation or have this obligation to do something about climate change, and that's not just by personally going vegan, that's by shutting down factories, that's by stopping flights, that's by making the decisions and putting the resources and the finances and not being bought by big business to actually make change. Donald Trump stopping eating burgers doesn't change anything.”

This quote again references the power of economic and consumption orthodoxies and vested interests, and states that individual behaviour change even from world leaders “*doesn't change anything*”, a position that is commonly stated in climate discourse (e.g. Mann 2021). The local community leader's action was appraised much more positively on the grounds that they were making better use of their more limited position and personal power. At the same time, celebrities were criticised based on an assumption that they weren't using theirs.

“A community leader, in terms of their power, [giving up their car] is a good level for me. But a celebrity... I see it all the time on Twitter. Kim Kardashian will tweet ‘we need more of this!’, and it's like somebody pumping rubbish out of the ocean [with new machinery], and everyone's like, ‘you can literally buy and build another one!’” But they're not doing it.”
(Female, FG2)

Participants also acknowledged that the leaders' power was limited. The MP was praised for taking immediate personal action because even if they were lobbying for new legislation it would take “*five or ten years*” to take effect. Another participant defended the Deputy Prime Minister's helicopter trip on the basis that it may not have been his decision, and that his options to take alternative transport may have been limited because of his tight schedule and the demands of his job. Similarly, a participant raised the prospect of unforeseen and perhaps negative outcomes of the leaders' low-carbon action including disapproval from vested interests, such as car manufacturers, hinting at the “*trust dilemmas*” leaders can face (Dirks & Skarlicki, 2004).

Power and language

The language used in the leaders' statements (except the Local Community Leader) was identified in all four focus groups as being “*weak*”. This raises the issue of how power manifests in language, how leaders use language, and what is expected from leaders in their use of language. Leaders are expected to communicate a vision, to inspire, and to provide

direction, and charismatic language can be a part of this, such as using metaphor, telling stories, and expressing emotions (Antonakis et al., 2016). Such leadership roles were explicitly identified by the focus group participants in the initial discussion (see Appendix A). However, the vignette statements were deliberately designed to omit charismatic rhetoric with the intention that the leaders' *actions* would be the focus of attention, not their potentially rousing language. This method worked to a degree, but resulted in often quite negative appraisals of the leaders' statements as being uninspiring and lacking charisma. This effect may have been heightened by the participants having been primed to consider leadership explicitly, as mentioned in the introduction to this chapter. The reaction to the "weak" language also seemed related to the relative status of the leaders, with the politician, business leaders and celebrity being criticised as weak, but not the Local Community Leader. It is considered likely that the Local Community Leader's language was not criticised because the expected level of power in their language was lower (Ng & Bradac, 1993).

Furthermore, the participants' criticism of the leaders' statements often centered around the exclusive focus on individual behaviour and the absence of a wider use of the leaders' position power, as explored above. This criticism seemed to be based on an assumption from participants that the leaders' personal action represented the full extent of their engagement with climate change, and was therefore insufficient. This is exemplified in the following quotes.

"I think I'd like to hear something a bit more ambitious from an MP.

[Mocking tone:] 'Oh I'll try and reduce my overall footprint'..."

(Female, FG3)

"Yeah it needs another line: 'I'll try to lobby as hard as I can.'"

(Male, FG3) (Others: "yeah")

This suggests that the personal action of leaders may be much more favourably received if the leaders are also believed to be using their position power and wider influence, in addition to their personal power to set a behavioural example. Further research would be valuable to explore the effect of leaders using more inspiring language to explain their low-carbon actions. In addition, research could examine the effect of explicitly aligning leaders' personal actions with the use of their position power, as suggested in the second quote above.

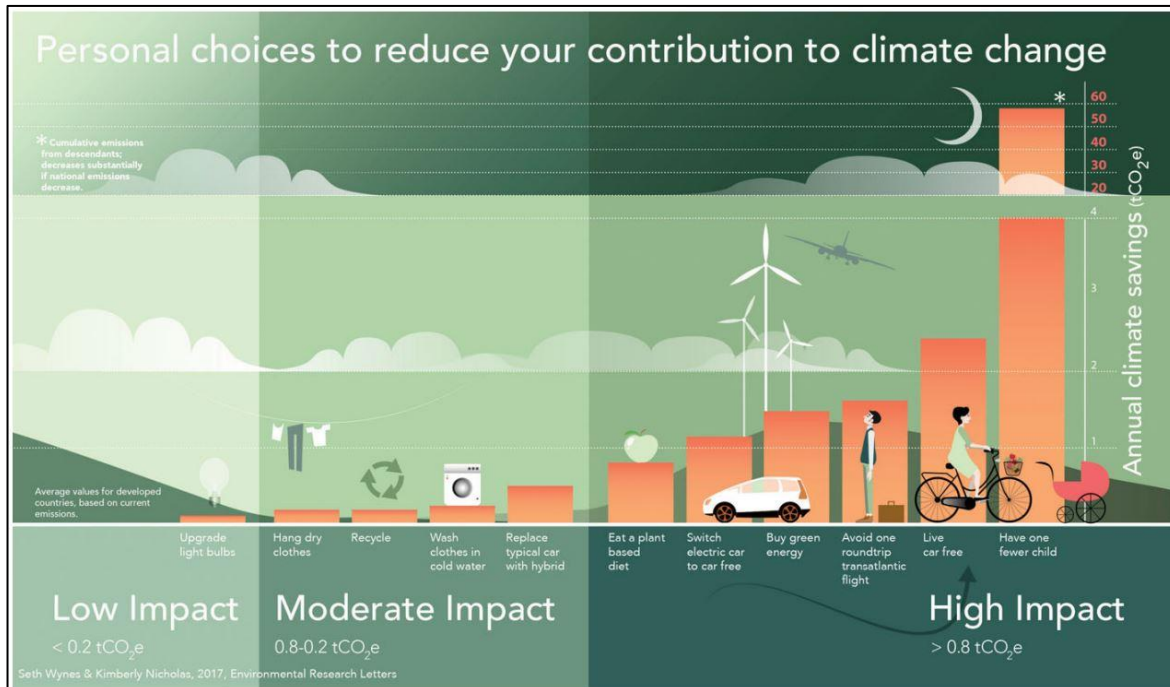
4.3.9 Infographic (groups 3 and 4 only)

The first two focus groups revealed that many participants were not sure about the relative environmental impacts of different behaviours, and this influenced their interpretation of the

leaders' actions. In order to explore the relevance of this, it was decided to introduce some information in the form of an infographic (see Figure 4.1) showing the emissions relating to various activities, based on research by Wynes and Nicholas (2017a). The infographic (Nicholas, 2017) was presented at the very end of focus groups 3 and 4 so that the preceding discussions would not be affected, thus allowing for comparison across all four groups.

Participants were very interested in the infographic and said it put personal actions into perspective. The impact of having a child as represented by the infographic⁶ was surprising to many and made participants reflect on their reactions to the vignettes and media examples earlier in the discussion. Participants related the information to their own behaviour, and were more sympathetic to the leaders' actions in the vignettes. Some said seeing the infographic was demoralising because the more significant actions were deemed to involve a greater level of sacrifice. Comments included: *"The smaller things seem pointless"* and *"You have to be noble to save the planet"*. Referring to the impact of flying, one participant said it made them feel guilty about an upcoming plane trip to New York. Another participant said: *"I gave up meat because I felt bad about flying"*, and another

Figure 4.1 Infographic cue material



Notes: This infographic was introduced at the end of focus groups 3 and 4 to explore whether information about the impact of specific behaviours affects people's responses to leaders adopting such behaviours. Source: Nicholas (2017).

⁶ Parts of this infographic have been contested, with some suggesting it may serve to overstate the relative impact of having a child because of the way emissions are allocated.

reflected that “*I feel bad about giving Harry and Meghan a hard time earlier*”. These findings highlight that perceptions of a low-carbon behaviour’s effectiveness influence the attitudes towards the behaviour and the person who carries it out.

4.3.10 Results from focus group survey

At the end of each focus group, participants were given a short survey to complete, which asked for responses to the leadership vignettes presented in the first half of the focus group. The questions were presented as follows, with different wording for each leader/action combination: 1. “What do you think about the idea of the <politician (MP)> saying they will <stop flying> because of climate change? (please tick one box)”. The answers available were: strongly approve, mildly approve, no opinion, mildly against, strongly against; 2. How likely is it that a <politician> would do this, in your opinion? With answers given: Very unlikely, quite unlikely, 50/50, quite likely, very likely; 3. If they did this, how much do you think it might influence your own behaviour? With answers given: Not at all, maybe a little, quite a lot, a great deal.

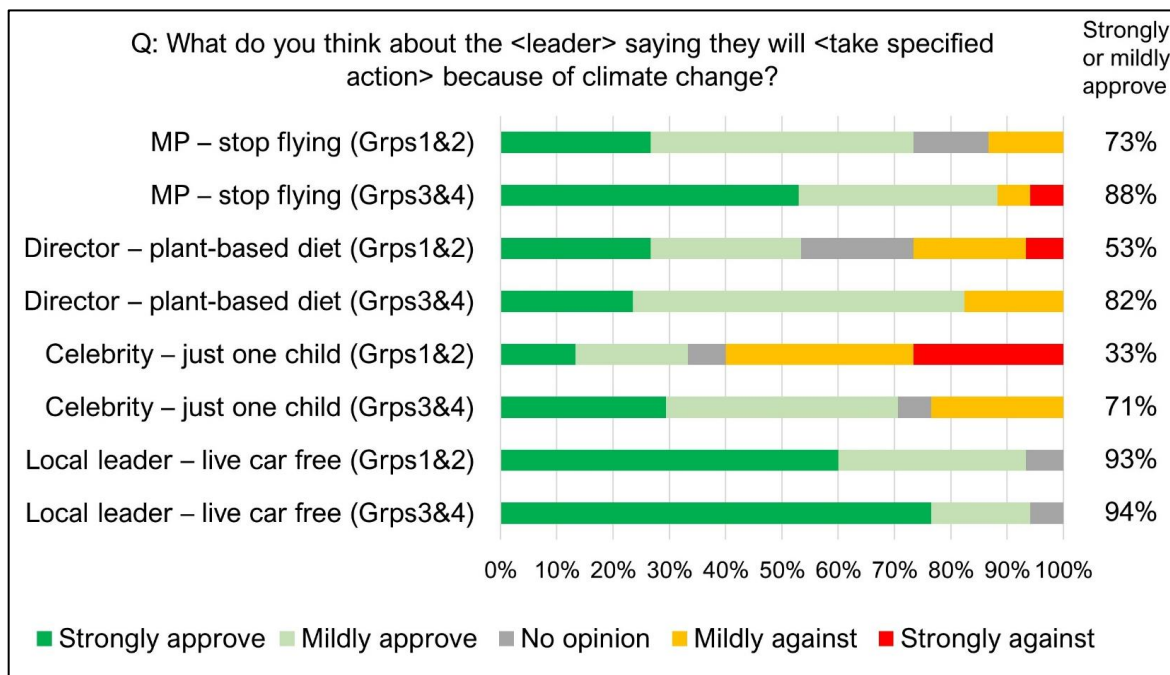
Approval and disapproval of actions

The answers to the first question are shown in Figure 4.2. It is notable that, overall, participants were in favour of the leaders’ statements about taking personal action, including the celebrity choosing to have just one child. This is particularly interesting because during the focus groups there was a lot of criticism of the leaders’ statements for being insufficient, weak, insincere, potentially misguided, and uninspiring (see summary of discussions above). However, the survey results appear to show that, while participants have scrutinised the leaders’ statements very carefully and applied detailed critiques, they tend to be in favour rather than against when asked for a single verdict. The least popular statement was that of the celebrity limiting their family size, which is consistent with the summary above. This apparent inconsistency between opinions expressed during the discussions and those recorded in the survey may point towards the conflicting relationships people have with leaders, such that followers can express strong negative, sometimes emotional, responses to leaders while still accepting, or approving of, their actions as leaders (Tomkins et al., 2020).

An important factor when considering these survey results is that focus groups 1 and 2 did not see the infographic, whereas groups 3 and 4 did see and discuss the infographic prior to completing the survey. Several participants said explicitly that seeing the infographic showing the effects of different behaviours made them reconsider the personal leader actions that had been discussed earlier in the focus group. In particular, some participants commented that the large effect of having one fewer child as depicted in the infographic

made them think they had been “too harsh” on the celebrity who had chosen to have only one child and the BirthStriker who had forgone a family. Figure 4.2 also shows how the responses differ between groups 1 & 2, and 3 & 4. It cannot be assumed that the differences in responses are wholly attributable to participants having seen the infographic because the group participants were different.

Figure 4.2 Approval of leaders taking individual actions, split by groups



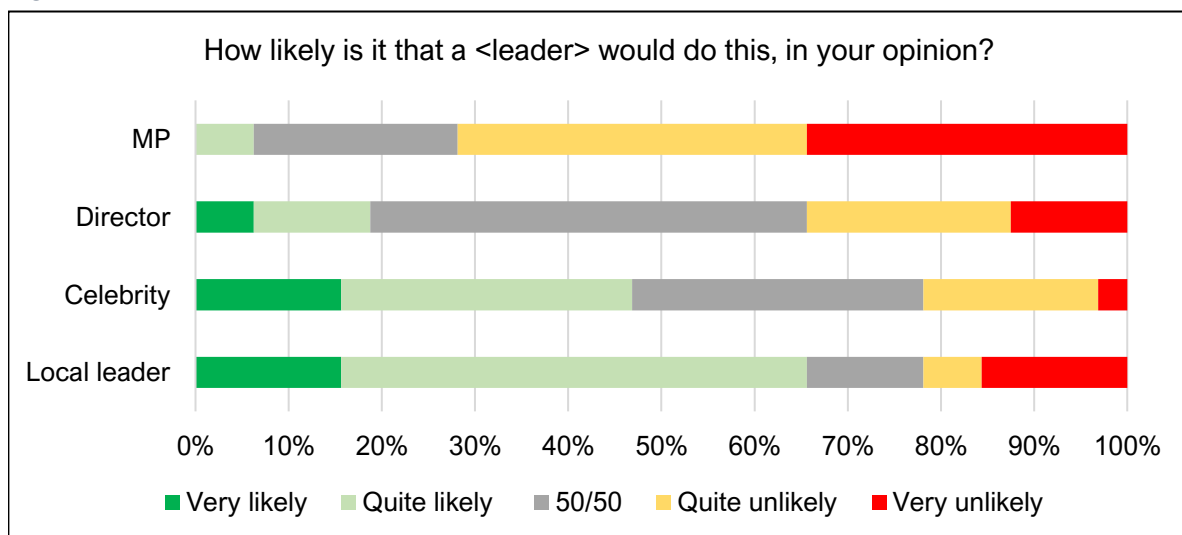
Notes: Responses to each leader are split by groups 1&2 and groups 3&4. This shows the effect of viewing the infographic (above), which was seen only by groups 3&4.

However, in every scenario the approval of the actions from groups 3 & 4 were higher than from groups 1 & 2. Particularly large differences can be seen for the Director who chooses a plant-based diet, where the percentage of participants expressing strong or mild approval is 53% for groups 1 & 2 and 82% for groups 3 & 4, and the Celebrity having only one child where the percentage of participants expressing strong or mild approval is 33% for groups 1 & 2 and 71% for groups 3 & 4. It should be mentioned that the general tone during the discussions for these topics was already less approving in groups 1 and 2, so the effect of the infographic may appear somewhat exaggerated. However, it looks likely that the provision of information about the impact of personal behaviours has an influence over subsequent appraisal of such activities from leaders. This was an important consideration in the design of the survey experiment in Chapter 6.

Opinions on the likelihood of leaders taking these actions

The participants were asked in relation to the actions of leader: “How likely is it that a *politician** would do this, in your opinion?” (*or Director, Celebrity, Local community Leader). Figure 4.3 shows the responses across all groups. Of note is the low number of participants (6%) who thought it quite likely that the politician would stop flying except for emergencies because of their beliefs on climate change. A somewhat higher number of participants (19%) thought it was quite or very likely that a Director would change to a plant-based diet because of climate change. Whereas 47% said that a celebrity was quite or very likely to limit their family size because of climate change, and 66% said that a local community leader was quite or very likely to go car free because of climate change. There may have been multiple factors involved in this assessment of the likelihood of the leader taking action, including how appropriate such behaviour is believed to be for each leader, and the level of trust that the leader will act according to particular motivations.

Figure 4.3 Perceived likelihood that leaders will take the specified action



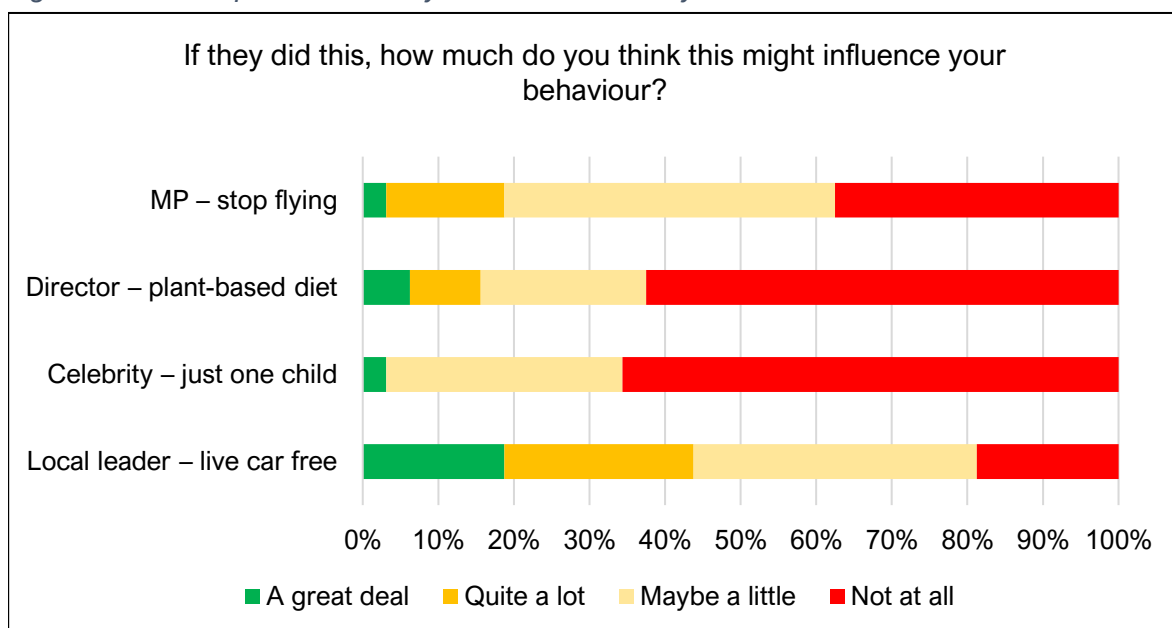
How likely are participants to be influenced by the leaders' actions?

Participants were also asked whether the leaders' actions might influence their own behaviour. The question was worded: “If they did this, how much do you think this might influence your behaviour?”. Figure 4.4 shows that few participants thought they could be influenced “a great deal” or “quite a lot”, except for the example set by the local community leader. However, 62% said they could be influenced “maybe a little” or more by the MP’s action. This was a greater level of potential influence than reported for the company director (37%) and the celebrity (34%), and considerably less than the local community leader (81%). Bearing in mind the often negative appraisals of the MP’s statement, this level of potential

influence may seem surprising. However, previous survey research found that 39% of respondents said they could be influenced by an MP who stopped flying and pointed towards at an appetite for such leadership (Westlake, 2017).

An important factor to consider when interpreting these figures is that there were two variables at play: different leaders, and different actions. The level of potential influence expressed by participants may be related to the leader, or the action, or both, meaning that strong conclusions cannot be drawn about which leaders have more influence, perhaps with the exception of the Local Community Leader, who receives consistently higher ratings in the survey questions.

Figure 4.4 Participants' tendency to be influenced by the leaders



Conclusion of survey findings

The survey of focus group participants reflects a small sample (n=33) and so should not lead to strong conclusions about the population as a whole. However, the findings are useful in revealing that apparently strong critical opinions of leaders expressed during the focus groups do not necessarily translate into negative opinions of the leaders' actions as measured in the survey. This conclusion is useful to bear in mind during the following detailed analysis of the focus group discussions.

4.4 Discussion

This body of evidence suggests that high-impact low-carbon action by leaders can send strong signals that could result in emulation, raise the salience of climate change as an issue, promote vigorous discussions, and force the issue of the interplay between “individual

action” and “systems change”. When mediated through a leader’s personal statement or through a news story, the actions of leaders were scrutinised in great detail for the perceived motivation of the leader, their trustworthiness and, ultimately, for the meaning of their action. These meanings varied a great deal, from being an honest and inspirational example that others might follow, an instruction, an irrelevance, a cynical stunt, a symbolic gesture, a form of preaching, or indeed several meanings at the same time. The meaning making was also influenced by perceptions of the power of the leader, with those in positions of greater power expected to use their sphere of influence and not just take action to reduce their personal impact. This supports the idea that the use of elite cues (Carmichael & Brulle, 2017) in the shape of low-carbon leader behaviour has substantial potential to shape public opinion and stimulate behaviour change.

4.4.1 Social norms and sacrifice

The evidence suggests there is potential for leading by example to prompt a change in social norms, but this entails considerable complexity and potential resistance. The focus groups generally indicated that the actions taken by the leaders were often viewed as non-normative, although the perceived norms varied. For instance, when discussing the MP choosing not to fly, one participant said *“I do feel it’s weak because how often do people fly?”* indicating that they thought flying was a rare activity and not very relevant. In contrast another participant said: *“I don’t think I expect a politician to stop flying,... because we all fly for pleasure, why can’t other people?”*. In this context, the leader’s action had the potential to signal the “dispersion” of the social norm, and indicate a preferred behaviour – an injunctive norm (Tankard & Paluck, 2016).

There were strong reactions to the examples of limiting family size, and to some extent it was the act of *communicating* the choice to limit family size that was seen as non-normative (*“I just wouldn’t want that kind of advice from a celebrity”*) rather than the choice itself. This highlights that signalling preferred behaviour has power and carries risks. The local community leader choosing to give up a car was seen as non-normative, and perhaps highly impractical depending on local transport options, but prompted generally positive responses due to participants identifying with the leader.

The interpretation of perceived sacrifices were contingent on the practicalities of the situation, the level of inconvenience, the status of the leader, the social norm that was being transgressed, and the perceived value of the loss that the sacrifice entails. As such, the research confirms that sacrifice from leaders can be a potent form of signalling. Positive views of sacrifice from leaders appear to be in tension with a desire for “achievable steps”.

4.4.2 Identity and credibility

The Local Community Leader was viewed considerably more favourably than the other fictional leaders in this research, with participants expressing feelings of proximity and warmth towards this leader, even without someone specific in mind. Most participants were also positive about Greta Thunberg, who was not viewed as “on another planet” in the same way as MPs, company directors and celebrities (although Thunberg’s celebrity status was growing during this research and there were some slightly negative reactions to her). This more positive reaction to the “Local”, while likely to be influenced by feelings of proximity and identity, may be related to the perceived lower power of the leader. Participants tended to identify much less with the politicians, business leaders and celebrities, who were subject to more scrutiny and enjoyed less trust. Their actions were therefore less likely to be taken at face value and appraised in a positive light. However, as the survey showed, they still gained overall approval and had the potential to influence others according to the participants. This seems to warn against placing too much emphasis on the tone of discussions. The credibility of the leaders (defined as their perceived trustworthiness, reliability, commitment to a direction of travel, knowledge and skill) appeared likely to be enhanced by taking personal action, even when such action was deemed insufficient on its own.

4.4.3 Embodiment

Repeated references were made to the significance of what leaders were seen to be “doing”. Physical actions that were consistent with wider goals were seen to add credibility and trust, apparently carrying meaning and sending signals that words alone could not. The “contradiction of leadership”, where a leader’s action appears to go against a goal was in clear evidence in relation to the Deputy Prime minister flying by helicopter to a climate conference. There was some countervailing evidence as well. It was said by some participants that it would be better for leaders not to worry about individual action and prioritise changing things at a systemic level, suggesting that embodied leadership is not important as long as leaders are making structural changes.

4.5 Limitations

There were some limitations to the research. The design of the vignettes included four different leaders (MP, business leader, celebrity, local community leader) modelling four different behaviours (no holiday flights, meat-free diet, limiting family size, living car free). This design allowed for a stimulating and wide-ranging discussion of various leaders and various actions, but did not allow for direct comparison between the reactions to each

leader, or to each behaviour. Further research could look into, for instance, the same behaviour from different leaders.

Priming affects should also be considered. Participants had been recruited to discuss “Leadership and the Environment” and the opening 10 minutes of the focus group was spent on a general discussion about leadership (see Appendix A). Therefore participants may have been considering the cue materials through a leadership lens, asking themselves questions such as “how is this person showing leadership?”, “will this work as a form of leadership?” and “do I like this leader?”, even though the moderator did not ask about leadership specifically. This may (or may not) have led to harsher opinions of the leaders who, because of the priming, were expected to be showing “environmental leadership”.

There may also have been some ordering effects with the cue material. For instance, because the MP vignette came first, participants’ reactions to the MP were not made in comparison to any other leader, whereas the local community leader was viewed after three previous leaders, and immediately before a half-time break in the focus group. This ordering could have led to patterns in the data, and therefore differences in responses to the vignettes should not be taken as definitive.

A final consideration is the medium through which leader action is observed. In focus groups, the fictitious leaders described their own actions, while the media stories presented leader action from each media outlet’s perspective. Both of these have potentially differing effects on how leader actions are interpreted, as was seen in the discussion on the leaders’ “weak” use of language. How leaders’ behaviour is communicated may be more or less important to followers’ responses. Future research could explore this area, perhaps using longitudinal methods to gain insights into the enduring effects of leading by example.

4.6 Conclusion

The potential for leaders’ actions to open up debates about appropriate behaviour in the context of climate change is perhaps one of the strongest implications of this phase of research. The leaders’ actions prompted discussions about the relevance of flying, car driving, a vegan diet, family size and population size, with participants examining their own lifestyles in comparison to the leaders’. There is potential that a leader taking high-impact low-carbon action will result in direct emulation, but it will also very likely stimulate discussions, influence discourse and potentially enable a shifting of social norms. During the discussions about the leaders’ actions and what they might mean more broadly, participants found themselves policing the acceptable limits of discourse, for example one participant

said “*it’s a dangerous statement*” in relation to having fewer children. The “extreme” position adopted by the BirthStriker was set against the two-child policy of Prince Harry and Meghan Markle, and a middle ground was discussed as being appropriate. In this way, the discourse around having children was negotiated and the behaviour of leaders (and everyone else) *became* discourse (Peradotto, 1984).

The findings of this phase of research do not map neatly onto cause and effect mechanisms determining definite outcomes from leader actions. The views expressed by participants cannot be taken as fixed or solid entities that will underpin their future actions or reactions. However, they do shed light on the potential influence of leaders’ low-carbon behaviour. Such action by leaders appears to be a form of communication that goes beyond words, and as such has the potential to expand societal discourse on climate change.

The next chapter explores leading by example from the perspective of leaders, in which interviews with UK Members of Parliament aim to shed light on whether low-carbon leadership is desirable, possible, and potentially effective from their perspective.

Chapter 5 MP Interviews

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5.1 Introduction

“I think it is important... to try to set some sort of example, but not be too saintly” (MP)

This chapter lays out the evidence from 19 semi-structured interviews with UK Members of Parliament (MPs) on the topic of “Leading by example and climate change”. It is the second part of the initial exploratory phase of the research, and aims to address the research question:

- **RQ3:** How do leaders themselves view leading by example with visible high-impact low-carbon behaviour, and do they think it could be effective?

The interviews with political leaders represents the “top down” element of the exploratory research. They present a picture of how political leaders in the UK view their leadership responsibilities, paying particular attention to leading by example, specifically in the context of climate change and high-impact low-carbon individual actions. In conjunction with the Focus Group evidence laid out in Chapter 4, the interviews create a picture of the relationship between members of the public and their elective representatives. Many synergies are identified between the views of the public and the views of MPs, and also some areas of departure. These will be laid out below.

MPs were chosen as leaders to study because they are representatives of government and as such they are the physical, personal embodiment of the institutions of state that are responsible for addressing climate change at a national level. They are also the people most likely to be perceived as being in “the ruling class” in the UK (YouGov, 2019), and are in a position to send “elite political cues”, which have been shown to be a key factor in shaping public responses to climate change (Capstick, Whitmarsh, et al., 2015; Carmichael & Brulle, 2017). In view of this, MPs can be considered leaders both practically and symbolically, and therefore their actions have the potential to send strong signals about how climate change is addressed, and the extent to which personal actions are a suitable response to it.

5.2 Sample and Procedure

In view of the potential difficulty in recruiting leading political figures, an opportunity sampling approach was taken, with all 650 sitting UK MPs invited by email to be interviewed. Of these, 24 replied expressing interest, which led to 19 successful interviews and five cancellations due to diary limitations. The interviews therefore reflect a self-selecting group of MPs from five political parties: Conservative 5; Labour 10; Liberal Democrat 1; Plaid Cymru 1; DUP 1;

with a gender split of 16 male and 3 female⁷. The MPs were given a detailed explanation in advance of the research project and the subject of the interview. The email that was sent to MPs can be found in Appendix B, along with the interview schedule. The MP's stance on climate change was not an explicit subject of the interviews, but in general terms 16 of the MPs seemed broadly supportive of societal action on climate change, two were more sceptical of how climate change is being tackled, and one did not believe humans were contributing to climate change. The opportunity sample cannot claim to be representative because, for instance, the recruitment method may have led to participation from MPs that were particularly interested in the subject from a particular perspective: e.g. being strongly in favour of climate action, being strongly against climate action; or being interested in personal climate *leadership*. That said, a broad range of views were expressed from MPs with different political affiliations.

The list of questions in the schedule was used as a guide rather than a strict format for the interviews, allowing flexibility to ask follow-up questions and to facilitate the flow of the interviews. That said, the wording of the questions was largely adhered to in an attempt to provide consistent stimulus to the MPs to allow for comparison between answers. The interviews were carried out between August and October 2019⁸. 18 MPs were interviewed verbally (14 by phone, 4 in person), and one MP sent a statement via email in response to the research questions. The MPs had differing time available and therefore the interviews varied in length. The longest interview lasted for 64 minutes, the shortest for 10 minutes, and the mean length was 27 minutes. The interviews were conducted on the agreement that direct quotes could be used, while protecting anonymity. The quotes included in this chapter are verbatim quotes from MPs, but occasionally details that might identify MPs have been omitted, including gender identifiers and constituency references. As with the focus groups, Thematic Analysis was used to analyse the MP interviews using a combination of a-priori and emergent themes.

5.3 Politicians and climate change

Prior to laying out the evidence from the interviews, additional literature will be presented relating specifically to research exploring how European and UK politicians engage with climate change. This builds on the literature discussed in Chapters 1 and 2, which provided

⁷ The percentage of female MPs interviewed 16% (=3/19) is considerably lower than the 35% gender split in parliament (=208/650).

⁸ This period was particularly politically tumultuous with Brexit negotiations, Boris Johnson recently installed as the new Prime Minister (on 23 July), and a General Election on 12 December 2019.

the political context for the research along with theories of leadership, influence and behaviour change.

MPs are in positions of formal leadership having been voted in by their constituents during a general election. They constitute the public's representatives within the UK's representative democracy. As such they have responsibility to act in the interests of their constituents while exercising their expertise and judgment relating to policy issues, politics and society in general. The theoretical benefit of representative democracy is that politicians are specialists who have the expertise and sufficient time to dedicate to the multiple and complex issues of politics. A potential drawback of representative democracy is that "*representatives are free, once elected, to promote their own interests*" (Laussel and Van Long 2020 p25).

Chapter 1 introduced the extensive research on UK politicians conducted by Rebecca Willis via interviews with MPs and by studying the language they use relating to climate change (Willis, 2017, 2018a, 2018b, 2020). Willis has also explored public responses to, and impressions of, the leadership shown by governments and politicians on climate change. Her research on UK politicians during the Parliamentary debates in 2007/8 on the Climate Change Bill found that MPs tended to "tame" the issue by avoiding language connecting climate change to its likely effects on people's lives, and its impact on the country. Willis found that in MPs' speeches about the economic Budget, they used words such as *families, child, children, pensioners, and parents* six times more frequently than they did in speeches related to climate change, indicating a tendency to depersonalise their language when talking about climate change (Willis, 2017). Several other tendencies were observed when MPs debated climate change: they use economic language (the words *cost* and *benefit* were used twice as often in speeches about climate change than in speeches relating to the Budget); they justify their arguments using science; they don't talk about people and social groupings; they don't talk about possible climate tipping points. Furthermore, MPs have had a reluctance to talk too vehemently about the threats of climate change for fear of being socially excluded by colleagues in Parliament, harming their career prospects, or being labelled a "freak" or a "zealot" by their peers (Willis, 2018c).

The social identity of MPs appears central to their responses to climate change. Research on European politicians found the maintenance of social identity relating to formal or informal allegiances, for instance party or national identities, can have a strong influence on politicians' positions on climate issues and their corresponding actions (Hornung, 2022). The risk of being viewed as an outsider, or feeling like one, sees UK MPs "*dressing up climate action in the language of economic policy and market mechanisms to avoid confrontation*

with colleagues, the electorate or the industries that risk losing out in the shift to a low-carbon economy; or using stealth strategies and deliberately avoiding any mention of climate change” (Willis 2020 p95). Willis says these “stealth strategies” are “inherently self-limiting. By definition they do not make the case for change; they do not tell a story about the transformations that will be needed, if our societies and economies are to shift.” (ibid, p94). This analysis goes some way to explain the political reluctance to grapple with ideas of demand reduction and lifestyle change, as laid out in Chapter 1, because such changes challenge multiple social and discursive norms, and as such meet with powerful resistance. Overall, Willis describes this approach by politicians as maintaining a “feel-good fallacy” that paints only a partial picture of the likely upheaval that climate change will cause:

“There has been an overwhelming focus on encouraging low-carbon solutions – like developing renewable energy, or offering grants for electric vehicles. These are valuable things to do. ... But all this positive activity masks a deeper problem. Very little has been done to curb carbon-intensive activity, like new sites for fossil fuel extraction, increasing demand for aviation, and growing meat consumption. The politicians I have spoken to are nervous about addressing these issues. Environmental campaigners have often told me that they worry about arguing for changes to aviation or meat consumption, because they worry it might alienate people.”

(Willis 2020 p69)

The feel-good fallacy resonates with the idea of “Prozac” leadership mentioned in Chapter 2 where leaders cultivate a relentlessly positive outlook. This runs the risk of closing down debate and avoiding challenging areas of discussion (Collinson, 2012). Willis goes on to suggest that the influence on politicians from business interests is part of the reason for avoiding the lifestyle implications of a low-carbon future:

“It’s easier to concentrate on innovative new technologies, rather than picking a fight with powerful fossil fuel interests – hence the feel-good fallacy. It’s easier to suggest small, incremental changes that won’t challenge dominant social views, than trying to engage people in challenging conversations about social futures – hence stealth strategies.”(Willis 2020, p71)

These extracts highlight the strong bias among politicians for technical rather than social solutions, and the avoidance of potentially difficult topics such as behaviour change as a

demand-side measure, and help to explain why “*sustainable behaviour is often downplayed in debates about climate mitigation*” (Newell et al. 2021, p10). The mentality within political circles of taming climate change, bending to powerful interests, and insulating constituents from its implications is highly likely to be influencing the type of interventions and government policies that are deemed possible. If a political position is taken that the public does not want to change behaviour and must be insulated from the realities of climate change, the options available for governments are narrowed to those that will have minimal impact on lifestyles, such that low-carbon duplicates of high-carbon activities will be prioritised over demand reduction. This view of the intractability of behaviour, which has been termed “behavioural realism”, may serve certain interests that benefit from prolonging high-consumption lifestyles (Westlake, 2022).

It is against this backdrop that the MP interviews will be considered.

5.4 The interviews

The interviews began with general questions about the MPs’ views on leadership as a concept and leading by example in principle. This progressed onto more detailed questions about the specifics of whether MPs thought it was appropriate or possible for them to adopt high-impact low-carbon behaviours. If the MP had indicated that they didn’t have much time available for the interview, sometimes the initial questions were omitted and the interview centred on their views about leading by example with pro-environmental behaviour. A brief summary of the interviews and the MPs’ views on leadership in general can be found in Appendix B. Next, themes relating to leading by example and high-impact low-carbon behaviour will be explored.

5.4.1 Views on leading by example and being role models

The MPs were asked for their views on leading by example, whether it was desirable and possible, whether there were complications for them in practice, and to what extent they see themselves as role models. In principle most MPs said leading by example was necessary:

*“I think it's really important that a leader **models good behaviour**, so others will look to you to show what good behaviours look like, and that can be in the workplace or in other sort of settings. I think **consistency is important**, not saying one thing and doing another... otherwise I think that loses you - you lose trust and you lose your right to authority I suppose.”*

(MP)

The MP highlights two primary functions of leading by example: the **demonstrative** element (“*show what good behaviours look like*”); and the need for **consistency** between words and actions in order to maintain “trust” and “authority”. In the next quote an MP suggests that behavioural leadership takes place within a temporal context where leaders model behaviour *now* that might be expected of the public *in future*. As well as leadership being *physically* ahead of followers, therefore, they are also ahead *in time*:

*“So my understanding of this is actually **you should do what it is you would expect the general population to do in the future**, so as it were your behaviour now is ahead of what you would expect the general population to do now, but you would expect your behaviour to be in line with what the general population is doing at a later date, so **your leadership is as it were ahead of the curve and not outside the curve.**”*

(MP)

The implication of “*ahead of the curve and not outside the curve*” is that modelled behaviour must be seen as something people could conceive of doing themselves, if not immediately. This theme will be returned to below.

In the next quote the MP links leaders’ behaviour to morality, self restraint, and taking responsibility, which they think are lacking in current political leadership. Asked if MPs were role models they said:

*“Absolutely ... **I do feel the lack of morality in politics** at the moment, and I don't mean morals as in the morals that are set up by the church or by religion but I mean just having **self-restraint and self-decency**.... And also setting an example for people as well because if they see a leader lying, refusing to take responsibility, then people will quickly stop caring about the political scene.”* *(MP)*

When asked about low-carbon behaviour specifically, several MPs advocated leading by example and emphasised the need for consistency between overall societal aspirations and individual behaviour:

“If you are basically saying the right course of action for a population as a whole in terms of our climate change requirements and targets and undertakings and concerns is to ask people to live their lives in a much more low-carbon basis and go about their business on a lower-carbon

*basis, reorganise their energy arrangements on a lower carbon basis then **you've got to do all those things yourself** surely. And you... shouldn't be in a situation where you are **saying all those things and then doing the opposite in your daily life and expecting people then to believe what you're saying** about why they should do things which you've told them to do.” (MP)*

The MP above has linked physical behaviour with being believed, an example of the potential importance of embodiment. Another MP suggested that there was a problem with MPs from different parties not walking the talk on climate change:

*“You've got some politicians that are saying ‘Yes we'll deal with climate change, we'll deal with the environment,’ but the reality is their actions don't follow their thoughts ... I think that's a failure of lots of politicians across the divide and it isn't a party political thing. ... That isn't leadership. **Leadership is saying ‘I've done these things myself’** so if someone says to you ‘well what have you done?’, you say ‘well actually I've done this, this and this’” (MP)*

Not all MPs were comfortable describing themselves as role models, nor were they as assertive about MP's obligations to adopt low-carbon behaviours. The following extract is from an MP that was sceptical about climate action. They identified leading by example as being an important part of leadership in general, but defined themselves as a representative of their constituents rather than a leader or a role model:

*“I'm not a leader, I'm a backbencher, **I'm absolutely not a leader**. So... leadership to me is about being inspirational, it's about getting the best out of people who are in your team and it's about setting an example for others to follow, in a nutshell. That's what I would class leadership as. ... I'd say my job is not to be a role model. **My job's to represent the interests of my constituents in Parliament.**” (MP)*

Similarly, several other MPs described themselves as nothing special and being ordinary members of the community. Asked if they were a role model this MP said:

*“No. I think **Members of Parliament are just people**, so to just behave like an ordinary person rather than being pompous and saying ‘I'm sitting*

*in Parliament and I'm somebody special'. That's complete nonsense I don't look at my role like that. **I'm part of my community.**" (MP)*

However, the one MP actually did exhibit some high-impact low-carbon behaviours and previously had decided to deliberately go public with one such behaviour. They were thus aware of their position as someone who sets an example for others to, potentially, follow, as evidenced by this statement later in the interview:

*"I'm looking into buying an electric car and **I hope I take people on a journey about how I came to the decision of a particular choice.** These sorts of things are of interest to some people. They are **also of interest to the opposition** to run into me saying 'Ooh there they go!', because I have the means to actually buy an electric car... Each time I'm not doing something and then they pull me over the table, "Ahh you haven't done this!" It's a bit of a fine balance but I'm happy for people to scrutinise what I'm doing personally. But I think my main impact as a political leader is to make the political... to **campaign for the political changes at the top that need to happen.**" (MP)*

The above extract includes several themes that were common to the MP interviews. There is a willingness and perceived duty among some MPs to set a low-carbon example for others, but also a level of modesty about their position as a representative of their constituents. There is also a very keen awareness of potential negative responses from political rivals or the media to overt behavioural choices ("Ooh there they go!"). The fact that low-carbon options are often more expensive was highlighted by many MPs, and this was used to caution against personal example setting because it may be perceived as the exclusive preserve of wealthy and privileged people. The potential for being accused of hypocrisy if one action is taken but not another was mentioned by several MPs ("Ahh [but] you haven't done this!"). Finally, the MP emphasises that they see their main job as pushing for wider political change rather than focusing on individual actions. This coincides quite clearly with findings from the Focus Groups set out in Chapter 4, where participants wanted MPs to lead by example as a general rule, but often placed a greater priority on politicians making wider systemic changes. With regard to the power that MPs have, we see in the above extract that this MP does believe they have *personal power* to influence others through their behaviour, while also using their *position power* to bring about structural changes. They are also subject to external power in the form of negative reactions and critical commentary, a subject that will be returned to below.

Other MPs were more assertive about their position as role models, while identifying similar challenges around how exemplar behaviour is likely to be perceived. When asked “As an MP, do you see yourself as a role model?” this interviewee said:

*“Unfortunately yes. So **members of parliament are particularly open to charges of hypocrisy**, which I understand, so I try to... if I say that I think we should be more sustainable, use more renewable sources of power, I try [to] waste less food, choose organic, I try to do that, not always successfully.” (MP)*

Above we see the MP’s reasons to align their personal behaviour with their message on sustainability is, at least in part, to avoid accusations of hypocrisy rather than encourage others to act. This can be viewed as a *defensive* form of leading by example. They continue:

*“It’s very easy to slip up and fall, with the spotlight on you, you say something and then, as Prince Harry found out last week, everybody will be out to get him, to prove that he’s a hypocrite, which he isn’t. You know he’s doing a great job in my opinion, but **it becomes almost impossible**. ... So the best thing to do is **just get on with it, don’t make a big fuss**, don’t sort of boast about doing this, that and the other because somebody will always come along and point out where you’re not doing the right thing, so you just do it so that if people do look into your lifestyle then they can say ‘ok well, by and large they do try and practise what they preach’.”*
(MP)

Again there are several themes in this extract that are common to other MPs. There is an assertion that if MPs are advocating for sustainability then they themselves should try to act it out – leading by example – but this opens them up to criticism if they are perceived to fall short, which several MPs said was inevitable (“*you’re always going to be seen to be a hypocrite in some way or other*”). They conclude that to avoid criticism the best course of action when adopting low-carbon behaviour is to “*just get on with it, don’t make a big fuss, don’t... boast about doing this*”. This low-key approach was stated by several other MPs in relation to their low-carbon behaviour, as these quotes exemplify: “*I don’t like shouting from the rooftops*” (MP); “*Well I don’t go around broadcasting, ‘oh look at me I don’t [do this any more]’*” (MP); “*If you set out to make great dramatic statements you can be cruising for a bruising.*” (MP); “*I eat very little red meat but I don’t go around telling everybody that.*” (MP). In the introduction to this chapter evidence was cited that MPs have traditionally used

“stealth strategies” when promoting the climate agenda so as to avoid negative pushback (Willis, 2020). The quotes above indicate that the same can be said for their own low-carbon behaviour, for understandable reasons. Most MPs interviewed said they would not choose to draw attention to their own low-carbon behaviour in order to avoid what they considered to be inevitable negative reactions. Negative reactions were much more commonly cited or predicted than any potential positive effects of leading by example. The media and social media were mentioned as playing a role in this, as highlighted in the quote above that mentions Prince Harry. Another MP cited the media as a factor, and also referred to Prince Harry and Meghan Markle, who had recently been in the news following their statements about having “two children, maximum” for environmental reasons, and were subsequently criticised for flying in private jets:

*“With Prince Harry and Meghan you've got again, he's done a great job in many ways, and then they go and get slated for taking private jets. Um, **you can't win**. So I think often these things are better done at a local, less visible way, out of the sight of the media.” (MP)*

Here, a negative media reaction is given as a reason for not making bold statements about low-carbon behaviour. It is notable that the criticism of the royal couple taking private jet flights is implied to be invalid by the MPs in the previous two quotes, who use the phrases “*it becomes impossible*” and “*you can't win*”, suggesting that using private jets is unavoidable for some people and criticism is unreasonable. This corresponds with a view that those with very high lifestyle-related emissions do not have extra responsibility to change their behaviour. Here these MPs depart from the opinions of some focus group participants, as documented in Chapter 4, who said the use of private jets *does* undermine the pro-environmental credibility of celebrities and royals.

In contrast to the predominant stealth approach to their own low-carbon behaviour, the following MP was one of the few that actually said that they deliberately “*let everybody know*” about their low-carbon behaviours.

“I did that [publicised a low-carbon action] because I think it's important that we move as rapidly as we can towards a carbon free world where we generate all our energy with renewables, and I want to play my part in that, but also let everybody know that's what I do too.” (MP)

As well as the potential for negative reactions of the media, MPs were highly attuned to sending signals via their behaviour that might clash with the priorities of their constituents:

“I think it's problematic as an MP because people have [different] expectations that you will deliver their will. So I can have four constituents all with different wills. How do I deliver that?” (MP)

“Ultimately I think the implication behind the question [should MPs lead by example with low-carbon behaviour?] is that you're asking people to do something that they don't automatically want to do, and that is sometimes a conflict with politics because the idea of being a political representative is that you are there to represent what people want you to do, so you are the person they've chosen because you are the one that represents their general viewpoint, and people sometimes get a bit frustrated when having elected somebody who is supposed to represent their point of view, they suddenly find they've got somebody who wants to lead them off into a totally different direction.” (MP)

In the quote above we see that leading by example is “asking people to do something that they don't automatically want to do” highlighting that overt low-carbon action may lay down a challenge to others. Asked if they would feel free to adopt high-impact low-carbon behaviour, another MP said they would have to consider whether local businesses would approve:

“You know, most people in my patch would applaud the efforts [to act in low-carbon ways]. Um, but at the same time they wouldn't want to see me disrespecting [our manufacturing] industry. ... I'm much more interested in pushing [R&D in order] to say ‘OK we can decrease our emissions by using this technology.’” (MP)

Here we see the balance MPs feel obliged to strike between positions of principle and representing business interests. This MP's pivot towards technological solutions was described in the introduction to this chapter, helping to explain why demand-side solutions are often neglected (Willis, 2020). This can be considered as another strand of climate action by stealth, where the hope offered by as-yet undeveloped technology buffers the need for rapid societal changes. The same dilemma was raised by another MP when asked about the feasibility of taking certain low-carbon action:

“People who are involved in the [...] industry would say, ‘What's he doing to my job?’... I wouldn't decry anybody who said [they would adopt a particular low-carbon action], I'd applaud them, but I would say it's a pretty

difficult for me, both in my work and also in my support for businesses that are doing their best to try and improve [their environmental impact]. It would be pretty difficult for me to justify that.” (MP)

Likewise, when asked about the theoretical feasibility of signing a “Flight Free” pledge which commits people to not flying for a year, several MPs anticipated some of their constituents would react negatively to the implicit message of signing such a pledge:

“The problem with the Flight Free campaign is this, the people who tend to fly the most are the people with money,... the business people jetting around. If you are saying to constituents like mine who mainly go away once a year, they fly twice, right, they fly to Spain for two weeks and come back the other week. They are going to rail against [it and say] ‘Well why are you banning me from flying ... the only treat I get a year is my two weeks in Fuengirola’. ... So I think you’ve got to be very careful what you talk about, symbolic politics, and not leave certain people in society out.”
(MP)

Here we see the MP has adopted a “social justice” perspective in response to the discussion around flying less by suggesting it would not be fair stop those who fly only once a year for a holiday (Lamb et al., 2020). The absolute position of “banning me from flying” uses an “extreme case formulation” whereby the idea of a voluntary one-year flight-free pledge is extrapolated to imply a total ban on everybody flying (Pomerantz, 1986). This rhetorical device cropped up several times in the interviews. It is notable that the potential signals sent by signing a one-year flight free pledge are considered only for one end of the spectrum – the family that takes only one return flight a year – rather than for “*the people who tend to fly the most... the people with money...*”. While the MP mentions those people, they don’t suggest that anything might be done to address the inequality.

When asked about low-carbon behaviour, the following MP raised constituents’ interests in the shape of jobs and economic prosperity, in relation to possible airport expansion. Technology was again seen as a source of hope:

*“That is a difficult one locally because we are supporting our local economy and all the jobs that go with it. **What I’m hoping of course, and there are technological advances being made**, which will, it seems eventually lead us to air travel which is not polluting. We are some way*

away from that yet but they are seriously thinking about that at the moment.” (MP)

Relating to personal mobility, the inconvenience and practical implications of avoiding flights in favour of lower carbon travel was viewed as an impossible personal cost for MPs that live in constituencies distant from London, for instance Northern Ireland and the north of Scotland.

Virtue signalling

The cost of home efficiency measures was cited as a reason that leading by example by MPs might not send a positive message to constituents, and instead could be perceived as “virtue signalling”. Virtue signalling was identified by several MPs as a default reaction to low-carbon behaviour:

*“I think the risk is that some people would say, ‘It’s fine for you, you’re on £77,000 a year, of course you can afford to replace your gas boiler with an electric one. I’m on minimum wage I’ve got bills, I’ve got arrears, I can’t afford it, so that was all very interesting, **you’ve signalled your virtue.**’ And I don’t mean to be negative about it but, um, we are in a particular position because of, bluntly, what we get paid, and therefore more important I would say is how MPs collectively are going to organise things so that we can replace all those gas boilers everywhere. That is the big policy challenge.” (MP)*

*“In fact the **virtue signalling in and of itself is part of the problem.** ... The most classic one is David Cameron 10 or 15 years ago putting solar panels on his roof. Now all this is fine, but the truth is that most people can’t afford solar panels on their roof, so what are you really saying is ‘Look at me I’m so green.’ Look in politics you need to do things like that. I don’t criticise David for that. He is green and he genuinely believes in it, but what I’m saying is that in and of itself doesn’t do what politicians are meant to do, which is deal with systemic macro economic or macro policy frameworks, which mean that ordinary people make different decisions, or not.” (MP)*

The implication of the two quotes above is that overt leading by example from MPs is problematic and may be counter-productive (“*part of the problem*”). Both MPs suggest that the job of politicians is to lead on systemic changes rather than embodying change themselves. The assumption apparent in the first quote that leading by example only sends

signals to those on lower incomes, rather than those of equal or greater wealth, is used as a reason for not doing it. It may be that the media plays a part in this portrayal of how low-carbon behaviour will be received.

The costs of decarbonising were also raised by another MP, but with a different emphasis suggesting that a detached, macro economic approach may be unfair. They invoked social justice arguments to say it is wrong to place a financial burden on less wealthy people to decarbonise the economy when it's not going to make any difference to global warming:

“We've seen basically lots of rich people forcing poor people to pay more for their energy, and that, like I say, that's a curious form of leadership.”

(MP)

MPs also cited the practicalities of their jobs as an impediment to adopting low-carbon behaviour. MPs who have to work in central London but are based in far flung constituencies cannot avoid commuting long distances that require plane travel. Several MPs also stated explicitly that they thought it was mistaken to place an emphasis on individual action when in fact systemic change is needed:

“I think there can be a... too much concentration on the individual, if you think about what's happening around the world at the moment and elevating people up on high.” (MP)

“I feel there's too much blame attached to individual behaviour for environmental outcomes and that there's a duty on government to deliver a system that encourages people: regulation, fiscal measures, and provision of public transport and the like to deliver systemic and radical change, and the idea of individuals being responsible for recycling the plastic or driving less is insufficient. I think political leaders should behave sustainably and sensibly but there can't be a substitute for taking strong action... I think it is desirable that people try and eat less meat and fly less and use the car less, but if I just do a bit of those things less I think it would be naive of me to think that it would have an impact really on other people following my lead. And there's a danger that it might be seen as a stunt.” (MP)

The MP went on to say that personal action from government ministers could be used as a distraction from a lack of effective policy:

“So if you're Michael Gove when he's environment minister, if he can just say ‘Don't worry, we won't do anything about diesel cars until 2042’ and then ride round on a bike, he's not going to save the environment, he's just going to give the pretence that he cares about the environment when he doesn't.” (MP)

These sentiments, that individual actions are not sufficient, resonate strongly with the evidence from the focus groups in Chapter 4, where members of the public approved of MPs taking low-carbon action but said it was more important that they used their positions of power to bring about systemic changes.

Incremental steps

A further example of MPs taming climate change can be seen in the solutions that they offered as preferable to significant changes in behaviour. When considering the reactions of constituents to example setting, several MPs recommended small steps to avoid alienating the public:

*“I think what is more important is that **if everybody did one little thing different like for example, divide up your plastic bottles in your bag when you put your bins out...** The problem is sometimes I think the climate change movement, they ask people to become almost like Trappist monks, when probably the way forward is asking people to **take baby steps...** you know even someone turning the light out when they leave the room to save a bit of energy, you know, at least they are becoming aware of those things.” (MP)*

*“You actually hopefully do get to your goal and your targets but you do it in **small incremental steps** rather than making one large significant objective.” (MP)*

*“There are plenty of things you can do as an individual that can **make little changes** that if actually if everybody in an estate where... there are 100 and odd houses and if everyone did it, goodness me that becomes a real game changer in the community and that spreads out.” (MP)*

Asked about whether personal choices were important, this MP said they were significant in order to give people a sense of agency in the context of a global issue. This included the small things, for instance in Parliament:

*“Well I think it's quite important, otherwise people begin to think that they are completely impotent, and these are big massive tectonic plates that are moving which individuals don't have influence on. But like, **small issues**, in Parliament the move to **recycling more stuff**, the penalty on single-use plastics – people having to pay more if they buy a cup of coffee in a **single use plastic cup** than if it's in a recyclable cup. ... MPs increasingly saying that as far as our pensions, they should be in ethical investments - all those things I think do **help nudge in the right direction** and therefore are important.” (MP)*

These extracts highlight a propensity among MPs to favour incremental changes that are not disruptive to the status quo, which aligns with Willis' findings about politicians' tendency to “tame” climate change and avoid confronting the idea of major societal disruptions or lifestyle changes (Willis, 2017, 2020). There was a near-universal attitude among MPs that the public should not be confronted with the idea that significant behaviour change was necessary and urgent – certainly not by MPs setting symbolic behavioural examples.

Symbolic behaviour

Symbolic behaviour by leaders is a recognised tool that can send strong messages to help create shared meanings and understandings, especially in a crisis (Boin et al., 2017). The MPs were asked directly about their views on symbolic behaviour in principle and practice. Overall MPs were very unsure about whether this would work in the case of high-impact low-carbon behaviour. The following MP thought MPs weren't the right people to be taking symbolic low-carbon action, suggesting celebrities or members of the Royal family would have more cut-through.

“I don't think it's so much about the big symbolic thing, it's much more about taking people by the hand and say look that's what it actually looks like. And I suspect the people who have probably a better chance of cutting through with big symbolic things are actually celebrities, but MPs are not celebrities. We have got much less... people look at us much less in that sense as role models than for example Angelina Jolie or, you know, these guys or even the Royal couple or whatever. Compared to Harry and Will I'm a complete nobody, so these symbolic gestures are probably better left to the people who command real celebrity status, and I don't.” (MP)

This comment could be viewed as contradicting the statements from other MPs regarding Prince Harry and Meghan Markle, who were mentioned as examples of how symbolic behaviour triggers negative reactions in the media such that “you can’t win”. In addition, the argument that MPs are not the right people to make symbolic gestures because they do not have a high enough profile (this MP also described themselves as an ordinary member of the community) contrasts with polling that suggests the public view MPs as members of the “ruling classes” in the UK, so perhaps closer to Royalty than they may think (YouGov, 2019).

Other MPs agreed that they are not in the best position to take symbolic action, while speaking approvingly of Greta Thunberg’s example of school striking and taking a boat across the Atlantic:

“Somebody like er, the young Swedish woman, Greta [Thunberg], she clearly is in a different position and I have a lot of admiration for what she does and she obviously attracts a lot of praise but also criticism for it. She's in a position where she can influence, more openly influence people to do different things.” (MP)

“I love the fact that suddenly across the world you see this example of a little girl Greta Thunberg you know. [People] not being led by politicians, by a little girl who suddenly captures the public awareness to such an extent [and stimulates other young people to take action]” (MP)

The same MP countered the argument that leaders should follow social norms, saying that things that are initially perceived as gimmicks can become common behaviour:

“Some of the things we do will be gimmicky and some things are quirky and gimmicky but actually after a short time they become accepted as commonplace” (MP)

Another MP approved of Thunberg, but wasn’t sure if MPs could act in a similar way, and criticised the former UK Prime Minister David Cameron for symbolic behaviour that wasn’t deemed to be a genuine commitment:

“I mean obviously Greta Thunberg's actions and words have been instrumental in change, they've been very successful. ... It's not an example of how to behave [because it's not practical for everyone to do] but it does underline very graphically that... the next generation demands action now for their current leaders to not doom their futures... I think

people can act and set examples but sometimes these are reduced to stunts like David Cameron hugging those dogs, those huskies, and it's a sort of farcical excuse for not taking any action and pretending to do something.” (MP)

The example of David Cameron’s photoshoot with huskies was mentioned by two other MPs, one who approved (“*That was pretty symbolic, he got quite a lot of flak both ways at the time but what he achieved was attention, so he got the attention in trying to position the Conservatives into a green space*” – MP) and another who was more ambivalent (“*Dear old David Cameron and huskies, did that do more harm than good? I don't know.*” – MP).

One MP was very positive about symbolic behaviour in general, citing historical civil disobedience campaigns as having effected change. Another MP suggested that MPs were engaged in performative behaviour “*all the time*”:

“I am a little wary of being a smug git really,... but... to be fair everybody, people do performative behaviour all the time don't they? Whether they do it for personally looking good or to demonstrate that these things are possible or for, you know, for a variety of reasons I'm sure. But politicians do it all the time... whether it's hugging a husky or travelling on the bus or whatever it is, but there can be a range of reasons why people might want to demonstrate particular types of behaviours that you might term 'good behaviours' I suppose.” (MP)

These quotes reflect the general view that symbolic behaviour can be deployed effectively by a leader, but in general the MPs were very uncertain about doing it themselves for fear of negative reactions and out of an aversion to what they considered “gesture politics”. This tallied with the evidence from the focus groups presented in Chapter 4, where members of the public were highly attuned to the potentially ulterior motives of leaders undertaking symbolic action. However, the focus group participants generally approved of leaders taking such action as long as it was sincere and consistent over time. The MPs agreed that any behaviour should reflect a genuinely held position rather than be a publicity stunt. These findings perhaps point towards a confirmation that embodied leadership – leadership that reflects the true beliefs and motivations of the leader – has the potential to carry meaning that will be understood by followers. In the case of MPs adopting high-impact low-carbon behaviour, however, it will likely need to ride the waves of suspicious interpretations in the media and social media.

5.4.2 Sceptic positions on climate action

Three of the MPs interviewed were sceptical about climate action. One said that climate change was nothing to do with human activities and that *“it is pathetic to believe that the puny efforts of man can have an impact on climate across the world”* (MP). This MP did not agree to a verbal interview and instead sent a simple statement in response to the interview questions. The other two MPs did not deny climate change was happening but questioned how it is being tackled and objected to perceived behavioural inconsistencies of those who advocate for climate action, including their fellow MPs:

“I suspect most of the MPs who stand up in Parliament and lecture everybody about all this climate change thing are the ones who take the most flights around the world. That's not leadership is it, that's just irritating.” (MP)

This interviewee was asked what they would think if an MP said they were going to stop flying because of climate change. They responded:

“Yeah I'd have more respect for them. I mean, I wouldn't necessarily agree with them but I'd, you know, I would respect that. I'd say that's fair enough, they're practising what they preach. But far too often in politics in particular people don't practise what they preach, ... You can't expect people to do things that you're not prepared to do yourself. ... They don't have to go [on work-related flights] – there's no compulsion to go. But they want to go. [They say] ‘oh I don't have any choice’, but of course they have a choice.”
(MP)

Here the MP's criticism sounds similar to some of the critical statements made in the focus groups in Chapter 4. The other sceptical MP also expressed strong aversion to celebrities who advocate for climate action but often travel by plane:

“They are going off presumably first class, if not [in] a private jet, from one bloody city to another, flying around the place so they can make some cash in order to tell working class families they can't have a cheap holiday in Spain once a year. I mean absolutely not! I totally fucking reject it to be honest with you. I don't want to put it any more strongly than that. ... It is a complete load of bollocks and I cannot begin to tell you how strongly I feel about this. It really is an outrage that we're having this sort of stuff put on

us.... Yes we can become carbon neutral by 2050 in this country. We don't need to take the big hit in our living standards and if we're free from oil, as somebody who's not entirely convinced by the science as you've gathered although I do accept actually the basis of it, I personally would welcome the fact that we're not having to buy oil from some of the most unstable countries in the world. So there's some very good reasons for all of this that have got nothing to do with climate change as it happens, but I'm afraid these people are alienating... and they're not showing leadership”
(MP)

Again this MP was asked what they would think if the people in question stopped flying because of climate change:

“If that's what they believe then that's what they should do. I mean it's a lot better than for them to say 'I'm going to lecture everyone else but I'll carry on flying' – yeah, for sure.” (MP)

These statements reveal the strength of feeling that can be generated when climate advocates are perceived, rightly or wrongly, to be acting hypocritically. They suggest that leading by example with high-impact low-carbon behaviour may go some way to defusing negative reactions because it suggests advocates of climate policies are not simply trying to impose changes on other people. It is often said that accusations of climate hypocrisy are actually a bad-faith attempt to delegitimise those advocating for change, and that for some climate sceptics nothing is sufficient short of total, impossible abstinence (e.g. Mann, 2021). However, if taken at face value, these statements by sceptical MPs suggest that the effect of not being seen to walk the talk sends a powerful negative signal even among political colleagues.

Accusations of hypocrisy were made about celebrity activists too, for instance Emma Thompson who was reported to have flown from Los Angeles to London to attend a climate protest:

“It's the double standards and the hypocrisy I think that people don't like, people who lecture people to do something that they don't do themselves.”
(MP)

This same MP also called for more “honesty” about the efficacy or not of individual action in the context global emissions:

“I think we need a bit more honesty in the debate about the impact of individual actions. You know the idea that if a class of children decide to stop eating meat and not take any flights anywhere, we need a bit of honesty to say actually the impact on the global temperatures of that action will be zilch. ... My view is people should be free to do, to make their own choices, and they certainly shouldn't be bullied into doing things they don't want to do, by other people.” (MP)

The MPs above draw on some bold language that objects to the use of coercive power to control others' actions, for instance: “**tell working class families they can't** have a cheap holiday”; “**lecture** people to do something that they don't do themselves”; “people shouldn't be **bullied into doing things** they don't want to do”. This type of language was not unique to the sceptical MPs, however, as will be seen next.

5.4.3 Low-carbon behaviour – is it normal?

When talking about the kind of low-carbon actions they might exhibit, some MPs presented their own position relative to a more radical or extreme behavioural position that they would not adopt. The following MPs were in favour of climate action and some level of role modelling, but highlighted their tendency to stay within the bounds of what they view as socially normal or moderate behaviour.

*“It's a difficult one because ...I'm not going to turn into a vegan, [a] person who **wears linen and goes around in a teepee** or whatever. I'm gonna still be **of this world.**” (MP)*

*“I think to try to set some sort of example but **not be too saintly.**” (MP)*

*“You take people with you on a journey of changing. I think that's a better role model than **being out there, being absolutely fabulous and perfect.**” (MP)*

The statements above paint a picture of radical low-carbon behaviour that is outside of social norms and is other-worldly; perhaps involving self-denial, religious piety, or pejorative ideals of purity and perfection. It may be that the MPs were positioning their own behaviour in contrast to this more radical stance in order tacitly to guard against perceptions of being “freaks” or “zealots” when it comes to climate change, which is an established fear among MPs identified previously by Willis (2017). However, it should be considered that MPs

framing low-carbon behaviour as freakish and outside of social norms may serve to maintain high-carbon norms and prolong the stigma of going against such norms.

A similar pattern can be observed below with MPs positioning their views on low-carbon behaviour change in contrast to a position of **immediate and total cessation** of higher carbon activities.

*“I’m not going to sit here and say to you ‘oh yeah of course **we should stop all that [high-carbon behaviour] and it should all just be resolved tomorrow’** ... but I acknowledge you have to find a medium before it’s too late, if it isn’t too late already.” (MP)*

*“**Getting rid of all flights** for the time being is not realistic, but we’ve got to look towards a world where we can somehow make air flight not environmentally damaging and that’s difficult.” (MP)*

*“I wouldn’t be going out there saying ‘yes I’m going to be green and **nobody should buy a car ever again**’” (MP)*

*“I struggle to be **absolutely purist**” (MP)*

*“I think the climate change movement, they ask people to become **almost like Trappist monks.**” (MP)*

While the MPs appear to be advocating for a moderate stance on behaviour change, these statements could be viewed as creating a straw man position of immediate and total abstinence, a position that was not raised in the interviews. The position is made explicit in the reference to “Trappist monks”.

The next statements highlight how MPs think their own low-carbon behaviour might best be communicated. Again the MPs site themselves in opposition to a more extreme position.

*“If you set out to make **great dramatic statements** you can be cruising for a bruising.” (MP)*

*“I eat very little red meat but **I don’t go around telling everybody.**” (MP)*

*“I don’t like **shouting from the rooftops.**” (MP)*

*“There is a fine dividing line between on the one hand, waking people up to the scale of the climate change challenge, and **terrifying people into immobility.**” (MP)*

Again, by explicitly advocating a moderate position set against a more extreme position, the MPs’ statements suggest that communicating low-carbon behaviour risks being perceived as “dramatic”, “terrifying”, or immodest. This may confirm the potency of low-carbon behaviour as a topic of discussion, but also its potential to cause offense or to backfire. This language from MPs may reflect a kernel of truth that some narratives in the environmental movement emphasise extremes of behaviour, urgency and rhetoric. However, the reproduction and normalisation of this language by leaders such as MPs may serve to perpetuate ideas that low-carbon behaviour is socially “other”, maintain high-carbon social norms, and support outgroup status for those who do adopt it or advocate for it. The language may also serve the purpose of maintaining a social identity that MPs perceive matches that of their Parliamentary colleagues or certain of their constituents (Hornung, 2022). It is notable that a politician’s role is to communicate, get a message across, and advocate for causes. Gaining attention from the media and constituents is one of their primary objectives, and so their emphasis on *not* “shouting from the rooftops”, “telling everybody” or making “grand dramatic statements” when it comes to low-carbon behaviour is noteworthy.

5.4.4 MPs as representatives of constituents

When considering the issue of leading by example, several MPs made reference to their position as representatives of their communities. Leading by example with high-impact low-carbon behaviour was considered by MPs in relation to whether this behaviour *represented* their constituents, addressing such questions as: is such behaviour in their constituents’ interests?; would constituents *want* them to do it?; would they approve or disapprove? Underlying these questions is the ultimate question: would such behaviour win or lose votes? The answers to these questions depend on each MP’s individual outlook and situation. For instance one MP with a small majority said:

“I suppose I see the authority for my role as a leader rising from the backing that I get from my constituents, that's essentially a matter of borrowed or delegated authority and, so that means that I have a particular responsibility to make sure that I reflect the views of the majority of my constituents but also at certain times trying to entail the entirety of the

constituency, even those people who voted against me, and I have to say I'm very mindful of that at the moment [because of a small majority].” (MP)

This MP said the idea of leading by example on environmental issues was a balance between a philosophical position (“*I think it was Mahatma Gandhi that said ‘be the change that you want to see in the world’ and that’s how I see things*” – MP) and a representative position. Another MP reflected on their representative role by saying that their constituents hadn’t explicitly requested that they adopt low-carbon behaviour:

“In all honesty I can’t say anyone’s ever written to me and said, ‘Well I’m not doing anything about climate change because I don’t think you’re doing anything about climate change as an individual.’” (MP)

The implication of this statement is that an MP’s primary job is to respond to constituents’ explicit demands, and the absence of a demand for an MP to take individual action removes the requirement for such action. Another MP corroborated the idea that their constituents don’t necessarily prioritise acting personally on climate change:

“They are much more bothered about basic things like, ‘Is my job secure? Have I got family credit? What Universal Credit going to be? How’s it going to affect my life?’ You know, those are much more pressing issues for people at a local level.” (MP)

This quote suggests that climate change is not a “doorstep” issue for most constituents, an idea supported by previous research on UK MPs (Willis, 2018b), although public concern about climate change has steadily increases in recent years (CAST, 2022). The above quote again calls on a social justice argument that in effect relegates the priority of MPs adopting high-impact low-carbon behaviour because it would not be serving constituents’ more pressing concerns. Another MP said there was a balance to be struck between the more visionary functions of leadership and representing constituents’ interests:

“My community has elected me as their leader but not to the point where I completely detach myself from them or their interests” (MP)

The next MP quote suggests that constituents are not necessarily aware that MPs are not obliged to mechanically do the bidding of constituents.

“We’ve not been good enough at saying to people ‘We are elected to represent you, not to have direct democracy where you make a decision

and we just, like robots, go in and do as we're instructed'. And I think that works as much as it does on climate change as it does on the B word [Brexit] or health or education or whatever it might be. I think though it is important for MPs to show leadership in these areas.” (MP)

And these MPs were forthright that representing interests takes priority over leadership or being a role model:

“I'd say my job is not to be a role model, my job's to represent the interests of my constituents in Parliament and that's how I see my role.” (MP)

“The idea of being a political representative is that you are there to represent what people want you to do so you are the person they've chosen because you are the one that represents their general viewpoint.” (MP)

These quotes reflect the caution that MPs expressed about taking bold positions that may be perceived by constituents as not reflecting their interests. The MPs fear that adopting high-impact low-carbon behaviour may be perceived or depicted as “extreme” and will be “pounced on” by the media and political opponents; they fear that, while some (or even many) constituents may approve of such behaviour, enough will disapprove as to make a significant difference to the MP’s electoral chances, especially if they have a small majority; some fear alienating business interests for whom low-carbon actions may look like an implicit attack on economic growth in certain sectors, for instance aviation or automotive industries. So while most of the MPs who were supportive of climate action expressed support for the idea of leading by example *in principle*, and many said that they tried to act in low-carbon ways where possible, none were completely sold on the idea of taking a bold and overt stance of leadership in this way. The reasons for this centred around the efficacy of such action (would it actually work?), the popularity of it (would constituents and colleagues approve?), the potential damage to reputation or image from negative responses, the (in)appropriateness of focusing on individual action rather than systemic changes, and the social justice issues raised by advocating for actions that less wealthy people cannot afford. In terms of efficacy, no MPs cited evidence that their low-carbon behaviour had resulted in others following suit, and the overall impression was that negative reactions in the media would override any positive influence. This presents a rather negative picture of the potential for MPs leading by example. However, there is little evidence to corroborate or contradict the MPs’ instincts. Seeking such evidence will therefore be the focus of the next phase of the

research. Prior to this, the following discussion will relate the interviews back to the literature and theories presented in Chapters 1 and 2, and then proceed to consider the interviews and focus groups taken together, and how they are used to inform the next phase of the research.

5.5 Discussion

5.5.1 Leader credibility, sacrifice, and social norms

One of the key theories underlying the research in this thesis is that leaders' actions carry extra meaning, over and above their words, that can increase their credibility and inspire others to emulate their actions. Actions that are seen as "costly" for leaders, or represent some level of "sacrifice", carry extra weight because they signal what the leader truly believes about an issue. These processes have been described variously as "costly signalling" or "credibility enhancing displays", described in detail in Chapters 1 and 2.

Many MPs did believe their own low-carbon behaviour added to their credibility, and likewise they linked *not* leading by example with a *lack* of credibility. But this link was often conceived of in a passive, retrospective, or defensive way: *passive* in the sense that the low-carbon behaviour was carried out quietly and intended to *not* trigger a response ("I don't shout about it"); *retrospective* in the sense that it was designed such that *looking back* at their record of behaviour would show them to be credible; and *defensive* in the sense that a record of low-carbon action would provide a shield against accusations of hypocrisy. Overall therefore, the impression from MPs was that credibility on climate change is something that is *retained* through ongoing behind-the-scenes leading by example, rather than actively *built* by overt displays of leading by example with high-impact low-carbon behaviour. In effect this could be viewed as another "stealth strategy".

A clear message from most MPs was that adopting high-impact low-carbon behaviour to send a deliberate signal was more likely to damage their credibility due to accusations of virtue signalling and perceptions of being "too perfect", rather than to enhance their credibility.

None of the MPs said explicitly that personal "sacrifice" was a necessary part of addressing climate change, and their concerns about remaining faithful to constituents' interests indicated an aversion to personal sacrifices that may be perceived or represented as extreme and alienating for onlookers. There is an apparent contrast here with the results of the focus groups, where participants did express an appetite for leaders to exhibit appropriate sacrifices in certain circumstances.

Leadership functions

Chapter 2 laid out the various functions of leadership, including: establishing a direction of travel and a vision, aligning people towards the common goal, communication, and motivating and inspiring (Northouse, 2021). These matched well with MPs' own general conceptions of leadership as explored earlier in this chapter and in Appendix B. In relation to climate change, MPs tended to see their leadership role as building coalitions and pressing for systemic change via climate policies and regulations. Some saw leading by example with high-impact low-carbon behaviour as a sensible accompaniment to these other leadership functions, rather than a central element of climate leadership. This matched quite closely to the findings of the Focus Groups, where participants prioritised the MPs' role in bringing forward systemic change.

In terms of leadership styles, several MPs' described what might be considered a *transactional* form of leadership, intended to provide benefits to constituents in exchange for votes, as opposed to *transformational* leadership involving "a connection that raises the level of motivation and morality in both the leaders and the follower" (Northouse, 2021, p211). Many MPs described their leadership position as deriving from constituents whose interests they had a duty to serve. There was little evidence that MPs considered high-impact low-carbon behaviour to be directly serving the interests of constituents, and indeed there was general concern that it would be portrayed and perceived as the opposite, by some constituents at least.

Identity of the leaders

As representatives of various group interests, maintaining a group identity may limit the actions that leaders feel able to perform (Haslam et al., 2020; Ladkin & Taylor, 2010). This was clearly evident in the MP interviews. The MPs described the balancing act they must perform to represent their various constituents, and were sensitive to the risk of alienating some constituents if they adopted high-impact low-carbon behaviours that were not perceived as social norms. If this is viewed through the lens of identity, then MPs must retain as much as possible a common identity with constituents, such that constituents feel that the MP is working on their behalf. Bearing in mind the general lack of trust in politicians and the social distance that exists between MPs and most constituents, the bonds of identity are likely to be very weak in most cases, and this may contribute to MPs' reticence about taking on actions that can be perceived or portrayed as not representing the identity of constituents. The language used by MPs often suggested that high-impact low-carbon behaviour would set them apart from their constituents – reminiscent of the fear MPs feel of

being perceived as “freaks” and “zealots” (Willis, 2018a). Therefore those MPs that already take part in high-impact low-carbon behaviour tend not to publicise it and instead do it “on the quiet”, therefore limiting the extent to which it is seen as fundamental to their identity as a leader. This perhaps suggests MPs are alert to the risks of “cultural protest”, described by Jackson (2005), as a reason that leading by example will not work. However, polls show that climate change is now very high in the list of constituents’ concerns. Therefore it may be that the fear of being identified as freaks and zealots is overestimated, or may relate more to identities formed in relation to colleagues and the media, rather than with constituents themselves.

Trust in leaders

The interviews revealed a keen awareness of the low levels of public trust in MPs. This was seen as a reason for them to lead by example as much as possible, but also an impediment to the efficacy of adopting high-impact low-carbon behaviour, because such behaviour would likely be misinterpreted or misrepresented due to low levels of trust in the MPs’ motivations for such behaviour. The scope for rebuilding trust through behaviour lies, according to the MPs, in remaining consistent over time and not making grand gestures or indulging in what they describe as “gesture politics”.

The “crisis of trust” that was explored in Chapter 2 is evident from the interviews, with MPs saying that if they were to take high-impact low-carbon behaviour it is unlikely to be taken in good faith, and their motivations would be assumed to be self-serving. This view was supported to some extent by the focus groups in Chapter 4. The question remains whether a leader taking such action could actually increase trust, in spite of the immediate sceptical responses. The Focus Groups suggested that suspicious scrutiny gave way to more approving responses – indicating a form of “critical trust” (Poortinga & Pidgeon, 2003; Walls et al., 2004). The fact that MPs’ high-impact low-carbon behaviour might be approved of by some constituents and disapproved of by others was evidence of the “trust dilemmas” experience by those in power (Dirks & Skarlicki, 2004).

5.5.2 Power

The MPs had differing views on their positions as leaders, the level of influence they have over others’ behaviour, and appropriateness of using personal influence. They identified that they have some personal power to influence others through their low-carbon behaviour, but this was most often described as something to be used to avoid criticism rather than to inspire emulation by others. The most explicit form of power in evidence was MPs’ anticipation of negative interpretations of leading by example, which led most of the MPs to

say they would avoid making overt statements about their low-carbon behaviour. This anticipated reaction therefore was a clear form of “reinforcive” power that maintained the status quo such that MPs are uncomfortable with the idea of leading by example with the intention of influencing others (Avelino, 2021). It seems clear that some MPs would be far more overt about their low-carbon action if they did not anticipate a negative reaction from the media and political rivals. This could be viewed as the hegemonic power of social and cultural norms that is exercised by media commentary and reactions from constituents and peer groups. This form of power appeared to reside most clearly with the media who were mentioned by MPs several times in reference to coverage of Prince Harry and Meghan Markle, rather than with constituents themselves (“*that’s the nature of our press*” – MP). Indeed one MP said that they thought low-carbon action would go down well with their constituents. Applying the framework of Steven Lukes’ three dimensions of power, the second dimension seems to be at play here, such that the MPs’ actions appear to be self-limited to avoid an anticipated reaction from another party (Lukes, 2005). This also points towards hegemonic power residing within a system that tends to deride low-carbon behaviour while celebrating and promoting consumption through luxury culture, advertising, and a largely unquestioned growth imperative in the economy. Reinforcive power was also in evidence in the MPs’ statements about not wanting to upset local businesses or industry with behaviour that might be perceived as going against their interests. Considerations of social justice and the unaffordability of low-carbon choices for constituents resulted in some MPs indicating they would lean away from using power through leading by example.

Overall, the interviews suggest the low-carbon behaviour of MPs has the potential to unleash considerable power that would stimulate a reaction in the media and send a signal to the public and constituents, a similar finding to the focus groups in Chapter 4. However, the evidence from the interviews suggests that the power would be volatile and the results unpredictable, or predictably negative in the MPs’ view, which dampened their willingness to exercise this personal power. It is uncertain, however, how the use of such power would actually play out. The power of anticipated negative reactions appears to be reinforcive for MPs, maintaining the status quo. However, high-impact low-carbon behaviour may have the potential to be transformative too because of the message it sends about the leaders’ beliefs. This will be the focus of the next phase of research.

5.5.3 Flat view of society

The flat view of society was in partial evidence during the interviews. Several MPs made reference to social justice issues with regard to low-carbon behaviour, citing the

unaffordability of low-carbon options for the less well off, and the desire not to penalise families who take only one holiday flight a year. These examples were used to argue against high-impact low-carbon behaviour as a leadership intervention because it wouldn't be fair to demand costly change from the less privileged who could ill-afford it. However, while a light was shone towards the less wealthy, it was not pointed at the other end of the wealth spectrum. As such, the potential effects of leading by example were not considered by MPs in relation to those who consume at higher levels due to greater wealth – those in higher socio-economic groups. This indicates that, instead of adopting a flat view of society, MPs applied a partial, unidirectional view of society that only considered the implications of leading by example by looking towards the less well off, rather than the most well off. It is suggested that this is also a form of hegemonic power where the consumption habits of the wealthy are not problematised or discussed in relation to climate change.

5.5.4 Morality

Morality was identified in Chapter 1 as central to judgements about appropriate behaviour in general and in relation to climate change. Indeed, morality was mentioned explicitly by two MPs in relation to leadership and low-carbon behaviour, in addition to morally-laden language about not being “*too saintly*” or “*absolutely purist*”. Interestingly in these cases, MPs identify the risks of trying to be **too moral**, rather than being perceived as having a lack of morality. Furthermore, the language used by some MPs in relation to low-carbon behaviour and virtue signalling suggested they believed it is a fair criticism to level at themselves or others (e.g. “*the virtue signalling in and of itself is part of the problem*”). In effect, high-impact low-carbon behaviour is equated with virtue signalling by some of the MPs. This is then used as a reason to deprioritise such behaviour because it **is** virtue-signalling in their eyes. As such, it becomes a given that leading by example with low-carbon behaviour is not the right course of action because a “moral reversal” has taken place whereby a potentially moral action (low-carbon behaviour) is framed as immoral because it is classified as virtue signalling.

5.5.5 Embodied leadership

There is some support for the concept of embodied leadership in the interviews. Some of the MPs are highly attuned to the potential for a “contradiction of leadership”, as described in Chapter 2, if their climate advocacy is not consistent with their embodied actions. Furthermore, an aspiration towards embodied leadership can be seen from many MPs who try to align their personal actions, and the motivations behind them, with their work towards climate policies and societal change. Most MPs prioritised the need for systemic change, and

some saw this as largely overriding any urgency for individual change, in effect rejecting the need for embodied leadership as it is theorised in this thesis. Such a position is consistent with a traditional disembodied view of leadership that involves “brains without bodies”, as described in Chapter 2. According to this outlook, climate change can be addressed using mainstream technocratic and managerial approaches to politics, society and the economy, and without embodied leadership or leading by example. From this perspective, there is no contradiction of leadership if leaders are not acting out low-carbon lifestyles to the best of their ability. Interestingly, the MPs who were sceptical about climate action were particularly passionate about contradictions of leadership, described by them as “hypocrisy”, which they said they have often observed from MPs and celebrities. Judging by most MPs’ sensitivity to such accusations of hypocrisy, a perceived lack of embodied leadership has the potential to send a powerful signal.

5.5.6 Limitations

One of the obvious limitations of this stage of the research is that it focuses on only one kind of leader – UK Members of Parliament. MPs were chosen because of their special position within the governmental process, but this position involves a rather unique imperative for MPs to serve the interests of many different parties while functioning within a very particular political social structure (Hornung, 2022). This means only cautious generalisations from the findings can be applied to other leaders. There may be some synergies, for instance the critical portrayals in the media of leaders’ low-carbon behaviour are likely to be reasonably consistent for business leaders and celebrities, as demonstrated by the references to Prince Harry and Meghan Markle. However, the potential influence of such leaders on others and their sense of agency to adopt high-impact low-carbon behaviours are likely to be different. Future research would be valuable to explore the scope of other leaders to adopt high-impact low-carbon behaviour.

Another factor that was not explored here was the actual effects of the MPs who had adopted high-impact low-carbon behaviour. This would be useful knowledge due to the tendency for people to be unaware of their own influence on others. The next chapters seek to address this.

5.6 Conclusions from MP interviews and Focus Groups

The evidence laid out in this chapter provides a useful body of data to answer the research question: *How do leaders themselves view leading by example with high-impact low-carbon*

behaviour, and do they think it could be effective? In simple terms, MPs view leading by example as a normative good, but a problematic strategy which risks reputational damage.

There was considerable synergy between the findings of the focus groups and the MP interviews. MPs revealed a high level of sensitivity and caution around the idea of leading by example with high-impact low-carbon behaviour for fear of negative reactions, and the focus groups confirmed the validity of this fear. The focus group participants were rigorous and sometimes ruthless in their scrutiny of leaders' behaviour and statements, and were quick to attribute possible ulterior motives to politicians and other leaders. However, overall, the focus group participants were *in favour* of the actions, even if they expressed scepticism about the motives behind them, and participants suggested leading by example could influence them to follow suit to varying degrees. This apparently contradictory response of initial deep suspicion and subsequent approval may link to ideas of "critical trust", whereby people view those in power with a healthy, critical scepticism, but do not dismiss their actions and messages outright (Poortinga & Pidgeon, 2003; Walls et al., 2004). The upshot of this is that, while MPs may feel that leading by example with high-impact low-carbon behaviour will likely be counterproductive and harm their popularity, this may not in fact be the case. They may encounter negative commentary and suspicion of their motives, but at the same time gain grudging approval for low-carbon actions, provided they are not viewed as gimmicks or publicity stunts. On that note, there was strong synergy between the focus groups and the interviews on the need for consistency of behaviour over time.

The focus groups and MP interviews both included discussions of the everyday practicalities and restrictions relating to lower-carbon behaviours, such that some people may not have the choice or be able to afford them. Some MPs argued therefore they should not adopt behaviours that others couldn't, for fear of alienating constituents, while others suggested they should model behaviours that constituents could adopt in future. Focus groups participants put forward differing opinions on whether leaders should model achievable steps or aspirational goals.

Another important consideration was the medium through which leaders' actions are communicated to observers. The MPs were highly sensitive to portrayals in media and social media, where labels such as "virtue signalling" are often amplified. The media therefore appear to be a locus of considerable power to reinforce social norms of behaviour for leaders.

These findings have provided a rich and novel body of qualitative evidence shedding light on how high-impact low-carbon behaviour by leaders may be interpreted by the public, and whether political leaders in the shape of Members of Parliament believe such leading by example is possible and desirable. The results appear to show potential for such leading by example to send powerful signals. However, the effect of the signals as they manifest in social and traditional media is likely to be messy, in the sense that it will likely provoke strong positive and negative reactions that depend on many contextual factors, and the effects of which will play out over time.

5.7 The next phase of research

In order to build on this initial phase of qualitative exploratory research, the findings from the previous two chapters are used to inform the design of a survey experiment. This will adopt a quantitative approach in order to measure some of the dynamics and processes of leading by example identified thus far. The focus groups suggested that leading by example with high-impact low-carbon behaviour has the potential to stimulate others to follow suit, or to trigger negative responses. The survey experiment will explore these effects by measuring the potential increase in the public's willingness to act in low-carbon ways, or their "reactance" to leading by example. The experiment will also explore the underlying mechanisms that may drive changes in attitudes and behavioural willingness, including whether leaders' actions influence "second-order beliefs" – that is, what the public believes the leader believes, as mentioned in Chapter 1. The details of these measures, along with the design and results of the survey experiment, will be described in the next chapter.

Chapter 6 Survey experiment

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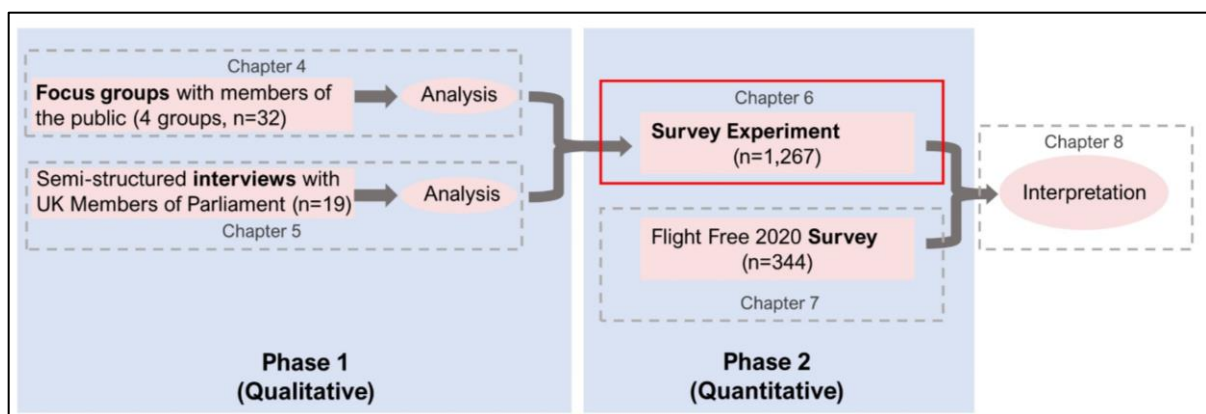
6.1 Introduction

This chapter presents the design, implementation and results of a survey experiment. The experiment was designed with reference to the findings from the focus groups and MP interviews described in Chapters 4 and 5. Using a nationally representative UK sample (n=1,267), the survey directly compares responses to leaders who are advocating for action on climate change while either exhibiting high-impact low-carbon actions themselves (leading by example), or not exhibiting such actions. In particular the survey looks at whether respondents themselves are more willing to take high-impact low-carbon actions when they observe a leader who is leading by example with such behaviour, as opposed to a leader who is not leading by example. In addition, a comparison is made with respondents who are exposed to general information about climate change when no leader is included. Various other effects of leading by example are explored including respondents' perceptions of the leader's beliefs, their warmth, competence, effectiveness, plus respondents' confidence that climate change will be addressed successfully and their support for climate policies.

This element of the research represents the testing phase for the theories that have been honed during Phase 1 (see Figure 6.1). In order to maintain the integrity of the experiment, the survey design and hypotheses were registered in advance on the Open Science Framework (OSF) after the design of the experiment and prior to implementation. The documentation for the OSF registration can be found in Appendix C.

This chapter will include a brief recap of the relevant findings from the focus groups and the MP interviews, outlining how these have fed into the survey experiment. Relevant literature will be presented when appropriate, followed by the survey design, results and discussion of the findings.

Figure 6.1 Research design - current stage



6.2 Focus groups and Interviews – recap

The focus groups in phase 1 of the research suggested that politicians, business leaders, celebrities, and local community leaders who adopt high-impact low-carbon behaviours in the shape of flying less, choosing a meat-free diet, limiting family size to one child, or going car free could have a strong communicative effect that may result in others' changing their behaviour. The process is far from certain, however. The leaders' actions were generally viewed with great suspicion and were subject to scrutiny of the meanings of the actions and the motivations of the leaders. Only the local community leader enjoyed a high level of trust and an overtly positive response.

The MP interviews provided insights into their general reluctance to engage in “performative” actions that are intended to send a message about appropriate behaviour in response to climate change. They argued that, while overt pro-environmental behaviour from leaders may be desirable in principle, in practice it is likely to trigger negative and potentially damaging reactions due to being perceived as “virtue signalling”, gesture politics or a publicity stunt. The focus groups provided support for this interpretation.

Taken together, the focus groups and interviews might suggest that, on balance, leading by example with high-impact low-carbon behaviour is not a suitable strategy for high-profile leaders such as politicians, business executives and celebrities. Despite being in positions of influence, such leaders may suffer from negative reactions fuelled by the media's desire to expose “hypocrisy” and vilify perceived virtue signalling, and such reactions are likely to deter leaders from visible leading by example, as evidenced in Chapter 5. However, the focus groups did provide evidence that leading by example might be effective if the leader was believed to be acting on the basis of authentic motives, and was behaving consistently over time rather than engaging in publicity stunts. Although the focus group participants were suspicious of leaders, they also indicated overall approval of their pro-environmental actions and some inclination to emulate them.

The survey experiment therefore seeks to probe these processes to determine the conditions under which leading by example with high-impact low-carbon behaviour might result in emulation, and what might underpin such influence. Hypotheses are presented relating to the effects of leading by example and the psychological processes underpinning the potential effects, such as second-order beliefs, perceived leader attributes, and identity. The hypotheses cover three basic ideas: (1) that leading by example encourages others to follow suit; (2) that leading by example changes how leaders are perceived; and (3) that

leading by example changes people’s personal perspectives on climate change. In view of the relatively high number of hypotheses and dependent variables that were pre-registered, the dependent variables and hypotheses are grouped according to these three categories: **Category 1** relating to respondents’ **willingness to act** by adopting low-carbon behaviours; **Category 2** relating to **perceptions of the leaders**; and **Category 3** relating **personal perspectives** such as pro-environmental identity, “climate morale”, concern about climate change, and support for climate action.

6.3 Participants

A representative sample of the UK population was recruited via the online Prolific platform, which is established as a sound tool for scientific studies (Palan & Schitter, 2018). The size of the sample was based on previous related studies (Attari et al., 2016, 2019; Sparkman & Attari, 2020; Whitmarsh & Corner, 2017) and a statistical power calculation using the G-Power tool (Perugini et al., 2018), which suggested a minimum of 260 participants for each of five experimental conditions should be sufficient to provide a good chance of detecting

Table 6.1 Sample characteristics

		count	%			count	%
Total		1267	100				
Age	16-24	101	8.0	Politics bracket*	Left	542	42.8
	25-34	242	19.1		Centre	390	30.8
	35-44	236	18.6		Right	335	26.4
	45-54	212	16.7	Highest qualification	No formal qualifications	20	1.6
	55-64	293	23.1		Still studying	10	0.8
	65+	183	14.1		GCSE (or equivalent)	158	12.5
			Vocational Qualifications		49	3.9	
Gender	Female	644	50.8	A-level or equivalent	277	21.9	
	Male	609	48.1	Bachelor’s degree or equiv.	499	39.4	
	Other	7	0.6	Master’s degree	206	16.3	
	Not stated	7	0.6	PhD	32	2.5	
				Other	16	1.3	
Ethnicity	Asian	97	7.6	Personal income	£0 – £14,999 per year	314	24.8
	Black	47	3.7		£15,000 – £29,999 per year	494	39.0
	Mixed	27	2.1		£30,000 – £44,999 per year	226	17.8
	Other	21	1.7		£45,000 – £59,999 per year	94	7.4
	White	1076	84.9		£60,000 – £79,999 per year	42	3.3
			£80,000+ per year		29	2.3	
			prefer not to say		68	5.4	

*Respondents placed themselves on an 11-point scale ranging from Far Left to Centre to Far Right. Politics bracket was allocated post-hoc by simply dividing the sample into those who identified anywhere on the Left, those who chose Centre, and those who identified as anywhere on the Right. This method was based on that used by Whitmarsh and Corner (2017).

significance for the medium-to-small effect sizes expected (260 x 5 conditions = 1300 participants). See Appendix C for details of the G-Power calculations and the sample sizes used in the previously cited studies. The sample was representative of the UK population in respect of gender, age, and ethnicity. Participants were rewarded with £1.25, in line with Prolific’s recommended payment rate for a survey that takes around 10 minutes. Cardiff University ethics procedures were followed during recruitment, execution and analysis of the survey. After data inspection and manipulation checks, 1267 responses were judged as complete and valid. Table 6.1 shows a demographic breakdown of the sample. The attributes of Politics bracket, Highest qualification, and Personal income were self-declared by respondents in answer to questions at the end of the survey.

6.4 Design

The experiment used a 2 x 2 design plus a control condition, such that there were two independent variables (IVs), each with two possible values. The first IV is *Leader Type* with values of Politician or Celebrity. The second IV is *Leader Action* with values of Leader Acting or Leader Not Acting. The control condition is referred to as “Leaderless” because it does not feature a leader. This condition is included in order to test whether leaders who lead by example, or not, trigger a different response to climate-related messages that do not feature a leader. The experiment used a between-subjects design whereby participants were allocated randomly in equal number to one of the five conditions shown in Table 6.2. The factors and levels used for the statistical tests are shown in Table 6.3.

Table 6.2 Experiment design

		Leader Action		Leaderless
		Leader Acting	Leader Not Acting	
Leader Type	Politician	Condition 1 (n=256)	Condition 2 (n=244)	Condition 5 (n=260)
	Celebrity	Condition 3 (n=255)	Condition 4 (n=252)	

Notes: “Leader Acting” means for the last two years the leader has: not flown for holidays; has been eating less meat; made their home more energy efficient; swapped to an electric car; been using public transport more often; and been walking and cycling when they can. “Leader Not Acting” means they have not yet adopted these behaviours.

6.5 Procedure

Participants completed the survey online. They were linked automatically from the Prolific recruitment platform to the Qualtrics online survey platform, which allocated them to one of the five conditions. Initially participants were presented with a welcome screen containing

information about the expected duration of the survey, an assurance of anonymity, payment details, and information about who was conducting the research. After this, respondents signalled their consent to continue. They were then given basic instructions that said: “On the next screen you will be presented with something to read. Afterwards you will be asked for your opinions about what you have read.”

Table 6.3 Factors and levels for statistical tests

Factor	Leadership condition
Level 1 (experimental condition 1)	Politician Acting (leading by example)
Level 2 (experimental condition 2)	Politician Not Acting (not leading by example)
Level 3 (experimental condition 3)	Celebrity Acting (leading by example)
Level 4 (experimental condition 4)	Celebrity Not Acting (not leading by example)
Level 5 (experimental condition 5)	Leaderless (control - no leader present)
Level 6 (collapsed Level 1 & Level 3)	Leader Acting (leading by example)
Level 7 (collapsed Level 2 & Level 4)	Leader Acting (not leading by example)

6.6 Materials

All respondents were presented with text that followed a similar pattern but differed according to experimental condition. Those in conditions 1 and 2 were presented with the following introductory text: *“Imagine you are watching an interview with a politician that you might consider voting for”*. Those in conditions 3 and 4 were presented with the text: *“Imagine you are watching an interview with a celebrity that you like or admire. For example this could be a TV presenter, a musician, a sportsperson, or maybe an actor.”* After this, respondents read a brief description of an interview with the politician or celebrity, which followed an identical format. The text for condition 1 is shown below in Box 6.1. For the celebrity conditions (3 & 4), references to “politician” were replaced with “celebrity”. The final paragraphs contain the experimental manipulation, differing for the Leader Acting/Not Acting conditions. These manipulation paragraphs are shown in italics in Box 6.1, but were not italicised in the actual survey.

Respondents allocated to condition 5 (Leaderless) were presented with the following introductory text: *“Imagine you are watching a report about climate change and what should be done about it.”* The vignette described the report, the contents of which followed the same pattern as conditions 1-4 above, using similar or identical language, but without reference to the politician or celebrity. The complete vignettes can be found in the survey in Appendix C.

Box 6.1 Example text for Conditions 1-4

Note: References to “politician” were replaced with “celebrity” in conditions 3 & 4

The interviewer says to the politician, “Let’s talk about climate change. What do you think should be done about it?”

The politician says climate change is a big threat to humanity, and this means greenhouse gas emissions need to come down fast. To achieve this, the politician says new technologies will be needed, along with strong international agreements. The politician says significant lifestyle changes will also be necessary.

The interviewer asks, “What specific lifestyle changes will be required?”

The politician says it will mean not flying as much for holidays and instead travelling by train whenever possible. The politician talks about eating less meat, and people making their homes more energy efficient with insulation and new heating systems. It will also make a big difference if people change to electric cars, use improved public transport, and walk and cycle more, the politician says.

Together, these lifestyle changes will usually halve a person’s “carbon footprint”. This will really help to tackle climate change, the politician says.

“But aren’t some of these lifestyle changes inconvenient and more expensive?” the interviewer asks.

The politician says this may be true at first, but costs will come down, and there will also be benefits like cleaner air, less wasted energy, and healthier living.

The interviewer asks the politician if they have made any of these lifestyle changes.

{In conditions 1&3 only:} *The politician says yes. For the last two years they have not flown for holidays, they are eating less meat, and they’ve made their home more energy efficient. They have also swapped to an electric car and use public transport more often, as well as walking and cycling when they can.*

The politician says not everybody will be able to do the same as them, but they think it is important that leaders “walk the talk” if they expect others to make changes when the time is right for them.

{In conditions 2 & 4 only:} *The politician says no, not yet, but they expect people will make changes when the time is right for them.*

6.6.1 Reasoning behind design and content of the vignettes

The vignettes were designed to reflect how ordinary people may see or hear about climate change, either via a leader talking about it (in this case a politician or celebrity) or via general information and discussion (in this case a report). Several elements of the design and content of the vignettes will be discussed next.

Design element 1: using a politician and celebrity. The focus groups described in Chapter 4 explored participants' responses to several types of leaders: politicians, business leaders, celebrities, and local community leaders, along with business leaders, royals, and activists. Just two of these – politicians and celebrities – were included in the experiment because, while all of these leaders are interesting, the survey would become unwieldy and too expensive to administer if many leader types were included. Politicians were established earlier in the thesis as leaders of particular interest because they are at the heart of society's response to climate change (see chapters 1, 3 and 5). The other leader type chosen was the celebrity, for the following reasons. In the focus groups, there was a widespread recognition that celebrities can influence people's attitudes and behaviour. This has been discussed extensively in research relating to the environment (Alexander, 2013; Boykoff and Goodman, 2009; Olmedo et al., 2020). Many celebrities also have large carbon footprints and therefore enhanced potential to reduce their environmental impact through their behavioural choices (Gössling, 2019a, 2019b; Nielsen et al., 2021; Otto et al., 2019), a point that was alluded to several times by focus group participants in Chapter 4. The influence of business leaders is interesting too, but the reactions in the focus groups to business leaders were quite similar to the politicians. Furthermore, the direct "position" power that business leaders have over employees represents a different type of influence to that being explored in this thesis. Similarly, the focus groups showed that people feel far warmer towards local community leaders, which is likely to increase their influence. However, the reach and cultural influence of local community leaders is arguably more limited than a national politician or a celebrity, and is less relevant to issues of fairness and justice. For these reasons it was decided to retain a focus on leadership at a larger scale by featuring national politicians and celebrities.

Design element 2: not using direct quotes from the leader. The language used by leaders can be an important factor that determines their influence, for instance whether a leader uses charismatic language or not (Antonakis et al., 2016). If the vignettes featured direct quotes then the leader's language itself was likely to be a significant factor in responses from those completing the survey. This occurred during the focus groups, where the "uninspiring"

language from leaders was criticised. To avoid a focus on the leader's language instead of their actions, the vignette described the leader's answers rather than using direct quotes.

Design element 3: mentioning several other requirements to tackle climate change, not just behaviour change. A false binary of behaviour change *or* systems change is often seen when climate-related behaviour change is discussed (Corner, 2020). This can place disproportionate responsibility on individuals as the primary agents of change, at the expense of a more nuanced and realistic whole-society response that *includes* behaviour change. So as to avoid this false binary, the vignettes mentioned **new technologies** and **international agreements** as important measures to tackle climate change, along with behaviour change. This approach contrasts with a recent study that presented a binary choice of only burdensome individual changes *or* only government-level changes that didn't affect individuals, and perhaps unsurprisingly found the idea of individual changes to be less popular (Palm et al., 2020).

Design element 4: leaders adopting *all* of the high-impact behaviours, not just one. The focus groups revealed that people might dismiss a single pro-environmental behaviour from a leader because it is assumed their other activities will outweigh any good that is achieved. For instance the environmental value of Prince Harry and Meghan Markle's decision to limit their family size to two children was set against their use of private jets. To avoid the dismissal of a single behaviour as being irrelevant or a publicity stunt, the leaders in the vignettes said they were adopting the full range of pro-environmental behaviours they mentioned: flying less, eating less meat, driving a small electric car, improving home efficiency, and active travel.

Design element 5: specifying the benefits of behaviour changes. The focus groups showed that how respondents viewed the leaders' actions depended in part on the perceived environmental benefits of the actions. To make these benefits clear in the vignettes, it was stated that the behaviours would likely halve someone's carbon footprint, allowing respondents to form appraisals of the actions in reference to this environmental outcome.

Design element 6: mention potential downsides and co-benefits of behaviour changes. Acknowledging that behaviour changes may be inconvenient or more expensive at first, but also have co-benefits, was intended to present a realistic picture against which respondents could assess the leaders and their own intentions.

Design element 7: include reference to people making changes “when the time is right for them”. This language was used to avoid direct advocacy of behaviour change from the leader, and rather to allow their behaviour itself to send a signal to respondents.

Design element 8: describe longevity of leaders’ behaviour changes (“for the last two years”). This was included to avoid the impression that the leaders were engaging in one-off actions or publicity stunts that were criticised in the focus groups and interviews.

After reading the vignette, respondents were presented with the statement; “Next you will be asked some questions about what was said in the interview” (or ...”in the report”). The questions began with checks to ensure the experimental manipulations were effective, followed by the questions measuring the dependent variables.

6.6.2 Manipulation checks

The Leaderless condition (condition 5) featured one manipulation check that asked respondents to select the multiple choice answer that included “all of the things that were mentioned” in the vignette to address climate change. The Leader conditions (conditions 1-4) featured the same manipulation check as the Leaderless condition, plus another check asking respondents to select the answer that reflected all of the lifestyle changes that the leader had made (or not made). These manipulation checks served two purposes: first to ensure the respondent had absorbed the relevant details in the vignette (i.e. the experimental manipulations), and second to focus attention on the leaders’ action (or inaction) and on the multiple ways in which climate change can be addressed over and above behaviour change. In total, 32 responses were deleted for failing the manipulation checks. Appendix C contains further details of the manipulation check deletions. This left a total of 1,267 valid responses to the survey, as seen in Table 6.1.

6.7 Dependent variables and hypotheses

All of the dependent variables (DVs) that follow were measured in the Leader conditions (1-4) but some were not measured in the Leaderless condition because they relate to perceptions of the leader (who was absent in the Leaderless condition). This is indicated for each DV. Confirmatory factor analysis was conducted for the measurement items that were combined to form scales, and the scale reliability was checked (see Appendix C for full details).

6.7.1 Category 1 DVs and hypotheses: Willingness To Act

Willingness To Act

This is the primary DV in the survey and is designed to determine the effectiveness of leading by example in behavioural terms. It measures how respondent's willingness to adopt high-impact low-carbon behaviours varies according to the experimental conditions. The questions refer to the specific behaviours in the vignettes, plus a general willingness to make lifestyle changes and personal sacrifices. The wording of the items was adapted from Steentjes et al. (2017).

The respondents' levels of agreement or disagreement with the following items was measured on a 7-point Likert scale: Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree. (The same 7-point scale was used for all questions in the survey that asked about agreement/disagreement.)

(1) I would be willing to make significant changes to my lifestyle to help tackle climate change; (2) I would be willing to fly less to help tackle climate change; (3) I would be willing to eat less meat to help tackle climate change; (4) I would be willing to change to an electric car to help tackle climate change. (5) I would be willing to use public transport more often to help tackle climate change; (6) I would be willing to make my home more energy efficient to help tackle climate change. (7) I would be willing to make some sacrifices to help tackle climate change. The items were combined into a reliable scale ($\alpha=.854$).

Two hypotheses related to this DV, comprising category 1 of the hypotheses:

Hypothesis 1⁹: Leading by example with high-impact low-carbon behaviour increases respondents' willingness to adopt such behaviour, compared to leaders who do not lead by example.

Hypothesis 2: Leading by example with high-impact low-carbon behaviour increases respondents' willingness to adopt such behaviour, compared to "leaderless" statements about the need for lifestyle change.

⁹ In the OSF registration (see Appendix C), the hypotheses used the wording "leader lifestyle change". This wording has been updated to "leading by example with high-impact low-carbon behaviour" for the thesis in order to add clarity and specificity. The meaning of the hypotheses remains essentially the same.

6.7.2 Category 2 DVs and hypotheses: Perceptions of the leaders

The second category of hypotheses deal with **perceptions of the leaders**. The DVs for this category explore second-order beliefs, leader effectiveness, warmth and competence, reactance, and increased approval.

Second-order beliefs (SOBs)

(Not measured in Leaderless condition.) “Second-order beliefs” refer to beliefs about what someone else believes. The “someone else” here is the leader in the vignettes. As described in Chapter 1, “credibility enhancing displays” from leaders are said to signal to others their true beliefs about an appropriate course of action, and this can stimulate imitation (Henrich, 2015; Kraft-Todd et al., 2018; Moore et al., 2022). The focus groups in Chapter 4 revealed how participants scrutinised the leaders’ motivations for taking action and made inferences about the leader’s state of mind and what the leader believes. Combining this theory with the focus group evidence, the survey items below were designed to explore the extent to which respondents think the leader **believes** climate change is a serious issue, to what extent the leader is perceived to **care** about climate change, how **knowledgeable** the leader is perceived to be on the issue, and perceptions of how **committed** they are to addressing climate change. Items were also included to measure whether respondents thought the leader was **exaggerating** the issue of climate change.

Agreement with the following items was measured on 7-point Likert scale: (1) The politician/celebrity¹⁰ cares about climate change; (2) The politician/celebrity believes climate change is a serious issue; (3) The politician/celebrity is willing to make personal sacrifices because of climate change; (4) The politician/celebrity is knowledgeable about climate change; (5) The politician/celebrity understands what needs to be done to tackle climate change; (6) The politician/celebrity is personally committed to tackling climate change; (7) The politician/celebrity is exaggerating the problem of climate change; (8) The politician/celebrity gives climate change too much priority.

Items 1,2, 3, and 4 were combined into a reliable “Cares/Believes” scale ($\alpha=.911$). Items 4 and 5 were combined into a reliable “Knowledgeable” scale ($\alpha=.838$). Items 7 and 8 were combined into a reliable “Exaggerates” scale ($\alpha=.826$). Appendix C contains details of the factor analyses that informed the creation of these scales.

¹⁰ Respondents only saw the word relevant to their experimental condition (either “politician” or “celebrity”). This applies to all of the questions outlined over the next few pages.

Hypothesis 3: Leading by example with high-impact low-carbon behaviour influences respondents' **Second-order beliefs** about the leader.

Effectiveness

(Not measured in Leaderless condition). The extent to which leaders are perceived as effective can determine how willing people are to follow them and, therefore, how much influence they have. Followers' perceptions of a leader's effectiveness are therefore a common measure in leadership literature, and include such factors as persuasiveness, dedication, and effort (e.g. Cremer & Knippenberg, 2004; Johnson et al., 2008; Lowe et al., 1996). The items below were adapted from the literature to suit a climate change context.

Agreement was measured on 5-point Likert scale: Definitely not, Probably not, Might or might not, Probably yes, Definitely yes. (1) The politician/celebrity works hard on climate change issues; (2) The politician/celebrity puts climate change ahead of other issues; (3) Other people take notice of the politician/celebrity's views on climate change; (4) The politician/celebrity is good at persuading other people that climate change is an important issue; (5) The politician/celebrity gets involved in local and national climate change campaigns; (6) The politician/celebrity uses their influential position to help tackle climate change; (7) The politician/celebrity supports new laws that tackle climate change. Items 1-7 were combined into a reliable scale ($\alpha=.865$).

Hypothesis 4: Leading by example with high-impact low-carbon behaviour increases respondents' perception of leader **Effectiveness**

Warmth and competence

(Not measured in Leaderless condition.) The extent to which followers identify with a leader and consider them likeable and competent affects the leader's potential to influence. In addition, perceptions of leader competence are considered important for prompting reciprocal behaviour from followers (Choi & Mai-Dalton 1998). Warmth and competence are established measures of interpersonal judgement, including of leaders (e.g. Laustsen and Bor 2017; Fiske 2018) along with measures of perceived trustworthiness, honesty and morality of the leader (Kouzes & Posner, 2004). The items in the current survey are variations of those used in the literature to measure interpersonal judgements.

Agreement with the following items was measured on 7-point Likert scale: (1) The politician/celebrity is warm and friendly; (2) The politician/celebrity is competent and capable; (3) The politician/celebrity is trustworthy; (4) The politician/celebrity is honest; (5) The politician/celebrity probably makes moral and ethical decisions; (6) The

politician/celebrity shares similar values to mine; (7) The politician/celebrity is inspirational. Items 1-7 were combined into a reliable Warmth/Competence scale ($\alpha=.934$).

Hypothesis 5: Leading by example with high-impact low-carbon behaviour increases respondents' perception of leader **Warmth and competence**

Reactance

A perception of being morally judged in response to a leader's pro-environmental behaviour may lead to negative "reactance" and a backfire against leading by example (Minson & Monin, 2012; Monin et al., 2008; Sparkman & Attari, 2020). There was some evidence of such a reaction in the focus groups in Chapter 4. Similarly, such a response is possible in reaction to information about the need for behaviour change provided in the Leaderless condition. For this reason, reactance is also measured in the Leaderless condition, unlike the other DVs in this category. In this instance, the DV is not strictly speaking a perception of the leader.

The following items, adapted from Whitmarsh and Corner (2017), were used to explore reactance. Agreement was measured on 7-point Likert scale: (1) the politician/celebrity/report was preaching at you; (2) the politician/celebrity/report was trying to tell people what to do; (3) the politician/celebrity/report was trying to manipulate your feelings. Items 1-3 were combined into a reliable Reactance scale ($\alpha=.862$).

Hypothesis 6¹¹: Leading by example with high-impact low-carbon behaviour increases respondents' **Reactance** to the leader

Increased Approval of leader

(Not measured in Leaderless condition.) At the beginning of the survey, respondents were asked to think of a politician that they "might consider voting for" or a celebrity that they "like and admire". The intention of this wording was to try to increase the extent to which respondents identified with the hypothetical leader, and decrease "out group" effects. A single question in the survey explored to what extent respondents' approval of the leader increased or decreased during the survey. The question was different depending on whether the condition included the politician or the celebrity. Respondents in the Politician conditions were asked if they are more or less likely to vote for the politician; respondents in the Celebrity conditions were asked if they like and admire the celebrity more or less. A 5-point

¹¹ In the OSF pre-registration, this hypothesis was number 9. However, in order to group the hypotheses into meaningful categories, it has been moved forward to 6, and the subsequent hypotheses renumbered 7, 8, and 9. See Appendix C for the OSF pre-registration.

Likert scale was used (Celebrity condition answers in brackets): (1) Much less likely (Much less); (2) A bit less likely (A bit less); (3) About the same (About the same); (4) A bit more likely (A bit more); (5) Much more likely (Much more).

There was no pre-registered hypothesis attached to this measure, but it is explored in the results.

6.7.3 Category 3 DVs and hypotheses: personal perspectives

The third category of hypotheses deal with other **personal factors** and responses that may shed light on the potential effects and dynamics of leading by example. The DVs in this category are: perceptions of others' willingness to act; climate morale (explained below); perceptions of climate change as a moral issue (a.k.a. moral salience); pro-environmental identity; political orientation; support for climate policies; concern about climate change; appetite for leadership; generalised trust; gender of the leader; and demographics.

Others' Willingness To Act

A primary role of leadership is to create a sense of cooperation and collective identity (e.g. Haslam et al., 2020; Northouse, 2021). Furthermore it is increasingly understood that many peoples' motivations to act pro-environmentally may be contingent on the perception that they are not acting alone (Fritsche et al., 2018; Jugert et al., 2016). Therefore it is of interest whether leading by example affects respondents' perceptions of others' willingness to act. This DV measures the same behaviours as referenced in the Willingness To Act section above, on a 7-point agreement scale. The items follow the statement: "I think **other people** would be willing to..." (1) ...make significant changes to their lifestyles to help tackle climate change; (2) ...fly less to help tackle climate change; (3) ...eat less meat to help tackle climate change; (4) ...change to an electric car to help tackle climate change; (5) ...travel more by public transport to help tackle climate change (6) ...make their homes more energy efficient to help tackle climate change (7) ...make some sacrifices to help tackle climate change. Items 1-7 were combined into a reliable scale ($\alpha=.833$). Others' Willingness To Act was included within a hypothesis about "Climate morale", explained next.

There was no pre-registered hypothesis attached to this measure, but it is explored in the results.

Climate morale

Leaders have the capacity to influence the beliefs and emotions of followers. This is tested through a novel concept called "climate morale". It was designed to encompass the following factors: personal confidence that climate change can be tackled; personal confidence that

others will also take necessary action; and personal confidence that leaders and governments will take necessary action. The term climate morale is an adaptation of the established idea of “tax morale”: the phenomenon where a widely held belief that most people pay their taxes has the effect of increasing overall compliance with tax paying, and vice versa (Luttmer & Singhal, 2014). The DV explores the idea that leading by example will increase followers’ confidence that climate change will be tackled, which is a potentially important factor in a collective societal response to climate change. Put simply, a follower who observes a leader’s high-impact low-carbon behaviour may gain confidence that leaders themselves and society more widely are committed to taking action on climate change. Respondents were asked: "How confident or doubtful are you that..." (1) climate change will be kept within safe limits?; (2) politicians will take the necessary steps to tackle climate change? (3) business leaders will take the necessary steps to tackle climate change? (4) celebrities will take the necessary steps to tackle climate change? Confidence was measured on 7-point Likert scale (Extremely doubtful – Extremely confident). Items 1-4 were combined into a reliable Climate Morale scale ($\alpha=.789$). The OSF registration stated an intention to create one measure of Climate Morale that included Others’ Willingness To Act. However, a factor analysis including these items revealed low correlation and multiple components, so Others’ Willingness To Act was not included in the Climate morale scale and was analysed separately.

Hypothesis 7: Leading by example with high-impact low-carbon behaviour increases respondents’ **Climate morale**

Moral salience of climate change and personal responsibility

The extent to which climate change is viewed as a moral issue may influence people’s sense of responsibility to take action. Leaders have a role in linking issues to ideas of morality (e.g. Van Zant and Moore, 2015) and can increase the moral salience of climate change (Schuldt, 2017). This DV measures whether the experimental conditions affect respondents’ perceptions of climate change as a moral issue and their feelings of responsibly to take personal action. Items are based on Markowitz (2012) and Schuldt (2017). Agreement with the following items was measured on 7-point Likert scale: (1) Climate change is a moral and ethical issue; (2) I have some personal responsibility for contributing to the causes of climate change; (3) I have some personal responsibility for helping to tackle climate change; (4) What I do personally can make a difference to tackling climate change. Items 1-4 were combined into a reliable Moral Salience scale ($\alpha=.896$).

Hypothesis 8: Leading by example with high-impact low-carbon behaviour increases respondents' perception of the **Moral salience of climate change and personal responsibility**

Pro-environmental identity

Leaders have the capacity to tap into and influence the self-identity and social-identity of followers, as explored in Chapter 2 (e.g. Haslam et al., 2020). People's sense of pro-environmental identity is a well-established predictor of willingness to adopt pro-environmental behaviour (e.g. Vesely et al., 2021). If a leader exemplifies embodied low-carbon lifestyle choices, climate action may become more tangible for followers, as opposed to being theoretical and disembodied. In the context of people having multiple identities, it is hypothesised that leading by example will increase respondents' reported pro-environmental identity.

Hypothesis 9: Leading by example with high-impact low-carbon behaviour increases respondents' **Pro-environmental identity**

The following items were adapted from Capstick and colleagues (2015) and Whitmarsh and O'Neill, (2010) with agreement measured on 7-point Likert scale: (1) Being environmentally-friendly is an important part of who I am; (2) I would be slightly embarrassed to be seen as having an environmentally friendly lifestyle; (3) I think of myself as someone who is very concerned about environmental issues. Items 1-3 were combined into a reliable Pro-environmental identity scale ($\alpha=.768$). (Item 2 reverse coded).

Political orientation

Someone's political orientation can be a strong predictor of their concern about climate change, with those on the right of politics tending to express less concern (Hornsey et al., 2016; Newman et al., 2020; Poortinga et al., 2019). This is particularly true in the United States (Lee et al., 2015), but also holds in the EU and the UK (McCright et al., 2016). However, it is proposed that leading by example with high-impact low-carbon behaviour may resonate with core principles of a right wing political philosophy, such as self-regulation and personal discipline (Lakoff, 1995). On the other hand, principles of individual liberty and freedom to consume, which are also associated with a right-wing perspective, may clash with such leading by example. Hypothesis 10 seeks to explore this.

Hypothesis 10: Leading by example with high-impact low-carbon behaviour **reduces the effect of respondents' political orientation** on their willingness to act

A single item was used based on Whitmarsh and Corner (2017). More sophisticated measures of political and cultural orientation were rejected due to the need for brevity and the sufficiency of this single measure in a previous study (ibid): (1) In politics people sometimes talk of “left” and “right”. Using the scale below, where would you place yourself on the political spectrum? (11-point scale: Far left (1), Centre (6), Far right (11)).

Support for climate action

On the basis that a leader’s actions can communicate important information to followers, it may follow that leaders’ high-impact low-carbon behaviour can influence followers’ views on climate change in general. A leader that is seen to be walking the talk may have the potential to increase support for climate policies. This DV measures this with the following question. How much do you support or oppose the following actions to tackle climate change? (1) Government investment in new technologies; (2) Strong international agreements that rapidly reduce greenhouse gas emissions. (5-point scale: Strongly oppose, Tend to oppose, Neither support not oppose, Tend to support, Strongly support.) ($\alpha=.835$)

Hypothesis 11: Leading by example with high-impact low-carbon behaviour increases respondents’ **Support for climate action**

Concern, Risk Perception

Leaders have a role in framing social issues and guiding responses, including how crises are perceived and tackled (e.g. Boin et al., 2017; Grint, 2010, 2005). This DV seeks to measure whether Leader Action increases perceptions that climate change is a concern and a threat. Two questions were combined for this DV. The first, based on Spence et al. (2011), asked “How concerned, if at all, are you about climate change?” With answers given on the 4-point scale: Not at all concerned, A little concerned, Quite concerned, Very concerned. The second question, based on Capstick et al. (2015) asked: “How serious a threat, if at all, is climate change to each of the following?” (1) You and your family; (2) The country as a whole; (3) People in developing countries; (4) Wildlife and ecosystems. Answers were on 6-point scale: Not at all serious threat, Not very serious threat, Fairly serious threat, Very serious threat, Extremely serious threat, Don’t know. The items formed a reliable scale ($\alpha=.906$).

Hypothesis 12: Leading by example with high-impact low-carbon behaviour increases respondents’ **Climate concern & Risk perception**

Appetite for leadership

The following items sought to measure respondents' views on who, if anyone, should take the lead in making lifestyle changes to address climate change. While any differences between the experimental conditions were of some interest, this measure was predominantly seeking to explore overall attitudes about whether leaders should lead by example.

Agreement was measured on a 7-point Likert scale: (1) Politicians, business leaders and celebrities should set an example by making lifestyle changes first; (2) The personal behaviour of politicians, business leaders and celebrities is not relevant to climate change; (3) Everyone should make lifestyle changes at about the same time to tackle climate change; (4) People with the biggest carbon footprints should make the biggest lifestyle changes to tackle climate change; (5) If politicians, business leaders and celebrities went first, I would be more willing to change my lifestyle to tackle climate change; (6) If I knew that most other people were changing their lifestyles because of climate change, I would be more willing to change mine too. A reliable scale ($\alpha=.720$) was formed from items 1,4,5 and 6. Items 2 and 3 were excluded due to low correlations with the other items.

There was no pre-registered hypothesis attached to this measure, but it is explored in the results.

Generalised Trust

The extent to which people believe in the good intentions and trustworthiness of others has been shown to increase their willingness to make sacrifices for the environment (Macias, 2015). If leading by example can increase this "generalised trust" then it may influence respondents' Willingness To Act.

This was measured using Items from Nießen et al. (2020), with agreement measured on 7-point Likert scale: (1) I am convinced that most people have good intentions; (2) You can't rely on anyone these days; (3) In general, people can be trusted. The items formed a reliable scale ($\alpha=.831$), with item 2 reverse coded. There was no hypothesis associated with this measure.

Gender of leader, subject of survey, and demographics

The concept of leadership has gender stereotypes attached to it, making this a measure of interest, so participants were asked (1) What was the gender of the politician/celebrity you brought to mind? (Not measured in Leaderless condition). Respondents were asked about the subject of the survey: "We would be interested in knowing what issues you think this survey was investigating. There are no right and wrong answers to this (optional answer)". At

the end of the survey respondents were asked to give their age, education, income and gender. There were no hypotheses associated with these measures.

6.8 Ordering of questions and piloting

The survey was designed taking into consideration that the order of questions and answers can affect how respondents complete the survey (Salkind, 2010). Answers within each block of questions were randomised where relevant using the Qualtrics randomiser to reduce the effects of question ordering effects. Further details of the ordering of the questions, including deliberate priming effects, can be found in Appendix C. The survey underwent two pilot phases, first with a group of around 10 experienced colleagues, and then with an “as live” experiment with 200 undergraduate students. The first pilot resulted in changes to details of the wording of the survey, and the second pilot confirmed the smooth running of the survey and the data’s validity on the Qualtrics platform.

6.9 Results

Data verification: The survey contained three questions to check respondents were paying attention. One respondent was excluded for failing the “attention checks”. There was very little missing data in the survey responses, which was addressed following general guidelines laid out by de Leeuw et al. (2016) and Donders et al. (2006). Full details of the procedures applied for missing data and attention checks can be found in Appendix C.

6.9.1 Main effects

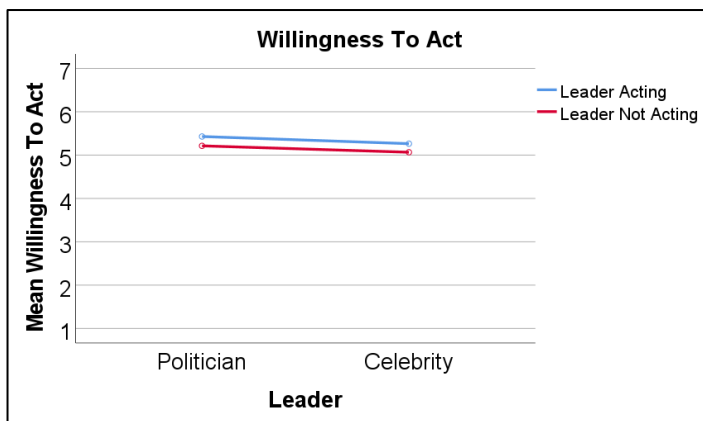
An initial analysis was conducted to explore the main effects of the independent variables **Leader Type** and **Leader Action** on all DVs, plus any interactions between the IVs. This was done using a two-way omnibus MANOVA test. This found: there is no statistically significant interaction between Leader Type and Leader Action ($F(15, 989) = .968, p=.488$ Wilk’s Lambda = .986); there is a statistically significant difference for Leader Type (Politician vs Celebrity): $F(15, 989) = 5.89, p<.001$, Wilk’s Lambda = .918, $\eta^2_p = .082$) with a small effect size¹²; and there is a statistically significant difference for Leader Action (Acting vs Not Acting): $F(15,989) = 107.9, p<.001$, Wilk’s Lambda = .379, $\eta^2_p = .621$) with a large effect size. Appendix C contains a discussion of how the data meets the assumptions relating to MANOVA tests.

¹² Effect sizes are represented by partial eta square and denoted by η^2_p . According to Cohen (Richardson, 2011) the effect sizes are classified as: small ($\eta^2_p = 0.0099$); medium (0.0588); and large (0.1379).

Main effects of Leader Type

According to follow-up tests of between-subjects effects (ANOVAs – see Table 6.4), the politician conditions resulted in significantly higher scores than the celebrity conditions for Willingness To Act ($F(1,1007)=5.125, p=0.024, \eta^2_p=0.005$), Effectiveness ($F(3,1007)=5.875, p=0.016, \eta^2_p=0.006$), Pro-Environmental Identity ($F(3,1007)=5.262, p=0.022, \eta^2_p=0.005$), and Appetite For Leadership ($F(3,1007)=4.523, p=0.034, \eta^2_p=0.004$). However, the effect sizes are very small and perhaps negligible. Furthermore, if a conservative p-value of .01

Figure 6.2 Main effects of Leader Type and Leader Action



instead of .05 is applied in view of the multiple ANOVA tests, none of the DVs is statistically significant. Figure 6.2 shows the effects on Willingness To Act of Leader Type and Leader Action. There is a visible small effect of Leader Action, but little discernible difference in responses to politicians

advocating for climate action (while leading by example, or not) when compared to celebrities doing likewise.

Interaction effects between Leader Type and Leader Action: There were no significant interaction effects between the two IVs at the level of $p<0.05$, indicating that effects of Leader Action are generally consistent irrespective of the type of leader (with the apparent exception of Others' Willingness To Act as explored next). In view of this consistency, the Leader Type conditions (politician and celebrity) were collapsed for the subsequent analysis of the two Leader Action conditions, and the comparison with the Leaderless condition later in the chapter. This involved combining the politician and celebrity conditions to produce one condition for Leader Acting, and one condition for Leader Not Acting.

Others' Willingness To Act was the only DVs where there was a marked difference in the effect of the politician and the celebrity. A t-test showed that the Politician Acting ($M=4.318, SD=0.907$) has a significantly higher mean score for Others' Willingness To Act than the Politician Not Acting condition ($M=4.093, SD=.904$) $t(498) = 2.785, p=0.006$, with a small effect size $d=0.249$, whereas there was no significant difference for the celebrity conditions. Effect sizes represented by Cohen's d are classed as: small = 0.2, medium = 0.5, large = 0.8 (Fritz et al., 2012).

Main effects of Leader Action

Willingness To Act: The Leader Acting conditions ($M=5.347$, $SD=1.101$) produced significantly higher Willingness To Act scores than the Leader Not Acting conditions ($M=5.139$, $SD=1.093$), $F(1, 1007)=8.940$, $p=0.003$, $d=0.19$, $\eta^2_p=0.009$, with a small effect size. The results are shown in Figure 6.3 to Figure 6.16. **Hypothesis 1** is therefore supported. (Hypothesis 2 is considered further below). This indicates that a leader who is “walking the talk” has a positive effect on observers’ willingness to take low-carbon action themselves compared to a leader who is not walking the talk.

Cares/Believes: The Leader Acting conditions ($M=6.199$, $SD=0.762$) had very significantly higher Cares/Believes scores than the Leader Not Acting conditions ($M=3.906$, $SD=1.196$) $F(1, 1007)=1321.261$, $p<0.001$, $\eta^2_p 0.568$, with a large effect size. The mean score for the Leader Not Acting conditions is below 4, meaning it is on the negative side of the scale. This indicates that leaders who are not seen to walk the talk are on average viewed as not caring about climate change, not believing it’s serious, not being committed to tackling it, and not willing to make sacrifices. In contrast, those who are seen to walk the talk score highly on these measures. The results can be seen in Figure 6.4. **Knowledgeable:** The Leader Acting conditions ($M=5.805$, $SD=1.022$) were also significantly higher than the Leader Not Acting conditions ($M=5.195$, $SD=1.181$) for perceptions of the leader being Knowledgeable about climate change and understanding what needs to be done about it $F(1, 1007)= 76.986$, $p<0.001$, $\eta^2_p 0.071$, with a medium effect size. **Hypothesis 3** relating to second-order beliefs about the leaders is therefore strongly supported by the results. **Exaggerates:** There was no statistically significant difference between the Leader Acting conditions ($M=2.468$, $SD=1.405$) and the Leader Not Acting conditions ($M=2.521$, $SD=1.335$) for perceptions that the leader exaggerates climate risk and gives it too much priority $F(1, 1007)= 0.428$, $p=0.513$, $\eta^2_p 0.000$, indicating that leading by example does not affect perceptions that the leader is exaggerating climate change.

Effectiveness: The Leader Action conditions ($M=3.860$, $SD=0.515$) produced significantly higher scores for Effectiveness than the Leader Not Acting conditions ($M=3.139$, $SD=0.701$) $F(1, 1007)= 347.184$, $p<0.001$, $\eta^2_p 0.257$, with a large effect size. Note that a 5-point Likert scale was used here rather than a 7-point scale, with 3 being the midpoint between positive and negative perceptions of effectiveness. **Hypothesis 4** is therefore strongly supported. This significant result indicates that leaders who are seen to match words with action are believed to be more committed to tackling climate change and more influential on the subject. The Leader Not Acting conditions have a mean score close to the central value

Table 6.4 Results of two-way ANOVA tests for Leader Type and Leader Action

Dependent Variables	Leader Type				Mean diff	F	Sig	Effect size Partial Eta Squared				
	Politician		Celebrity									
	Mean	SD	Mean	SD								
Willingness To Act	5.325	1.034	5.166	1.160	0.158	5.125	0.024	0.005				
Cares/Believes	5.100	1.485	5.040	1.557	0.060	0.400	0.527	0.000				
Knowledgeable	5.513	1.086	5.496	1.200	0.017	0.025	0.876	0.000				
Exaggerates	2.507	1.355	2.478	1.388	0.029	0.113	0.737	0.000				
Warmth/Competence	4.599	1.210	4.711	1.258	-0.113	3.348	0.068	0.003				
Effectiveness	3.555	0.704	3.455	0.716	0.100	5.875	0.016	0.006				
Reactance	3.827	1.403	3.949	1.532	-0.122	1.657	0.198	0.002				
Increased Approval*	3.332	1.051	3.126	1.014	0.206	12.176	0.001	0.012				
Others' Willingness To Act	4.208	0.912	4.201	0.864	0.007	0.005	0.945	0.000				
Moral Salience/Responsibility	5.456	1.142	5.415	1.234	0.041	0.280	0.597	0.000				
Climate Morale	3.443	1.095	3.370	1.141	0.073	1.011	0.315	0.001				
Pro-Environmental Identity	5.141	1.111	4.976	1.149	0.165	5.262	0.022	0.005				
Support Climate Action	4.429	0.681	4.374	0.744	0.055	1.473	0.225	0.001				
Concern Risk	3.723	0.834	3.707	0.875	0.015	0.070	0.792	0.000				
Appetite For Leadership	5.351	0.960	5.222	0.970	0.129	4.523	0.034	0.004				
*Not same measure for each leader												
Dependent Variables	Leader Acting				Mean diff	F	Sig	Effect size Partial Eta Squared				
	Acting		Not Acting									
	Mean	SD	Mean	SD								
Willingness To Act	5.347	1.101	5.139	1.093	0.208	8.940	0.003	0.009				
Cares/Believes	6.199	0.762	3.906	1.196	2.292	1321.261	0.000	0.568				
Knowledgeable	5.805	1.022	5.195	1.181	0.611	76.986	0.000	0.071				
Exaggerates	2.484	1.362	2.531	1.349	-0.047	0.428	0.513	0.000				
Warmth/Competence	5.248	0.986	4.045	1.167	1.203	314.011	0.000	0.238				
Effectiveness	3.860	0.515	3.139	0.701	0.720	347.184	0.000	0.257				
Reactance	3.506	1.389	4.284	1.447	-0.778	75.510	0.000	0.070				
Increased Approval	3.746	0.796	2.696	0.986	1.050	349.584	0.000	0.258				
Others' Willingness To Act	4.262	0.885	4.146	0.887	0.116	4.351	0.037	0.004				
Moral Salience/Responsibility	5.470	1.139	5.399	1.239	0.071	0.904	0.342	0.001				
Climate Morale	3.448	1.164	3.363	1.069	0.085	1.439	0.231	0.001				
Pro-Environmental Identity	5.136	1.091	4.976	1.170	0.160	4.964	0.026	0.005				
Support Climate Action	4.443	0.687	4.358	0.740	0.085	3.560	0.059	0.004				
Concern Risk	3.764	0.837	3.664	0.870	0.100	3.457	0.063	0.003				
Appetite For Leadership	5.289	0.933	5.283	1.001	0.006	0.005	0.944	0.000				
<table border="1" style="width:100%; text-align:center;"> <tr> <td style="width:25%;">Significant result</td> <td style="width:25%;">Small effect size</td> <td style="width:25%;">Medium effect size</td> <td style="width:25%;">Large effect size</td> </tr> </table>									Significant result	Small effect size	Medium effect size	Large effect size
Significant result	Small effect size	Medium effect size	Large effect size									

Figure 6.3 Willingness To Act (mean)

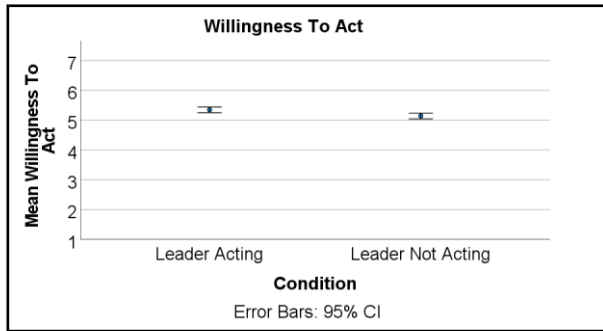


Figure 6.7 Willingness To Act (boxplot)

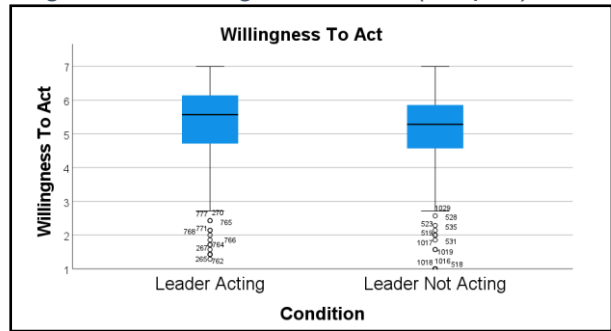


Figure 6.4 Cares/Believes (mean)

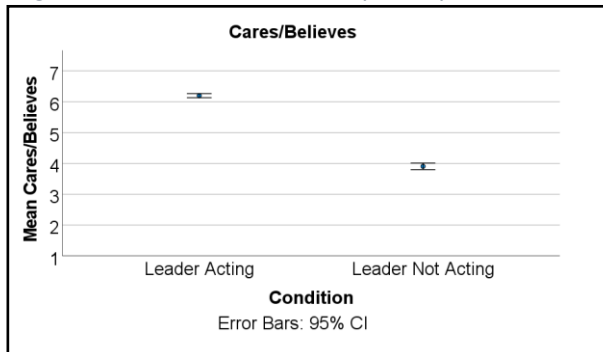


Figure 6.8 Cares/Believes (boxplot)

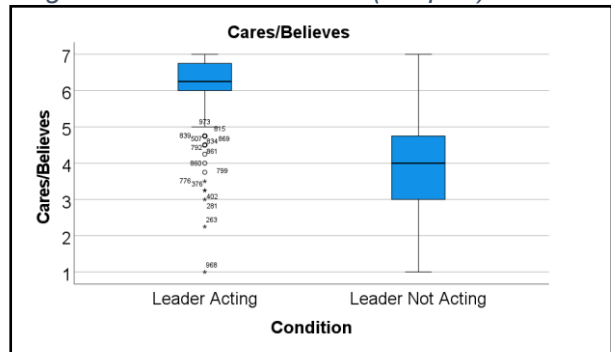


Figure 6.5 Knowledgeable (mean)

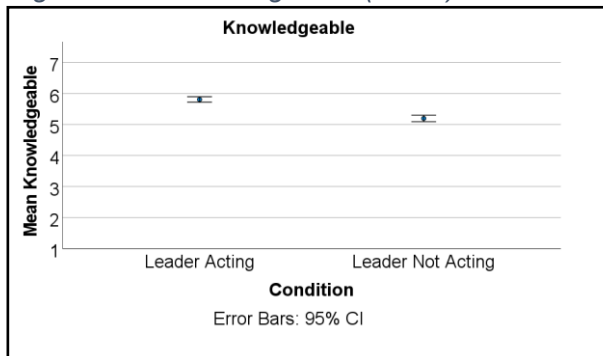


Figure 6.9 Knowledgeable (boxplot)

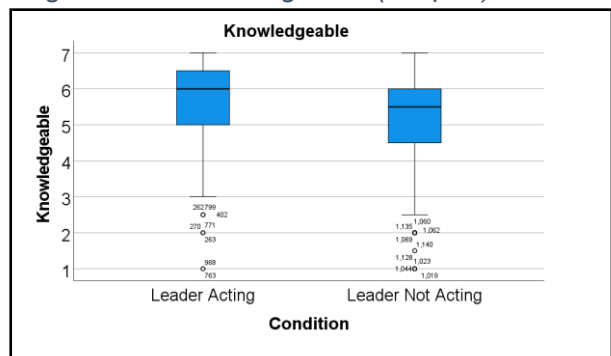


Figure 6.6 Effectiveness (mean)

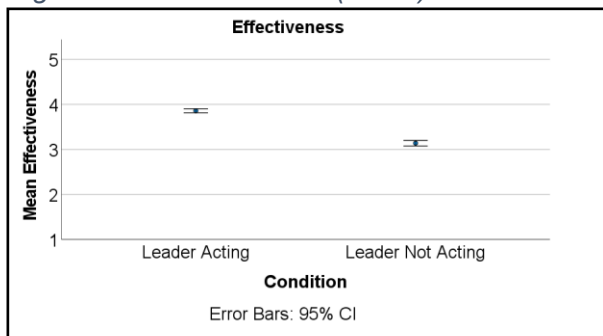
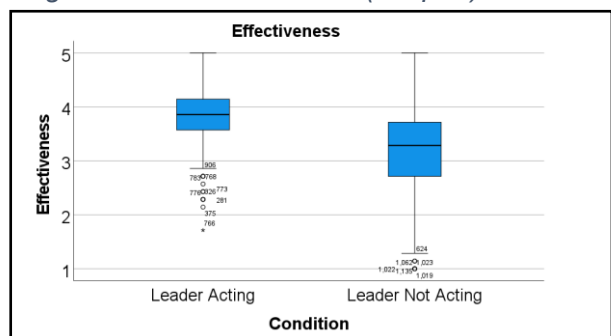


Figure 6.10 Effectiveness (boxplot)



Notes: The charts in the left column show mean values for each DV with error bars showing the 95% confidence interval. The charts in the right column show boxplots. The extent of the shaded box shows the interquartile range. The whiskers show the range of values excluding “outliers”, represented by the small dots, although no values are considered true outliers on a Likert scale. The bars in the middle of the blue boxes show the **median scores** rather than the means. This is also the case for the remaining box plots in this chapter.

Figure 6.11 Warmth/Competence (mean)

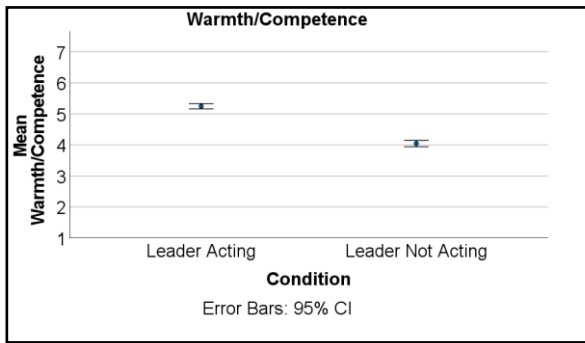


Figure 6.14 Warmth/Competence (boxplot)

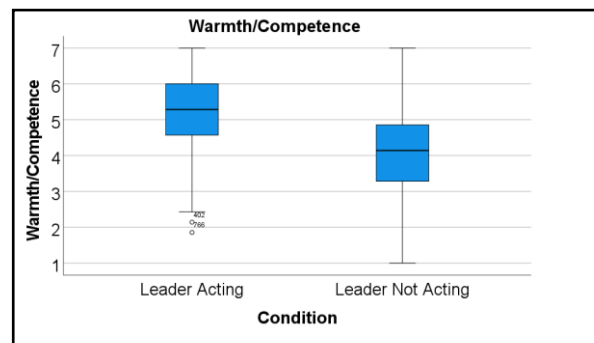


Figure 6.12 Increased Approval (mean)

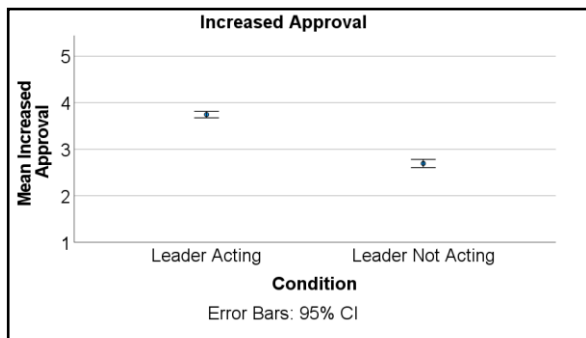


Figure 6.15 Increased Approval (boxplot)

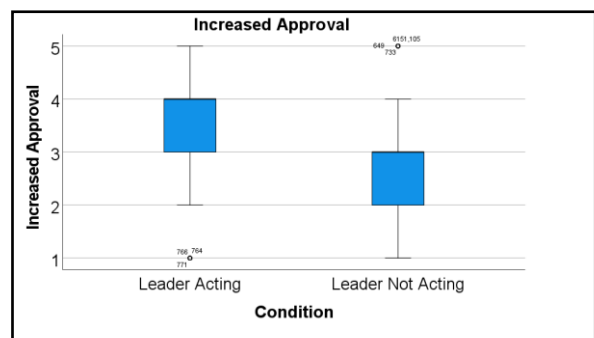


Figure 6.13 Pro-Environmental Identity (mean)

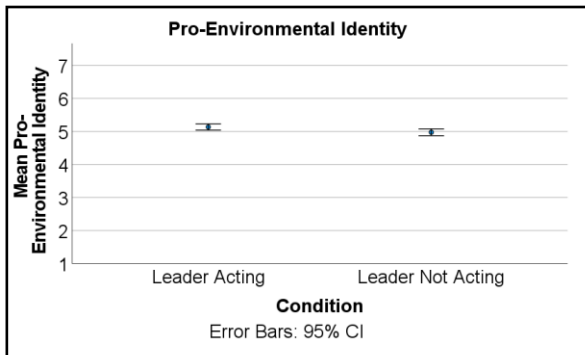
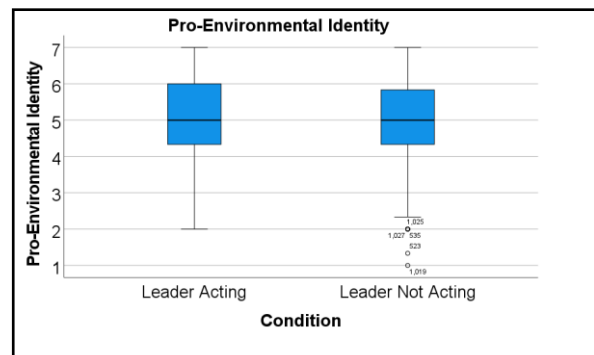


Figure 6.16 Pro-Environmental Identity (boxplot)



Notes (continued): For the Cares/Believes, Knowledgeable, and Warmth/Competence charts, scores above 4 on the y-axis represent a positive appraisal, and scores below 4 represent a negative appraisal. For the Effectiveness chart, scores above 3 represent a positive appraisal. For the Approval chart, scores above 3 represent an increase in approval, and below 3 represent a decrease in approval.

of 3 (“might or might not”), indicating that respondents are on average unsure if leaders who do not take personal action will lead on climate in other ways, whereas leaders who do take personal action are perceived as “probably” leading on climate in other ways and also perceived as being able to influence others on climate change.

Warmth/Competence: The Leader Acting conditions (M=5.248 SD=0.986) had significantly higher scores for Warmth/Competence than the Leader Not Acting conditions (M=4.045

SD=1.167) $F(1, 1007)=314.0$, $p<0.001$, η^2_p 0.238, with a large effect size. **Hypothesis 5** is therefore strongly supported.

Increased Approval: The Leader Acting conditions ($M=3.746$ $SD=0.796$) had significantly higher scores for Increased Approval than the Leader Not Acting conditions ($M=2.696$, $SD=0.986$) $F(1, 1007)= 349.584$, $p<0.001$, η^2_p 0.258, with a large effect size. With a score of 3 representing “About the same” (i.e. the mid-point of the 5-point Likert scale used) the Leader Acting conditions show a positive change in approval, whereas the Leader Not Acting conditions on average resulted in a slight decrease in approval. The implication of this is that leaders who walk the talk enjoy increased approval, while those that don’t lose approval.

Pro-environmental identity: The Leader Acting conditions ($M=5.136$ $SD=1.091$) had significantly higher scores for Pro-environmental identity than the Leader Not Acting conditions ($M=4.976$ $SD=1.170$) $F(1, 1007)=4.964$, $p<0.026$, η^2_p 0.005, albeit with a very small effect size. If a more conservative p-value of .01 is adopted then this is not a significant result and **Hypothesis 9** is not supported for this comparison. However, due to the importance of pro-environmental identity as a precursor to support for climate action, this DV will be returned to in the section on mediation, below. In addition, Pro-environmental identity was a DV in the Leaderless condition, which will be explored further below.

6.9.2 Comparison with control condition (Leaderless)

This section examines the differences between the Leader Acting, Leader Not Acting, and Leaderless experimental conditions. Further above it was established that differences in the Leader Type (celebrity or politician) had no significant effect on the DVs. For this reason the different leader conditions were collapsed for this part of the analysis. A one-way MANOVA analysis was carried out comparing the Leaderless condition to the collapsed Leader Acting conditions (i.e. the Politician Acting and the Celebrity Acting conditions combined), and the collapsed Leader Not Acting conditions (i.e. the Politician Not Acting and the Celebrity Not Acting conditions combined). The dependent variables (DV) included in this MANOVA comprised the subset of DVs that were measured in the Leaderless condition, each having been combined into a scale (as described above). The DVs in question are: Willingness To Act, Others’ Willingness To Act, Reactance, Moral Salience/Responsibility, Climate Morale, Pro-Environmental Identity, Support for Climate Action, and Climate Concern/Risk.

MANOVA has several assumptions, which are discussed in Appendix C. As some of the assumptions were partially violated, a non-parametric Kruskal-Wallis test was also conducted (results reported in Appendix C) which corresponded well with the results of the MANOVA

reported here. The MANOVA shows statistically significant differences between the groups for Willingness To Act ($F(2,1264)=6.846, p=0.001$), Reactance ($F(2,1264)=58.298, p<0.001$), and Pro-environmental Identity ($F(2,1264)=4.347, p=0.013$). As can be seen in Figure 6.17 and Figure 6.18, Willingness To Act is very similar in the Leaderless condition ($M=5.41, SD=1.06$) and Leader Acting condition ($M=5.34, SD=1.10$). The Leader Not Acting condition has a lower mean ($M=5.14, SD=1.09$), as observed earlier in the chapter. Post-hoc Tukey's HSD tests for multiple comparisons (see Table 6.5) revealed a significant difference between

Figure 6.17 Willingness To Act (mean)



Figure 6.18 Willingness To Act (boxplot)



the Leaderless and Leader Not Acting conditions ($p=0.004, 95\% \text{ C.I.} = 0.0713, 0.2543$), and between the Leader Acting and Leader Not Acting conditions ($p=0.007, 95\% \text{ C.I.} = 0.0466, 0.3691$). There is no statistically significant difference between the Leaderless and the Leader Acting conditions. **Hypothesis 2** is therefore not supported because leading by example does not increase respondents' willingness to act, compared to leaderless statements about the need for climate action and lifestyle change. However, a *lack* of leading by example results in respondents' reporting less willingness to act, compared to disembodied statements about the need for lifestyle change. This implies that leaders who are observed not "walking the talk" may have a negative effect on the public's willingness to act.

Hypothesis 6 includes the measures of Others' Willingness To Act and Climate Morale. Others' Willingness To Act was not significantly different between groups ($F(2,1264)=1.189, p=0.109$), and likewise Climate Morale was not significantly different between groups ($F(2,1264)=1.495, p=0.310$). Therefore **Hypothesis 7** is not supported. Similarly, the following DVs were not significantly different between the groups: Moral Salience/Responsibility ($F(2,1264)=0.649, p=0.626$); Support for Climate Action ($F(2,1264)=1.145, p=0.108$); and Climate Concern/Risk Perception ($F(2,1264)=1.578, p=0.111$). This means **Hypothesis 8, Hypothesis 11, and Hypothesis 12** are not supported.

Figure 6.19 Others' Willingness To Act (mean)

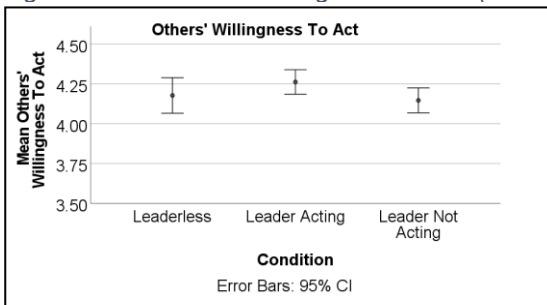


Figure 6.24 Others' Willingness To Act (boxplot)

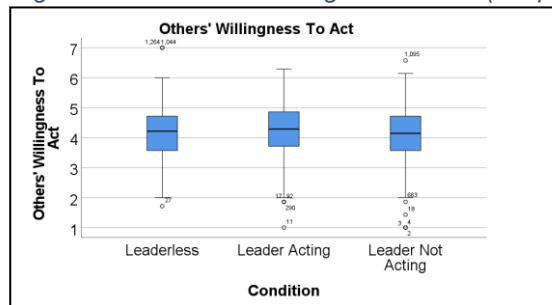


Figure 6.20 Climate Morale (mean)

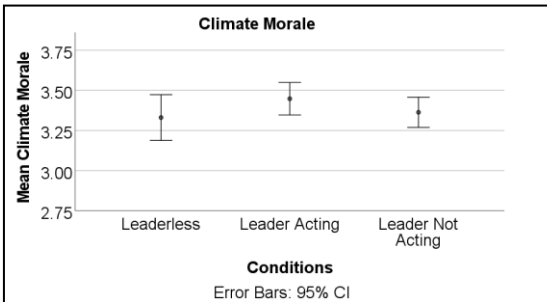


Figure 6.25 Climate Morale (boxplot)

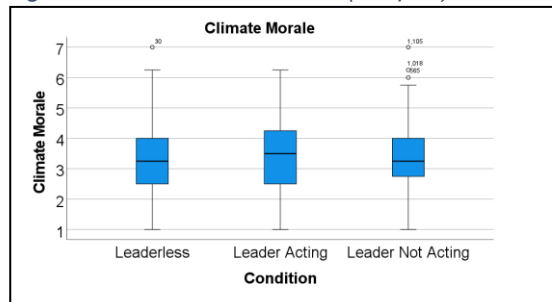


Figure 6.21 Moral Salience/Responsibility (mean)

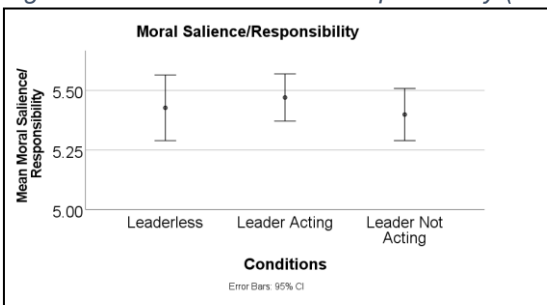


Figure 6.26 Moral Salience/Responsibility (boxplot)

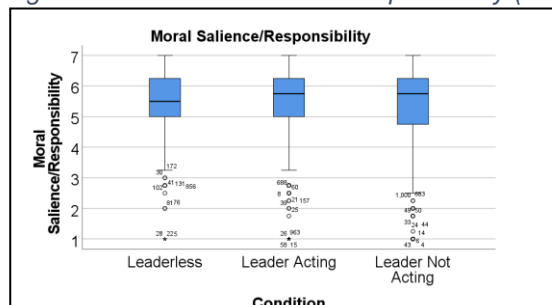


Figure 6.22 Support Climate Action (mean)

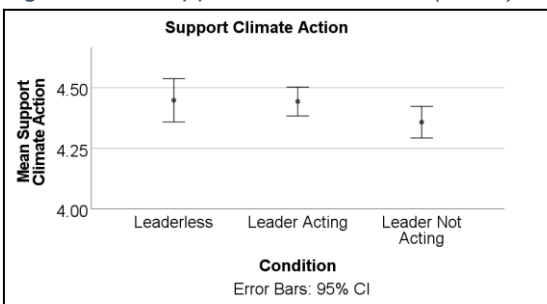


Figure 6.27 Support Climate Action (boxplot)

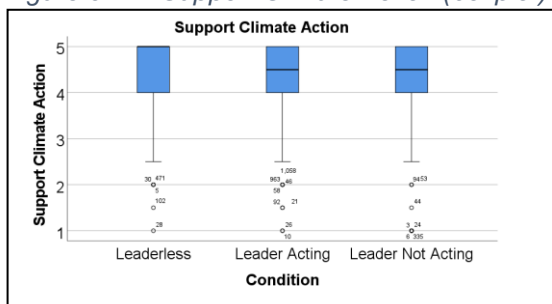


Figure 6.23 Climate Concern/Risk perception (mn)

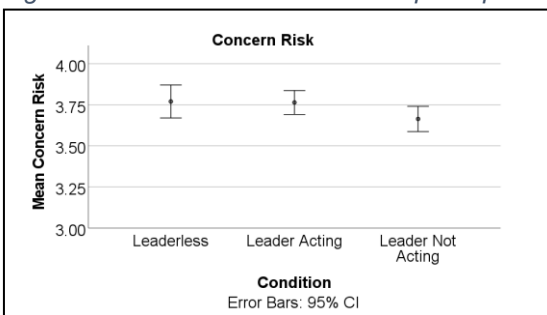
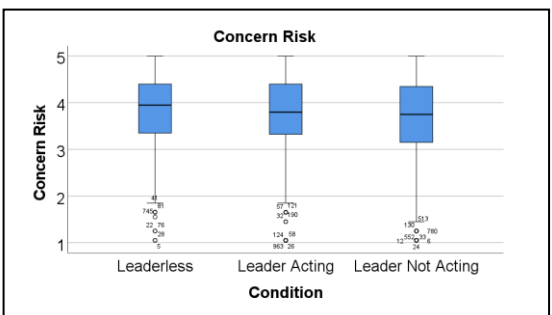


Figure 6.28 Concern Risk (boxplot)



The data for these DVs are shown in Figure 6.19 to Figure 6.28. While not statistically significant at the $p < 0.05$ level, there is a possible trend in the data revealed by these figures, with the Leader Acting conditions consistently appearing higher than the Leader Not Acting conditions. While not meeting a $p < .05$ significance threshold, such trends are often reported and discussed in exploratory research (Schumm et al., 2013). To examine these potential trends, a scale was designed to include these Category 3 DVs: i.e. Others' Willingness To Act, Moral Salience/Responsibility, Support for Climate Action, Concern Risk. These DVs are conceptually distinct from those that measure willingness to act or attitudes towards the leader themselves because they measure respondents' personal feelings about climate change, rather than perceptions of the leader. As such it makes sense to consider them as a whole. Factor analysis found the influence items form a reliable scale, named "Total_Influence". The Climate Morale item was excluded from the scale as it had low correlations and appears to be a separate component (see Appendix C for the factor analyses).

A one-way ANOVA revealed a significant difference for Total_Influence between the three groups Leaderless, Leader Acting and Leader Not Acting $F(2, 1264) = 4.060, p = 0.017$. Tukey's HSD post-hoc pair-wise comparisons showed that Total_Influence for the Leader Acting condition ($M = 28.423, SD = 4.399$) was significantly greater than for the Leader Not Acting condition ($M = 27.683, SD = 4.715$) $p = 0.027, 95\% \text{ C.I.} = 0.0677, 1.4138$, albeit with a very small effect size: Cohen's $d = 0.16$. There was no significant difference between the Leaderless condition ($M = 28.4390, SD = 4.508$) and either the Leader Acting or the Leader Not Acting conditions. This result indicates that leading by example has a subtle but significant affect on people's perspectives on climate change.

Hypothesis 10 explores whether respondents' political orientation affects the extent of the leader's influence on Willingness To Act, and in particular whether respondents on the political right are more influenced by leaders taking personal action. A "Politics Bracket" attribute was allocated post-hoc to each respondent by simply dividing the sample into those who self-identified anywhere on the Left of politics, those who identified as Centre, and those who identified as anywhere on the Right, aiming for approximately equal numbers in each bracket (see Table 6.1 for more explanation of this process). This allocation method was based on that used by Whitmarsh and Corner (2017). Figure 6.29 and Figure 6.30 show the Willingness To Act of those who self-identify on the Left, Centre and Right of politics. Overall Willingness To Act appears to decrease from (political) left to right, which would be consistent with established ideas about the influence of political orientation on engagement

with climate change (Hornsey et al., 2016; McCright et al., 2016; Newman et al., 2020; Poortinga et al., 2019). Figure 6.31 shows the Total_Influence measure, split by politics bracket.

There is no statistically significant difference between the conditions (Leaderless, Leader Acting, Leader Not Acting) for Willingness To Act or Total_Influence when split by politics bracket, meaning that **Hypothesis 10** is not supported. However, it is worth noting a potential visual trend in the data for those on the right of politics whereby the Leader Acting conditions appear somewhat higher than the Leaderless and Leader Not Acting conditions, whereas this potential trend is not visible for the Left and Centre political brackets. As the group sizes for politics bracket are smaller than those in the main analysis, future research may be worthwhile to explore whether these potential trends are borne out when using more precise and dedicated measures of political orientation and larger sample sizes in each group.

Figure 6.29 Willingness To Act by Condition and Political orientation

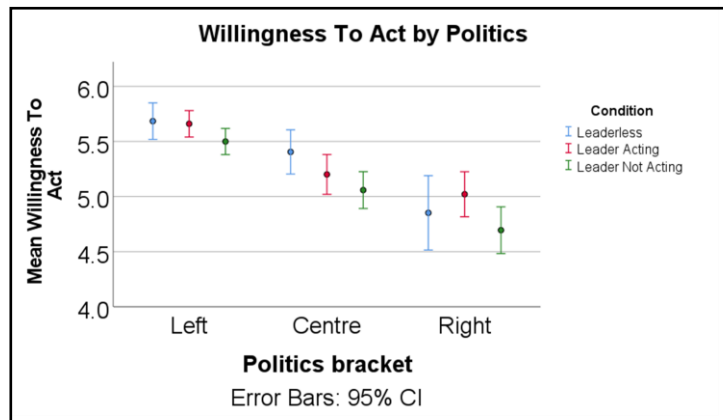


Figure 6.30 Willingness To Act by Condition and Political orientation

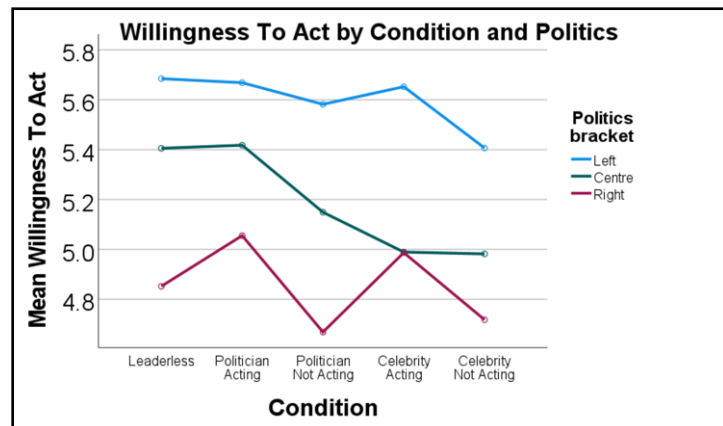
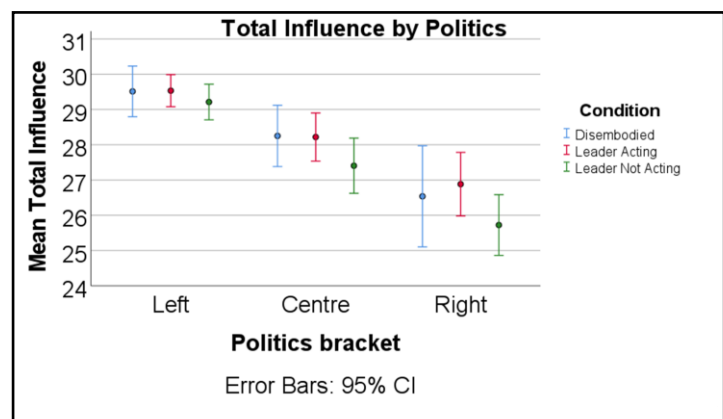


Figure 6.31 Total Influence split by Political orientation and Condition



Hypothesis 9 relating to respondents' **pro-environmental identity** is partially supported. The one-way MANOVA reveals a significant difference between the groups on pro-environmental identity ($F(2,1264)=4.347, p=0.013$). Tukey HSD tests on multiple comparisons (see Table 6.5) found a significant difference ($p=0.02, 95\% \text{ C.I.} = 0.03, 0.44$)

between the Leader Acting condition (M=5.13, SD=1.09) and the Leader Not Acting condition (M=4.97, SD=1.17), and no significant differences with the Leaderless condition (M=5.21, SD=1.16). This indicates that if leaders walk the talk, respondents' self-declared pro-environmental identity is slightly higher (with a small effect size) compared to leaders not walking the talk. The results are shown in Figure 6.32 and Figure 6.34

Figure 6.32 Pro-Environmental Identity (mean), Figure 6.34 Pro-Environmental Identity (boxplot)

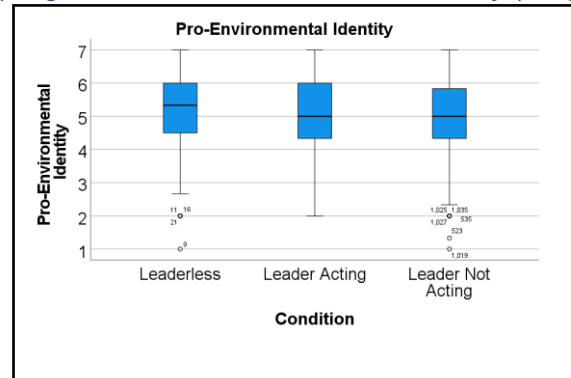
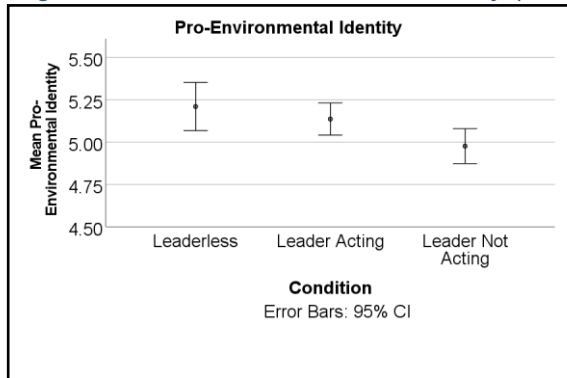


Figure 6.33 Reactance (mean)

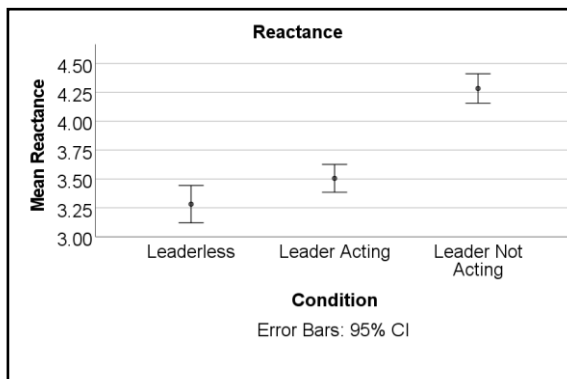
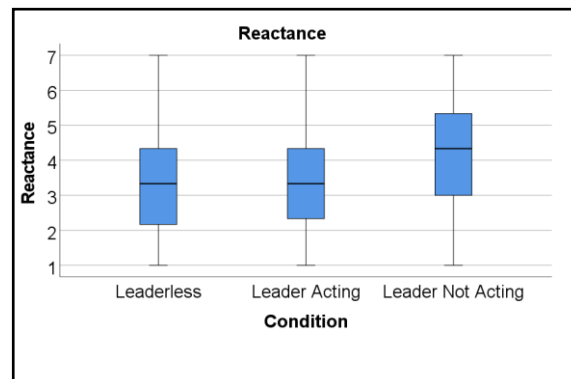


Figure 6.35 Reactance (boxplot)



Reactance goes in the opposite direction to that hypothesised. **Hypothesis 6** proposed that leaders displaying high-impact low-carbon behaviour would create more reactance, but the reverse effect was found. Reactance ($F(2,1264)=58.298, p<001$) was significantly different between groups. Tukey's HSD tests found significantly lower Reactance for the Leaderless condition (M=3.28, SD=1.33) than for the Leader Not Acting condition (M=4.28, SD=1.45) ($p<0.001, 95\% \text{ C.I.} = -1.25, -0.75$), and significantly lower Reactance for the Leader Acting (M=3.51, SD=1.39) than for the Leader Not Acting conditions ($p<0.001, \text{C.I.} = -0.99, -0.57$).

As can be seen in Figure 6.33 the Leaderless and Leader Acting conditions have a mean Reactance score that falls on the Disagree side of the scale (ie. below 4), whereas the Leader Not Acting condition has a mean score that falls on the Agree side of the scale. This suggests that leaders who do not walk the talk increase respondents' sense that they are being told what to do or preached at. Viewed from the opposite perspective, leaders who

take multiple high-impact low-carbon actions are not viewed as preaching or telling people what to do.

Table 6.5 Multiple comparisons of conditions: Leaderless, Leader Acting and Leader Not Acting

DV	Condition (I)	Mean	SD	Condition (J)	Mean diff (I-J)	Sig
Willingness To Act	Leaderless	5.4066	1.06290	Leader Acting	0.0594	0.755
	Leader Acting	5.3472	1.10079	Leader Not Acting	0.2078	0.004
	Leader Not Acting	5.1394	1.09344	Leaderless	-0.2672	0.007
Others' Willingness To Act	Leaderless	4.1769	0.91474	Leader Acting	-0.0847	0.426
	Leader Acting	4.2617	0.88538	Leader Not Acting	0.1156	0.893
	Leader Not Acting	4.1460	0.88662	Leaderless	-0.0309	0.099
Reactance	Leaderless	3.2821	1.32556	Leader Acting	-0.2235	0.091
	Leader Acting	3.5055	1.38932	Leader Not Acting	-0.7781	0.000
	Leader Not Acting	4.2836	1.44739	Leaderless	1.0016	0.000
Moral Salience/ Responsibility	Leaderless	5.4269	1.12790	Leader Acting	-0.0432	0.880
	Leader Acting	5.4702	1.13887	Leader Not Acting	0.0715	0.947
	Leader Not Acting	5.3987	1.23887	Leaderless	-0.0282	0.600
Climate Morale	Leaderless	3.3308	1.16919	Leader Acting	-0.1174	0.360
	Leader Acting	3.4481	1.16432	Leader Not Acting	0.0847	0.924
	Leader Not Acting	3.3634	1.06902	Leaderless	0.0326	0.459
Pro-Environmental Identity	Leaderless	5.2103	1.16332	Leader Acting	0.0739	0.670
	Leader Acting	5.1363	1.09121	Leader Not Acting	0.1599	0.020
	Leader Not Acting	4.9765	1.17001	Leaderless	-0.2338	0.067
Support Climate Action	Leaderless	4.4481	0.73139	Leader Acting	0.0048	0.996
	Leader Acting	4.4432	0.68650	Leader Not Acting	0.0854	0.228
	Leader Not Acting	4.3579	0.73955	Leaderless	-0.0902	0.142
Concern Risk	Leaderless	3.7703	0.82290	Leader Acting	0.0061	0.995
	Leader Acting	3.7641	0.83656	Leader Not Acting	0.1001	0.230
	Leader Not Acting	3.6640	0.87014	Leaderless	-0.1062	0.147

Notes: Significant comparisons shown in bold

6.9.3 Mediation analysis

The preceding analysis has shown that Leader Action has a small, significant effect on Willingness To Act, and a large effect on perceptions of the leader. To explore potential mechanisms underlying the variation in Willingness To Act, a mediation analysis was conducted, in particular to determine whether differing perceptions of the leader can help to explain the different levels of Willingness To Act. All eight of the significant DVs were included as mediating variables in order to lessen the chances of misattribution of mediating effects (Hayes, 2013). Table 6.6 shows the correlations of the mediators. It is notable that several of the mediators are strongly correlated, in particular Cares/Believes, Knowledgeable, Effectiveness, Warmth/Competence, Increased Approval. All of the

mediators are positively correlated with Willingness To Act, except Reactance, which is negatively correlated.

Results of mediation

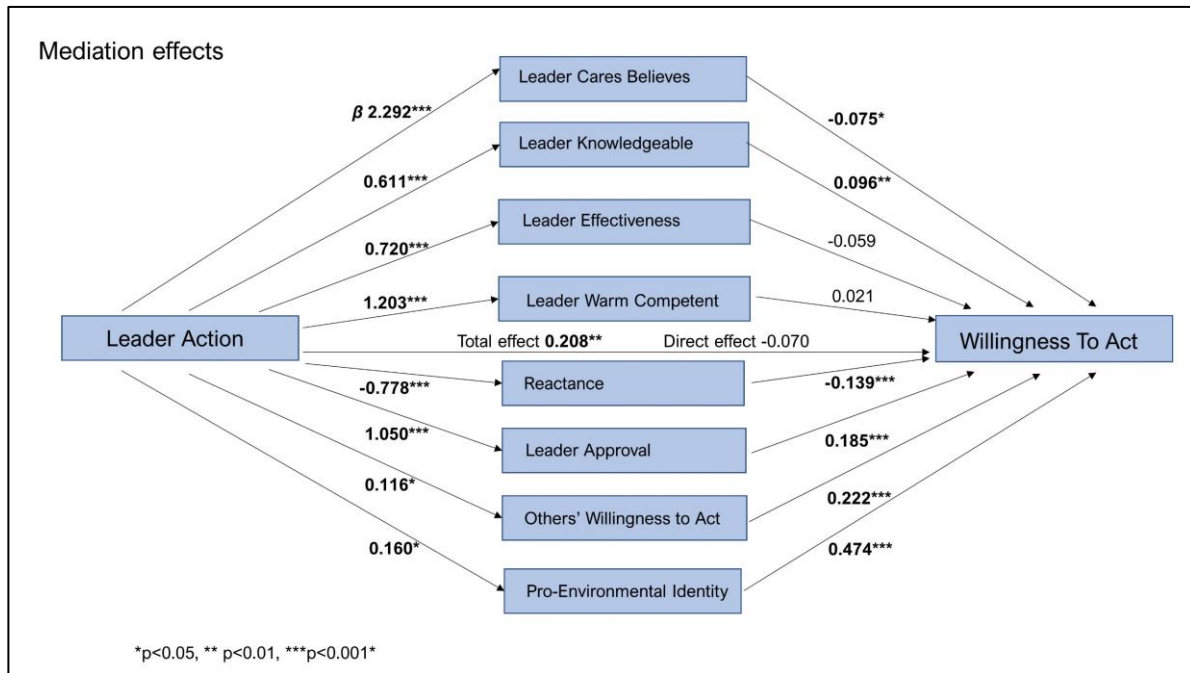
The PROCESS regression tool in IBM SPSS was used for the mediation analysis (Hayes, 2013). The R^2 value was 0.536 indicating the regression model accounted for around 54% of the variance of Willingness To Act. The mediation diagram with effect sizes and significance levels is shown in Figure 6.36. The results confirm a significant total effect of Leader Action on Willingness To Act of $B=0.208$, $SE = 0.069$, $p=0.003$. There is no significant direct effect ($B=-0.070$, 0.076 , $p=.379$), indicating full mediation by the mediators. As would be expected in light of the previous ANOVAs, Leader Action has a significant effect on all Mediators, shown in Table 6.7. Of the mediators, all but Effectiveness and Warmth/Competence have a significant effect on Willingness To Act, once the other mediators have been controlled for. The largest effects among the mediators on Willingness To Act are Pro-Environmental Identity ($B=0.474$, $SE=0.023$, $t=20.587$, $p<0.001$) and Others' Willingness To Act ($B=0.222$, $SE=0.0293$, $t=7.568$, $p<0.001$).

Indirect effects: all mediators except Effectiveness and Warmth/Competence significantly mediate the effect of Leader Action on Willingness To Act when controlling for the other mediators, as can be seen in Table 6.8. Significance is determined by the 95% confidence intervals not containing zero (as shown in the green shaded boxes). The largest indirect effect is via Increased Approval ($B=0.194$, $SE=0.040$, $CI 0.116-0.274$) indicating that Leader Action increases respondents' approval of the leader, which in turn increases respondents' Willingness To Act. (Reminder: Increased Approval was measured in terms of respondents expressing an increased likelihood of voting for the politician, or an increased level of liking

Table 6.6 Correlations of dependent variables

Spearman's rho n=1007	Knowledge- able	Effective	Warmth/ Competence	Others' Willingness To Act	Reactance	Pro-Env Identity	Approval	Willingness To Act
Cares/Believes	.576***	.720***	.745***	.183***	-.398***	.204***	.679***	.255***
Knowledgeable		.562***	.685***	.248***	-.354***	.276***	.535***	.341***
Effective	.720***		.743***	.257***	-.343***	.222***	.637***	.291***
Warmth/ Competence	.685***	.743***		.299***	-.507***	.317***	.732***	.400***
Others' Willingness To Act	.248***	.257***	.299***		-.127***	.222***	.187***	.311***
Reactance	-.354***	-.343***	-.507***	-.127***		-.214***	-.500***	-.373***
Pro-Environmental Identity	.276***	.222***	.317***	.222***	-.214***		.275***	.630***
Approval	.535***	.637***	.732***	.187***	-.500***	.275***		.397***
Spearman's rho (n=1007). ***correlation at $p<.001$								

Figure 6.36 Mediation diagram



Notes: The direct effect is not significant, indicating full mediation by the mediators. Cares/Believes does not have a significant effect on Willingness To Act when controlled for by the other mediators. The remaining mediators do have significant effects on Willingness To Act.

Table 6.7 Effects of Leader Action on Mediators and effects of Mediators on Willingness To Act

Mediators	Direct paths from Leader Action to mediators				Direct paths from mediators to Willingness To Act			
	B	SE	t	p	B	SE	t	p
Cares Believes	2.292	0.063	36.373	0.000	-0.075	0.0342	-2.188	0.029
Knowledgeable	0.611	0.070	8.780	0.000	0.096	0.0297	3.2452	0.001
Effectiveness	0.720	0.039	18.622	0.000	-0.059	0.0545	-1.076	0.282
Warm Competent	1.203	0.068	17.681	0.000	0.021	0.0414	0.5116	0.609
Reactance	-0.778	0.089	-8.704	0.000	-0.139	0.0199	-6.991	0.000
Approval	1.050	0.056	18.625	0.000	0.185	0.0381	4.862	0.000
Others' Willingness To Act	0.116	0.056	2.071	0.039	0.222	0.0293	7.5684	0.000
Pro-Environmental Identity	0.160	0.071	2.243	0.025	0.474	0.0230	20.587	0.000

Table 6.8 Indirect effects of Leader Action on Willingness To Act via Mediators

Indirect effects (via mediators)	Effect estimate B	SE	Bootstrap 95% CI	
			Lower	Upper
Total	0.275	0.0826	0.109	0.439
Cares Believes	-0.171	0.0866	-0.341	-0.001
Knowledgeable	0.059	0.0222	0.016	0.103
Effectiveness	-0.042	0.0515	-0.145	0.057
Warm/Competence	0.026	0.0542	-0.077	0.138
Reactance	0.108	0.0192	0.073	0.148
Increased Approval	0.194	0.0403	0.116	0.274
Others' Willingness To Act	0.026	0.0132	0.002	0.054
Pro-Environmental Identity	0.076	0.0337	0.011	0.142

and admiration for the celebrity.) The next largest indirect effect is via Reactance ($B=0.108$, $SE=0.019$, $CI\ 0.073-0.148$), indicating that Leader Action reduces a sense among respondents that they are being preached at or told what to do, and this increases their Willingness To Act.

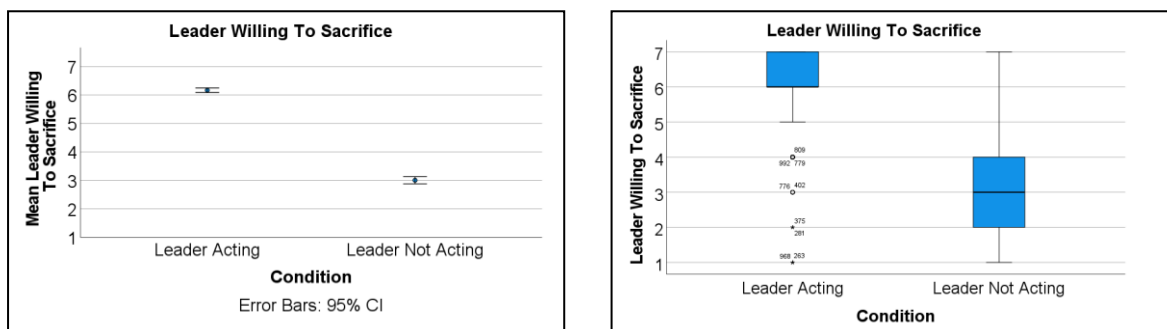
Cares/Believes has a negative indirect effect on Willingness To Act ($B=-0.171$, $SE=0.087$, $CI\ -0.341 - -0.001$). This is due to the large direct effect of Leader Action on Cares/Believes ($B=2.292$) being multiplied by the small negative effect of Cares/Believes on Willingness To Act ($B=0.075$) when controlling for the other mediators. The other mediators each have a small but significant indirect effect on Willingness To Act.

6.9.4 Sacrifice

The idea of sacrifice in relation to climate change and leadership was explored in Chapters 1 and 2, and sacrifice came up spontaneously in the focus groups in Chapter 4. The following analysis looks at the results of questions containing the language of sacrifice.

As part of the 4-item Cares/Believes scale, respondents were asked whether they agree or disagree with the statement: *The <politician/celebrity> is willing to make personal sacrifices because of climate change.* Figure 6.37 shows that leaders in the Leader Acting condition ($M=6.17$, $SD=.922$) are perceived as much more willing to make personal sacrifices than those in the Leader Not Acting condition ($M=3.01$, $SD=1.443$). This indicates that the actions taken by the leaders in the Leader Acting conditions (flying less, driving an electric car, using public transport more, improving home efficiency) are themselves perceived as sacrifices, or are indicative of the leaders' willingness to make sacrifices more generally. The mean score

Figure 6.37 Leader Willing To Sacrifice (mean), Figure 6.38 Leader Willing To Sacrifice (boxplot)



of 3.01 for the Leader Not Acting conditions is in the negative side of the scale (below the neutral point of 4) and indicates that, on average, respondents “Somewhat disagree” that the leaders in this condition are willing to make personal sacrifices. Conversely respondents in the Leader Acting conditions on average “Agree” that the leader is willing to make sacrifices.

The perceived willingness to make sacrifices corresponds with positive appraisals of the leader, and Willingness To Sacrifice among respondents. This is evidenced in Table 6.9, which shows that Leader sacrifice is positively and significantly correlated with respondents' Willingness To Sacrifice, the perceptions of Leader Knowledgeability, Effectiveness, Warmth and Competence, beliefs about Others' Willingness To Act, perceptions of Climate Change being a moral issue, Climate Morale, and respondent's pro-environmental identity. The strongest correlations of Leader sacrifice are with Leader Warmth and Competence (0.671), Leader Effectiveness (0.643), and Increased Approval of the Leader (0.642).

Table 6.9 Correlations between Leaders' Willingness To Sacrifice and other DVs

Correlation Spearman's rho (n=1007)	Leader Willing To Sacrifice
Respondent Willing To Sacrifice	.200**
Knowledgeable	.498**
Effectiveness	.647**
Warmth/Competence	.673**
Others' Willingness To Act	.170**
Reactance	-.384**
Increased Approval	.635**
Pro-Environmental Identity	.148**
Moral Salience/Agency	.164**
**Correlation is significant at the <0.001 level (2-tailed).	

The only negative correlation is between Leader sacrifice and Reactance, indicating that Leaders in this study who are not willing to sacrifice are more likely to be viewed as telling people what to do and preaching than those leaders who are perceived as willing to sacrifice. From these findings there is no evidence of general “do-gooder derogation” when considering a leader who is taking the high-impact low-carbon actions described in the vignettes (Minson & Monin, 2012; Sparkman & Attari, 2020). On the contrary, there seems to be what might be called “do-gooder approval”. There is also no evidence of a negative response to the idea of sacrifice, in fact the contrary is true – sacrifice from leaders appears to be approved of.

Respondents' Willingness To Sacrifice

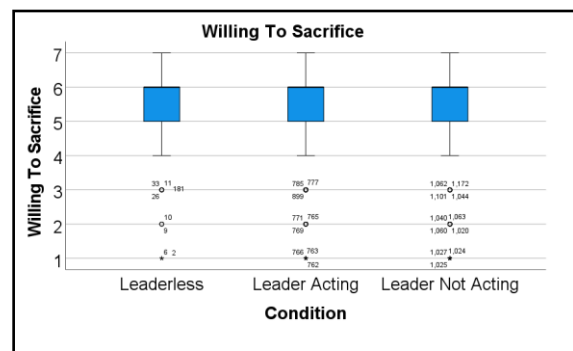
As part of the Willingness To Act scale, respondents were asked whether they agree or disagree with the statement “I would be willing to make some sacrifices to help tackle climate change”. Figure 6.39 shows that mean Willingness To Sacrifice lies between Somewhat Agree (5) and Agree (6) on the Likert scale. However, a one-way ANOVA test

found a statistically significant difference between the groups ($F(1,1266)=4.983, p=0.007$). Tukey's HSD post-hoc comparisons found a significant difference between the Leader Acting conditions ($M=5.65, SD=1.14$) and the Leader Not Acting conditions ($M=5.46, SD=1.20$) ($p=.024, 95\% \text{ C.I.} = .02, .36$) albeit with a very small effect size ($d=.162$). There was also a significant difference between the Leaderless condition ($M=5.69, SD=1.06$) and the Leader Not Acting conditions, but not between the Leaderless condition and the Leader Acting conditions. However, a more conservative significance level of $p=.01$ would indicate no significant difference.

Figure 6.39 Willing To Sacrifice (mean)



Figure 6.40 Willing To Sacrifice (boxplot)



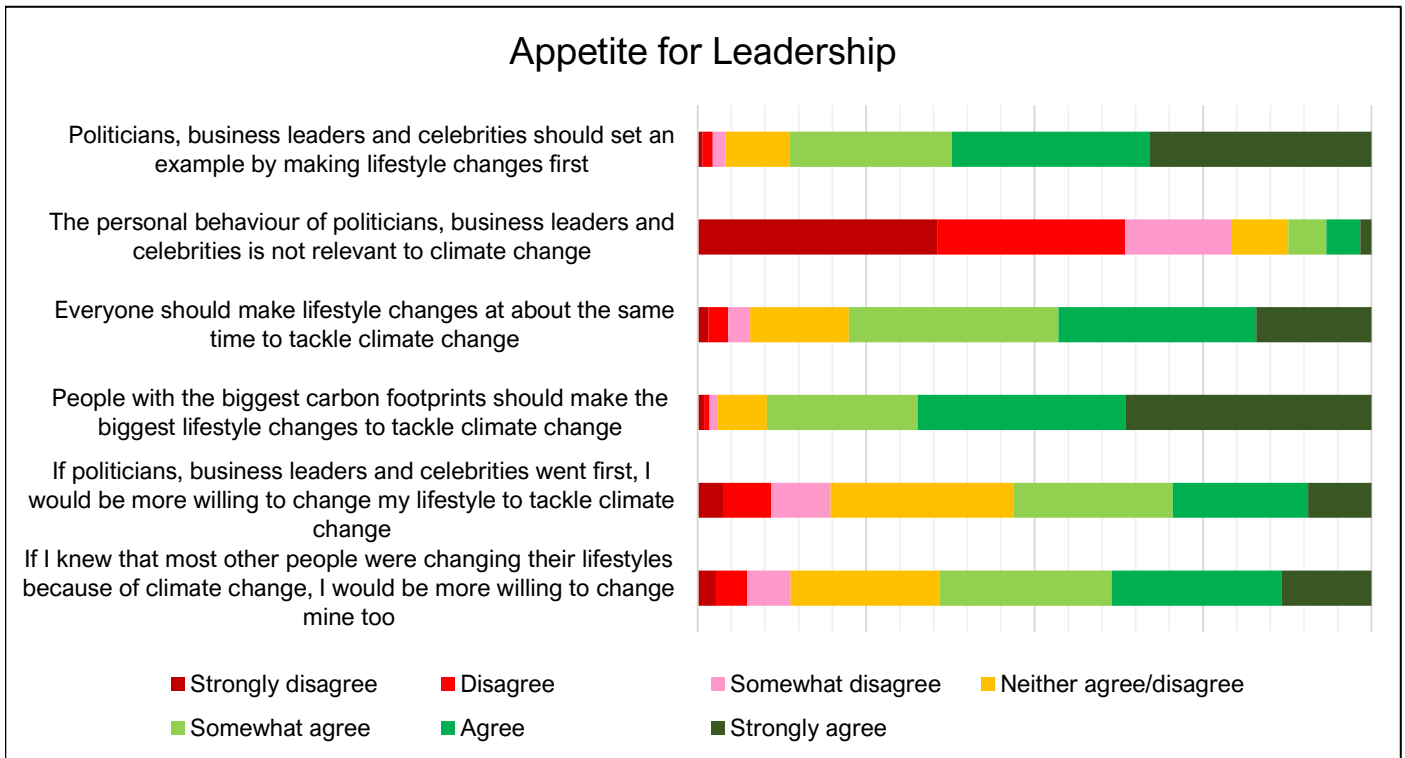
The findings above indicate that sacrifice from leaders gains a positive overall response, and that respondents' willingness to make sacrifices to tackle climate change may be influenced by leading by example, although this effect is not statistically significant at the $p=.01$ level. It's important to consider that demand effects might be at play which increase survey respondents' self-declared willingness to sacrifice. In addition, the block of seven questions about willingness to act (which includes sacrifice) may have led to a consistency bias with all answers tending towards the same level of positivity or negativity.

6.9.5 Appetite for Leadership

Rather than examining differences between groups, this measure was predominantly seeking to explore overall attitudes about whether leaders should lead by example and the level to which others' actions might influence respondents' behaviour. In light of this, the results from this set of questions, shown in Figure 6.41, are presented for the survey sample as a whole ($n=1,267$). For the record, the experimental conditions did not prompt significant differences in respondents' appetite for leadership. This indicates that observing a leader walking the talk on climate behaviour does not affect people's expectations about such leadership.

The chart shows that more than 86% of respondents agree to some extent that "Politicians, business leaders and celebrities should set an example by making lifestyle changes first",

Figure 6.41 Appetite for Leadership



with 4% disagreeing. 79% disagree that “The personal behaviour of politicians, business leaders and celebrities is not relevant to climate change”, with 12% agreeing that leaders’ personal behaviour is not relevant. More than 77% agree that “Everyone should make lifestyle changes at about the same time to tackle climate change”, with 8% disagreeing.

Moving to the next statement, 90% agree to some extent that “People with the biggest carbon footprints should make the biggest lifestyle changes to tackle climate change”, and only 3% disagree with this statement. 53% agree that “If politicians, business leaders and celebrities went first, I would be more willing to change my lifestyle to tackle climate change”, with 20% disagreeing with this statement. 64% agree with the statement “If I knew that most other people were changing their lifestyles because of climate change, I would be more willing to change mine too”. 14% disagree with this statement.

6.9.6 Generalised Trust

A Spearman’s rho test showed that Generalised Trust has a small-medium correlation with Willingness To Act $r(1267) = .181, p < 0.001$. However, the experimental conditions did not have a significant effect on Generalised Trust, indicating that leading by example does not influence respondents’ general perceptions of how trustworthy other people are.

6.9.7 Presumed gender of the leader

Towards the end of the survey, participants were asked the gender of leader (politician or celebrity) they had brought to mind. The results are shown in Table 6.10 . They reveal that 65.3% of participants presumed the leader was male, 9.9% presumed they were female, 24.3% did not have a particular gender in mind, and 0.4% presumed the leader was non-binary. It is worth recalling that the survey sample itself has an approximately 50/50 female/male split.

Table 6.10 Presumed gender of leader (politician or celebrity)

		Presumed gender of leader							
		Female		Male		Non binary		No gender in mind	
		%	n	%	n	%	n	%	n
Participant Gender	Male	8.5	42	61.8	306	0.6	3	29.1	144
	Female	11.6	58	68.5	342	0.2	1	19.6	98
	Other	0.0	0	100.0	6	0.0	0	0.0	0
	prefer not to say	0.0	0	57.1	4	0.0	0	42.9	3
Total		9.9	100	65.3	658	0.4	4	24.3	245

To explore if there were differences in responses to leaders of different genders, a MANOVA test was conducted. Leader gender showed a small, significant difference at the $p=.05$ level for Reactance $F(3,1007)=2.664$, $p=.047$, $\eta^2_p=.008$ and Support Climate Action $F(3,1007)=3.319$, $p=.019$, $\eta^2_p=.010$. The effect sizes are small, with male leaders resulting in slightly higher levels of (negative) Reactance among respondents than female leaders, and female leaders who don't lead by example resulting in slightly lower levels of Support for Climate Action, whereas male leaders do not see a drop off between the Acting and Not Acting conditions. Notably, if a more conservative threshold is adopted of $p=.01$ to account for the multiple DV being tested, none of the DVs was significantly different. Overall, the presumed gender of the leader appears not to be an important factor in their potential influence if they lead by example.

6.10 General discussion

Discussion of Category 1 hypotheses: Willingness To Act

The results of the survey experiment show that leading by example with high-impact low-carbon behaviours has a small, statistically significant positive effect on respondents' willingness to adopt the same low-carbon behaviours, when compared to a leader that does not lead by example. There is not a significant difference between leading by example and

leaderless information about the need for climate action. Leaders who *do not* lead by example result in significantly lower willingness to act from respondents. This indicates that if leaders are advocating for climate action, and in particular highlighting the need for behaviour change, they will be more effective if they lead by example, and will have a negative effect on others' willingness to act if they do not lead by example. Chapter 8 includes further discussion on the potential scale of the effect of leading by example. The significant increases in respondents' willingness to act in response to a leader leading by example support the idea that visible low-carbon behaviours from leaders could form part of efforts to encourage wider behaviour change among the public.

Discussion of Category 2 hypotheses: perceptions of the leaders

Perceptions of leaders who were leading by example were very significantly more favourable than those who were not leading by example, showing that personal action from leaders can send strong signals to others. The results show that, in addition to encouraging others to change their behaviour, leaders who lead by example are considered to: care more about climate change, believe it is more serious, be more knowledgeable about it, be more effective climate leaders, and warrant more approval. The effect sizes for these outcomes are much larger than those for willingness to act. Figure 6.42 shows all of the perception measurement scales with a y-axis scale indicating whether each measure has a positive or negative score. It reveals the extent to which leading by example positively influences people's attitudes towards leaders, and also how not leading by example can negatively affect perceptions of leaders.

It is particularly noteworthy that the leaders who lead by example are perceived as more knowledgeable about climate change and climate solutions than those who don't lead by example, even though all leaders in the experimental conditions exhibited the same level of knowledge about climate change and what is needed to address it. This suggests that leading by example with low-carbon behaviour affects perceptions of leader expertise. Knowledge and knowing what to do in particular situations, especially crisis situations, are central tenets of leadership (e.g. Gill, 2011; Northouse, 2021), so this finding would seem to have implications for the credibility of climate leaders who do, or do not, lead by example. Similarly, the finding that leaders who lead by example are perceived as more effective (including the ability to persuade others) is likely to enhance their credibility. This supports the idea that leading by example with high-impact low-carbon behaviour is a "credibility enhancing display" (Henrich, 2009; Kraft-Todd et al., 2018) and enhances the perception of key traits of leadership, such as expertise (Kouzes & Posner, 2004).

Figure 6.42 Perceptions of leaders who lead by example vs not

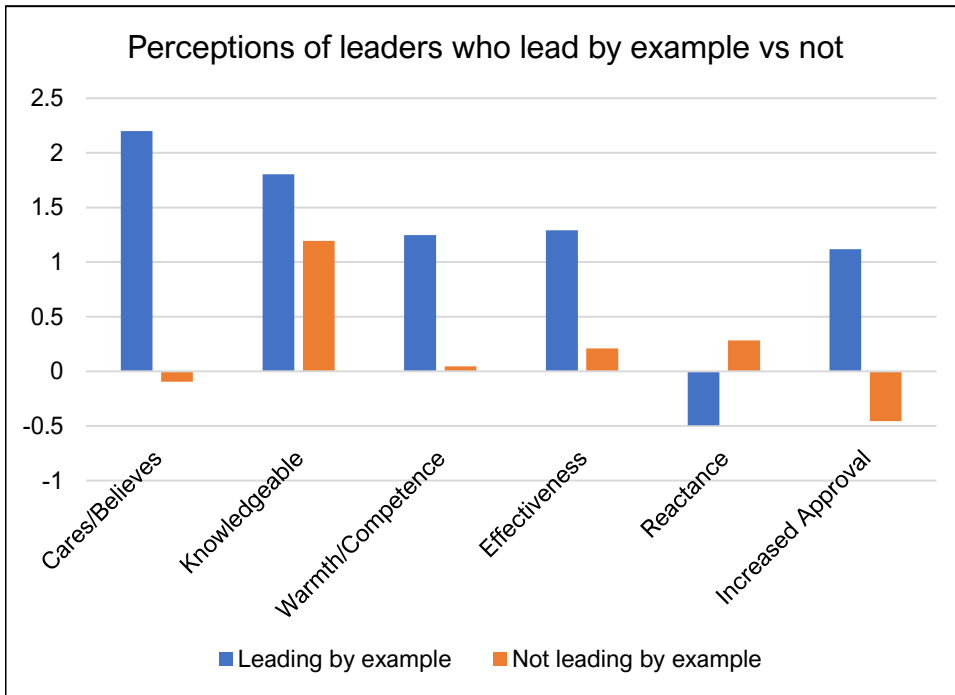
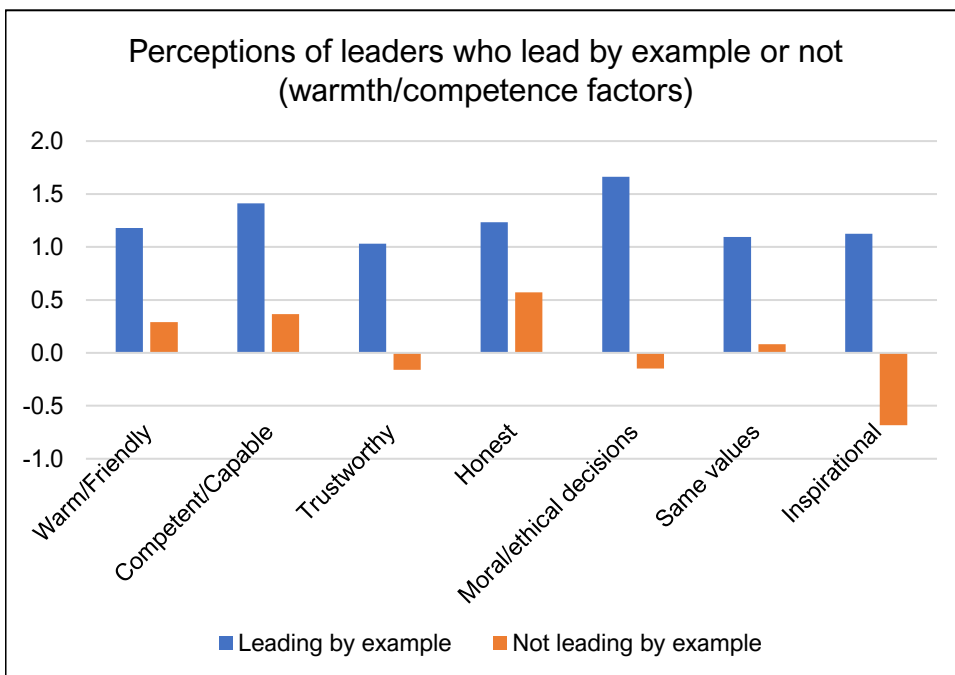


Figure 6.43 Perceptions of leaders - warmth/competence factors



The leaders who took personal action were also viewed more favourably in terms of Warmth and Competence. This is an important result because the Warmth/Competence measure contains some other key aspects of leadership, including: positive feelings towards the leader, and perceptions that the leader is trustworthy, honest, inspirational, competent and ethical. If confidence in leadership is an important factor in addressing climate change, for instance because the public will need to have confidence that leaders are enacting sensible

and fair policies, then this result suggests leading by example could be crucial to improve such confidence. Figure 6.43 shows a breakdown of the warmth/competence scale. It is notable that leaders who don't lead by example score negatively for being trustworthy, making moral and ethical decisions, and being inspirational. There are important implications of the perceptions of approval of the leader, their warmth and competence, and effectiveness because these are very likely to increase the extent to which respondents feel the leader is "one of us" as opposed to "one of them". Such group identification is central to leadership (Haslam et al., 2020).

Given these results, it is not surprising that leaders who lead by example enjoy Increased Approval. Indeed the mediation analysis found that Increased Approval of the leader was the strongest mediator between Leader Action and Willingness To Act when controlling for the other mediators. This indicates that leading by example results in greater favourability in the eyes of observers, which in turn increases observers' own willingness to follow the leader's behavioural cues. When interpreting this mediation result, it is important to note that there was a high level of correlation between Increased Approval and several of the other mediators (Cares/Believes, Warmth/Competence, Effectiveness, Knowledgeable) suggesting that these factors are also associated with an increased Willingness To Act among respondents.

Leading by example would therefore appear to be essential to leader credibility and popularity, confirming previous research in this area (Attari et al., 2016, 2019). The results of this study suggest that leaders who adopt several high-impact low-carbon behaviours, which in sum could be seen as a personal sacrifice, are perceived positively and do not suffer from negative Reactance. This counters previous research that found "extreme" pro-environmental behaviour could be subject to negative appraisals by way of "do-gooder derogation" (Sparkman & Attari, 2020). An important distinction is that the Sparkman and Attari study featured the advocate (leader) directly suggesting that others should adopt similar behaviour to them, whereas the current study presents an example of behaviour with no direct call to action from others, such that there is only an implicit call to action, if indeed it is perceived this way. This may be what prevents negative reactance, and perhaps resonates with the findings of another study entitled "*Don't Tell Me What to Do': Resistance to Climate Change Messages Suggesting Behavior Changes*" (Palm et al., 2020).

The fact that Reactance to the leader was significantly less when the leader was leading by example is a useful finding because it may indicate that leaders should be less worried about being perceived as "virtue-signalling" if they model low-carbon behaviour. For instance, the

MP interviews in Chapter 5 revealed considerable wariness about being perceived as extreme in terms of exhibiting pro-environmental behaviour. However, the evidence from this survey suggests such wariness may be misplaced. As other results in this thesis indicate, the public seems to react positively to virtue signalling in the shape of leading by example on climate change.

Given these findings, a leader who does not lead by example with pro-environmental behaviour but wants to remain active *and credible* on climate change must perhaps choose to avoid talking about the need for behaviour change, in the hope of avoiding the negative effects of not being seen to walk the talk. This avoidance of the subject of behaviour change could be said to reflect the situation that has unfolded in the last three decades, manifesting in the absence of policy or serious discourse from leaders designed to bring about behaviour change and demand reduction (Newell et al., 2021; Willis, 2020). The research in this chapter provides direct evidence as to why this situation may have occurred. Considering that leaderless messages are not shown to be less effective in promoting willingness to act than leading by example, perhaps leaders have justification in avoiding the topic altogether. However, with the IPCC asserting more forcefully the need for rapid demand-side measures, including behaviour change, while also stressing the need for climate action to be perceived as fair (Pörtner et al., 2022), the time may have come for leaders to talk about behaviour change, and lead by example.

As mentioned earlier, the effect sizes were much larger when respondents were making judgements about the leader, as opposed to reporting self-referential responses such as personal willingness to act. This is not surprising when considering that judgements of others are likely to be much more readily determined by the other person's behaviour than are one's own stated intentions in response to the other person's behaviour. Seen in this light, the reported differences in Willingness To Act and the other self-referencing measures can perhaps be viewed as indicative of a quite powerful effect of leaders communicating through their behaviour. A remaining question is whether friends and family would have a larger effect than politicians or celebrities. Chapter 7 goes some way to answering the this.

Discussion of Category 3 hypotheses: personal perspectives

The personal perspectives DVs in this category generally did not show statistically significant differences between the groups. However, when combined into a single scale called Total_Influence (which comprised Others' Willingness To Act, Moral Salience/Responsibility, Support for Climate Action, and Climate Concern/Risk Perception) there was a significant

difference between the Leader Acting and Leader Not Acting groups, albeit with a very small effect size. This result suggests that leading by example has a subtle overall positive effect on these aggregated personal perspectives on climate change. Future research could explore these apparent leadership effects with more depth and precision. If verified, the effects of leading by example could be shown to extend beyond emulation by changing people's attitudes towards climate change as an issue.

It is notable that the responses to most measures were quite consistent across the politician and the celebrity conditions. This might appear surprising, because celebrities are understood to be potentially very influential (Olmedo et al., 2020). However, the results lend support to the idea that politicians may have a particularly important role in displaying leadership on climate change, in spite of the well-voiced distrust of them (Edelman, 2020b, 2020a; Hosking, 2014). This conclusion is supported by the results relating to perceptions of Others' Willingness To Act, where leading by example by the politician increased respondents' perceptions that other people will take action on climate, whereas this effect did not occur for the celebrity. It suggests that politicians can, through their behaviour, increase a feeling that there is a collective effort to reduce emissions through personal behaviour. The absence of an effect for the celebrity may indicate that politicians have a special leadership role in setting a direction for society, whereas celebrities do not perform this role. This corresponds with findings from the focus groups where some respondents had higher expectations that politicians should lead by example compared to celebrities.

There was no statistically significant effect of the political leaning of respondents on the extent to which they were influenced by leading by example. However, further research might explore a possible trend in the data in greater depth using more precise and dedicated measures of political orientation and larger sample sizes in each group.

Taken together the results on Appetite for Leadership support the idea that there is a strong desire among the public for leaders to lead with personal behaviour changes, and that such leadership could influence people's own behaviour. There is a strong expectation that leaders should lead by example and take action ahead of others. The results also indicate the apparent importance of a sense of collective action, with respondents indicating they would be more willing to adopt low-carbon behaviours if others (including leaders) were known to be doing likewise, confirming a role for leaders in example setting. The possible contradiction in the data, where respondents expressed strong support for the idea that leaders should act first and also supported the idea that everybody should act together, could be explored in future research.

6.10.1 Limitations

There are some limitations to this research that should be considered. Measures of willingness to engage in pro-environmental behaviour or willingness to incur costs have been used widely in studies on environmental engagement (e.g. Bilandzic et al., 2017; Ferguson & Branscombe, 2010; Kollmuss & Agyeman, 2002; Steentjes, Pidgeon, et al., 2017; Whitmarsh et al., 2020). However, *willingness* to act does not equate to actual action, and the results should be viewed in this light. There are several reasons why this measure has been chosen, however. First, willingness to act was preferred to *intention* to act because willingness has the potential to measure a response from those who *cannot* currently change their behaviour due to structural or circumstantial factors. For instance, it may be impossible for somebody to make their home more energy efficient if they cannot afford to, or if they live in rental accommodation. In this case, asking about willingness allows for a positive response, whereas asking about intention might produce a negative response even if a leader's example had inspired them to want to make changes. Second, willingness to adopt new norms and behaviours has been cited as an important factor in triggering social tipping points where rapid change of behavioural norms could occur (Lenton et al., 2022). This suggests that measuring willingness, as opposed to intention, is useful in the context of social contagion and collective responses that might be stimulated by leader actions, because it may access latent potential for behaviour change that has not yet solidified into firm intentions. Furthermore, the public's *unwillingness* to change behaviour has been cited as a reason that behaviour change policies are avoided by governments, suggesting that willingness can be an important measure in policy terms. Finally, as the focus groups revealed, leading by example with high-impact low-carbon behaviour can trigger an affective and emotional response in observers. Indeed leadership involves engaging with followers' emotions, as discussed in Chapter 2. Thus a measure of willingness is intended to access more closely the mood of respondents and their level of enthusiasm to adopt pro-environmental behaviour, as opposed to what could be viewed as a more dispassionate and rational assessment of their intentions.

The results should also be interpreted in light of the construction of the leader vignettes which presented a situation where leaders in the Leader Not Acting conditions are stating that behaviour change is necessary but not doing it themselves. It could be argued that this is not particularly realistic, given that leaders are unlikely to advocate for something they are not doing because of the clear danger of being called a hypocrite. If this criticism of the survey design is adopted, it might be said that respondents' negative appraisals of leaders

who are not walking the talk are not likely to happen in practice. However, I make two counter arguments to this, one specific and one general. First, I point to a real-world example of an interview with a politician during which they advocated strongly for electric cars because “they are the future”, but were then challenged by the interviewer after admitting they did not yet own an electric car (see Ed Miliband interview in Appendix C). While not perfectly analogous to the survey vignettes, such questions about leadership behaviour in the media are relatively common. Secondly, strong scientific evidence stating that substantial demand reduction in the shape of behaviour change will be necessary is outlined by the IPCC and accepted by governments worldwide (Pörtner et al., 2022). This was highlighted in Chapter 1. A situation therefore occurs where leaders who advocate for effective climate action can be viewed as *implicitly* calling for behaviour change, such that a lack of personal action can be (and often is) viewed as hypocrisy. It is suggested therefore that the vignettes can be considered to reflect a pertinent dichotomy between leading by example and not leading by example – a dichotomy that very much exists in the real world – even if the precise realism of the vignettes, as with all such studies, can be debated.

6.11 Conclusion

The evidence from the survey experiment reveals a marked contrast in the response to leaders who lead by example with high-impact low-carbon behaviour and those who don't. Respondents' Willingness To Act, and their opinions of the leaders, are significantly affected by whether the leader is walking the talk, supporting the theories of credibility enhancing displays, leader self-sacrifice, costly signally, and embodied leadership.

The next chapter will present the findings from a survey examining how people are influenced by others to stop flying. This is followed by the final chapter that will draw together all the findings from the research and presents conclusions about the effects of leading by example with high-impact low-carbon behaviour.

Chapter 7 Flight Free Survey

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7.1 Introduction

This chapter presents the final tranche of data and analysis in the thesis. It explores people's motivations for adopting a high-impact low-carbon behaviour change, and the extent to which this change was influenced by leaders and other people. The data were gathered using a survey of members of the public (n=344) who signed the voluntary Flight Free 2020

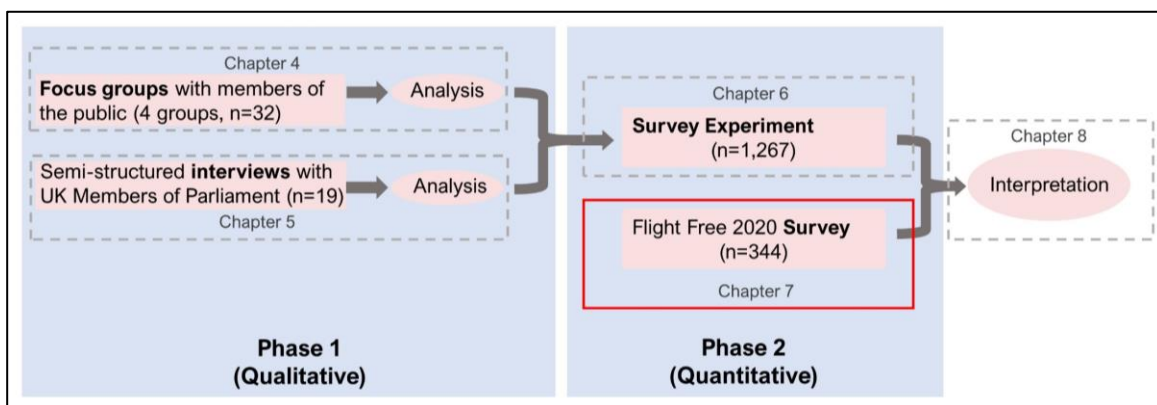
pledge, which committed them to not flying during 2020 in order to avoid the negative environmental impacts of air travel. The survey questions probed respondents' motivations for signing up to the pledge, whether they had been influenced by anyone else to do so, the scale and nature of this influence, and whether they were influenced by someone high-profile (a "leader") or a close associate such as a friend, family member, or work colleague.

7.1.1 Recap of previous chapters

The evidence already laid out in chapters 4, 5 and 6 was gathered using qualitative and quantitative methods to explore whether leading by example with high-impact low-carbon behaviour can influence others to adopt similar behaviour (see Figure). Focus groups with members of the public (chapter 4) suggested that leading by example can send strong messages to those who observe the leadership behaviour, and this has the potential to result in emulation. However, the responses to leaders' actions were complex and ambivalent, with no guarantee of a positive response to low-carbon behaviour. Interviews with UK Members of Parliament (chapter 5) revealed MPs exhibit a general normative desire to lead by example, but are very cautious about being perceived as virtue signalling or indulging in gesture politics. A survey experiment (chapter 6) built on this qualitative data by establishing that leading by example can increase peoples' willingness to adopt similar behaviour, although the observed effects are quite small. However, large differences were found in the perception of leaders who lead by example, compared to leaders who don't. For instance, leaders who lead by example with high-impact low-carbon behaviour were perceived by observers as: caring much more about climate change, believing climate is more serious, being more knowledgeable about climate change, and being more effective leaders.

The current chapter will build on these strands of evidence, with a focus on *actual* changes in behaviour, and how other people influenced the changes. It will begin by explaining the

Figure 7.1 Research design



Notes: Red box indicates the focus of this chapter

rationale behind the Flight Free survey. This will be followed by the survey design, results and the conclusions drawn.

7.1.2 Rationale behind the Flight Free survey

The focus groups and survey experiment presented in chapters 4 and 6 provided a body of evidence about how leading by example is perceived, and the extent to which it may increase people's willingness to adopt high-impact low-carbon behaviour. However, as pointed out in chapter 6, "willingness", while useful to measure, does not represent *actual* low-carbon behaviour. Therefore evidence was sought of people making tangible changes to their behaviour in response to the example of leaders. An opportunity presented itself to carry out research on members of the public who had opted to stop flying for a year because of climate change, and signed a Flight Free Pledge to this effect. The survey explored whether these people had been influenced by others, or were acting "individually".

Flying is one of the most energy-intensive activities a person can partake of, and in the UK, aviation emissions contribute around 7% of the country's total emissions. Flying is also skewed heavily towards a relatively small section of the population in the UK and globally, with 70% of UK flights being taken by 15% of citizens, and around 50% of people not flying in any one year (Barasi & Murray, 2016; DfT, 2015). For those who fly frequently, the associated emissions often constitute a large proportion of their personal carbon footprint (Baltruszewicz et al., 2023; Gössling, 2019a; Otto et al., 2019). Choosing not to fly, or to fly less, can therefore be a particularly effective personal change if the intention is to reduce one's carbon footprint.

The Flight Free Pledge originated in Sweden in 2019, and was adopted in the UK and several other countries in 2020. It encourages people to consider alternatives to plane travel with a view to reducing greenhouse gas emissions and contributing to the shifting of social norms around flying. The pledge is administered by an independent non-profit organisation, the UK branch of which is called Flight Free UK. People who signed the pledge for 2020 did so at any time up to the start of 2020. The Covid pandemic resulted in travel restrictions beginning in March 2020 in the UK, and these restrictions fluctuated throughout the year. While this dramatically reduced opportunities for flying in 2020, it does not negatively affect the validity of the survey because it is people's pre-2020 commitment not to fly that is of interest in this research.

In the context of this research, signing the pledge was taken as a proxy for actual behaviour change in the form of not flying. It is possible that some of the signees did in fact fly during 2020, but this number was assumed to be negligible.

The survey sought to address several research questions stemming from primary questions set out in Chapter 1. These questions are: To what extent were respondents influenced by others to not fly for a year? Was there a difference between the influence of high-profile people and close associates? What form did the influence take? What personal factors (e.g. age, longevity of pro-environmental commitment) were relevant to being influenced by others? What qualities of other people made them influential? What emotional reactions did people have, and how did this relate to influence? Answers to these questions help to shed light on how leading by example may work. Nine post-hoc hypotheses about the influence of the leaders were tested in relation to these questions. The hypotheses are detailed in the Results section.

7.2 Methods

7.2.1 Survey design

The survey was designed in conjunction with the organisers of the Flight Free 2020 pledge. The pledge organisers were themselves seeking some top-level information about signees' experiences in relation to the pledge, while I was seeking more in-depth information about influence. In view of these two objectives, and considering a desire from the pledge organisers to place a low time burden on respondents, it was decided to design the survey in two parts: first a short initial section that would be very quick to complete, featuring 10 basic questions; followed by an optional slightly longer section about influence. The survey was designed on the Qualtrics online platform, and can be found in Appendix D.

The survey included questions asking about relevant factors, including: how much and how regularly respondents had flown prior to signing the pledge, how long they had been concerned about climate change, how long they had been changing their behaviour because of climate change, and to what extent they were committed environmentalists prior to signing the pledge, along with demographic details.

7.2.2 Recruitment and execution

The pool of potential participants for the survey was anyone who had signed the Flight Free 2020 pledge. Around 26,000 people signed the pledge internationally, with about 15,000 from Sweden, 6,800 from the UK, and the remainder from the rest of the world. In order to gain as large a sample as possible it was decided to invite all signees to complete the survey,

including those not from the UK, because any social processes of influence were not considered to be dependent on a specific nationality. Recruitment for the survey was carried out in collaboration with the UK and Swedish Flight Free 2020 organisers via an invitation sent out as part of a regular monthly email newsletter in November and December 2020. The invitation was also distributed via the social media channels of Flight Free UK (predominantly Twitter and Facebook). The ethics and research standards of Cardiff University were followed throughout. When completing the survey, respondents were presented with an information sheet about the research, including how their personal details would be stored. They were required to give explicit consent prior to beginning the survey, confirming that they were 18 years or over. No payment was offered or made to survey respondents. The survey did not contain any sensitive topics or difficult questions. Appendix D contains the invitation, survey, consent form, information sheet, debrief sheet, Personal data research form, and Privacy Notice.

A total of 1,147 survey responses were registered on the Qualtrics platform. Of these, 81 were deleted because: 77 had consented but not answered any questions; 3 were marked as complete but no answers were recorded; 1 was a dummy response. This left 1,066 valid responses to the first half of the survey, with 968 respondents having completed the whole survey. As the demographic questions were placed at the end of the survey, these 968 completed surveys were considered for analysis. Two further selection processes were applied such that the analysis in the chapter is conducted on respondents: who had *recently changed* their behaviour to stop flying (i.e. “recent flyers”), rather than those who were already long-term non-flyers; **and** who knew someone else who had stopped flying or were flying less because of climate change (for brevity, these will be referred to as a behavioural “**model**”). The reason to consider only recent flyers who know a model is because the key focus of the research is the influence of leaders to *change* someone’s behaviour, whereas someone who has not flown for a long time but signs the Flight Free pledge has not changed their flying behaviour.

To determine recent flyers, the answers to two questions were used. Respondents were asked “**How many return flights did you take in a typical year prior to 2020?**” and “**How long ago was your last flight?**”. Respondents were included if they indicated that they took 1 or more flights in a typical year prior to 2020 AND they had flown in the last 5 years. This resulted in 553 “recent flyer” respondents being included in the analysis and the remaining 415 long-term non-flyers being excluded. Table 7.1 and Table 7.2 show the previous flight behaviour for all respondents and for recent flyer respondents. For recent flyer respondents,

Table 7.1 Typical number of flights taken prior Flight Free 2020

Number of flights	All respondents		Recent flyers	
	Frequency	%	Frequency	%
0	343	35.3	0	0
1	321	33.1	272	49.2
2-3	241	24.9	222	40.1
4-6	47	4.9	44	8.0
7-10	9	0.9	9	1.6
More than 10	7	0.7	6	1.1
Total	968	100.0	553	100.0

Table 7.2 Timing of last flight

Last flight	All respondents		Recent flyers	
	Frequency	%	Frequency	%
Never flown	13	1.3	0	0
1-2 years ago	296	30.6	270	48.8
2-5 years ago	381	39.4	283	51.2
5-10 years ago	137	14.2	0	0
> 10 years ago	141	14.6	0	0
Total	968	100.0	553	100.0

49% typically took 1 flight per year prior to 2020, 40% took 2-3 flights p/a, and the remainder took 4 or more flights p/a, as shown in Table 7.1.

To determine those who knew a model, respondents were asked: **“Before signing the Flight Free pledge, were you aware of anyone else who is flying less or has stopped flying because of climate change?”**. The results are shown in Table 7.3. Of the 553 recent flyers, 344 (62.2%) said they knew one or more person who is flying less or has stopped flying because of climate change. It is the 344 recent flyers who also know a model that will be the focus of the subsequent analysis. Of those who knew a model, 29% knew just one model, and 71% said knew two or more. The demographics of the sample can be seen in Table 7.4.

Table 7.3 Awareness of model(s) who are flying less or have stopped flying because of climate change

	Frequency	%
No	209	37.8
Yes, I was aware of 1 person	100	18.1
Yes, I was aware of 2 or more people	244	44.1
Total	553	100.0

7.3 Results

The results laid out below explore how those who decided not to fly for a year were influenced by others to

Table 7.4 Sample characteristics

	count	%		coun	%
	344	100		t	
Age			Income		
18-29 y/o	39	11.3	£0 – £14,999 p/a (EUR 0 – 16,499)	58	18.1
30-39	73	21.2	£15k – £29,999 p/a (16.5k – 33,999)	84	26.3
40-49	68	19.8	£30k – £44,999 p/a (34k – 49,999)	102	31.9
50-59	82	23.8	£45k – £59,999 p/a (50k – 66,749)	37	11.6
60-69	59	17.2	£60k – £79,999 p/a (66,750 – 88,999)	25	7.8
70-79	23	6.7	£80k+ per year (89k+)	14	4.4
80+	0	0	Total	320*	100
Total	344	100.0			
Gender					
Female	237	69.7			
Male	100	29.4			
Other	3	0.9			
Total	340*	100.0			
Nationality					
Sweden	155	45.1			
UK	154	44.8			
USA	5	1.5			
Norway	4	1.2			
Belgium	4	1.2			
Rest Europe	14	4.1			
Rest World	8	2.0			
Total	344	100.0			

*Some participants did not answer the optional Gender and Income questions, which came at the end of the survey, hence the totals are lower. The demographics of the entire sample (n=968) can be found in Appendix D.

make this choice, and the difference between the influence of high-profile models and close associates.

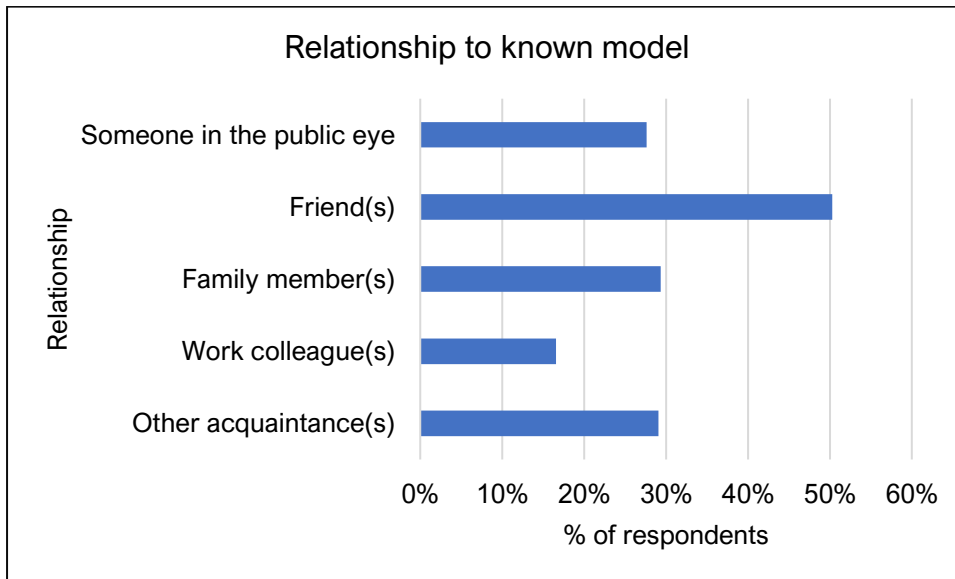
7.3.1 Relationship or connection to the model(s)

Respondents who knew someone who was flying less were asked, “**What is your connection with the person who is flying less because of climate change?** (If there was more than one person, select all that apply)”. The answers are shown in Table 7.5 and Figure 7.2. Around 28% of respondents knew a model in the public eye. For brevity, these will be referred as “high-profile” from now on. Around 30% knew a family member, 50% knew a friend, around 17% knew a work colleague, and 29% knew another acquaintance. These will be referred to as a “close associate” from now on.

Table 7.5 Relationship to the known model

	Frequency	Percent
Someone in the public eye	95	27.6
Family member(s)	101	29.4
Friend(s)	173	50.3
Work colleague(s)	57	16.6
Other acquaintance(s)	100	29.1

Figure 7.2 Relationship to known model(s) who is flying less or has stopped flying



Notes: The percentages add up to more than 100% because respondents were able to select more than one answer.

7.3.2 High-profile models mentioned

The respondents who said they knew a high-profile model were asked “**Who is the person in the public eye who you knew was flying less because of climate change?**” Table 7.4 shows those who were named. Greta Thunberg is mentioned by over 50% of respondents, and her parents by about 17%. Of these 95 respondents who knew a high-profile model, 56 also knew a close associate model. The remaining 39 respondents knew **only** a high-profile model. Politicians were cited by 7.4% of these respondents, whereas those who could perhaps be classed as celebrities (including Greta Thunberg and her parents) were mentioned by nearly 78%.

Table 7.4 High-profile models that were named by respondents

High-profile models	mentioned by # participants	Percent
Greta Thunberg	48	50.5
Marlena Ernman (Greta’s mother)	12	12.6
Activists	12	12.6
Celebrities/Artists/Influencers	10	10.5
Kevin Anderson (climate scientist)	9	9.5
Politicians	7	7.4
Academics/Scientists	4	4.2
Svante Thunberg (Greta’s father)	4	4.2
Others	10	10.5

7.3.3 Influence of the model

Respondents were asked “**How much did the other person’s decision to fly less because of climate change influence you to sign the Flight Free pledge, if at all?** (if there was more than one person, please say how much they influenced you overall)”. Answers were measured on a 4-point Likert scale: Not at all=1; A little=2; Quite a lot=3; It was the main reason=4. This **Influenced To Sign Pledge** score (from 1-4), was used as a proxy for the extent of the model’s influence over the respondents’ behaviour change (stopping flying for a year). Only 26% said they were not influenced at all, while 74% said they were influenced to some degree by the model, with most answering “A little” (42%) or “Quite a lot” (28%), and just over 4% saying the model was the main reason they signed the Flight Free pledge.

To analyse these results in more detail, respondents were separated into three groups, as follows. **Group 1:** Those who know *only* a model who is a close associate (ie. friend, family, colleague, other acquaintance). This group was sized n=249 and will be referred to subsequently as “Only Close”. **Group 2:** Those who know both a close associate model and a high-profile model (n=56, “Close&HP”). **Group 3:** Those who know *only* a high-profile model (n=39, “Only HP”). These groups constitute the factors and levels that are used for the subsequent statistical analysis contained within this chapter, as shown in Table 7.7.

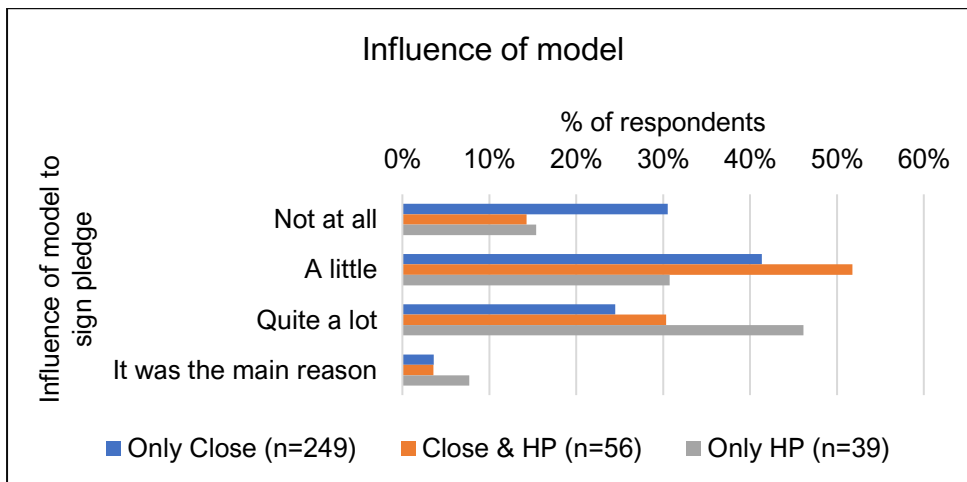
Table 7.5 Factors and levels for statistical tests

Factor	Known model group
Level 1	Group 1: Only Close
Level 2	Group 2: Close&HP (i.e. close and high-profile)
Level 3	Group 3: Only HP (i.e. only high-profile)

Using these groups allows comparisons between the influence of those who can be considered leaders (ie. high profile models) and close associates. Figure 7.3 shows the data split between these three groups. The following hypothesis was tested:

Hypothesis 1: High profile models who adopt low-carbon behaviour exert more influence than close associates

Figure 7.3 Influence of model to sign pledge, by group



Nature of models' influence

Respondents were asked: “Do you think the other person's decision to fly less because of climate change affected your attitudes towards climate change or flying at all? If so, how? (select all that apply)”. Various options were presented based on previous research into the influence of non-flyers (Westlake, 2017). The results are shown in Table 7.8. The answers to this question show the different ways in which the respondents were influenced

Table 7.6 Specific influence of models

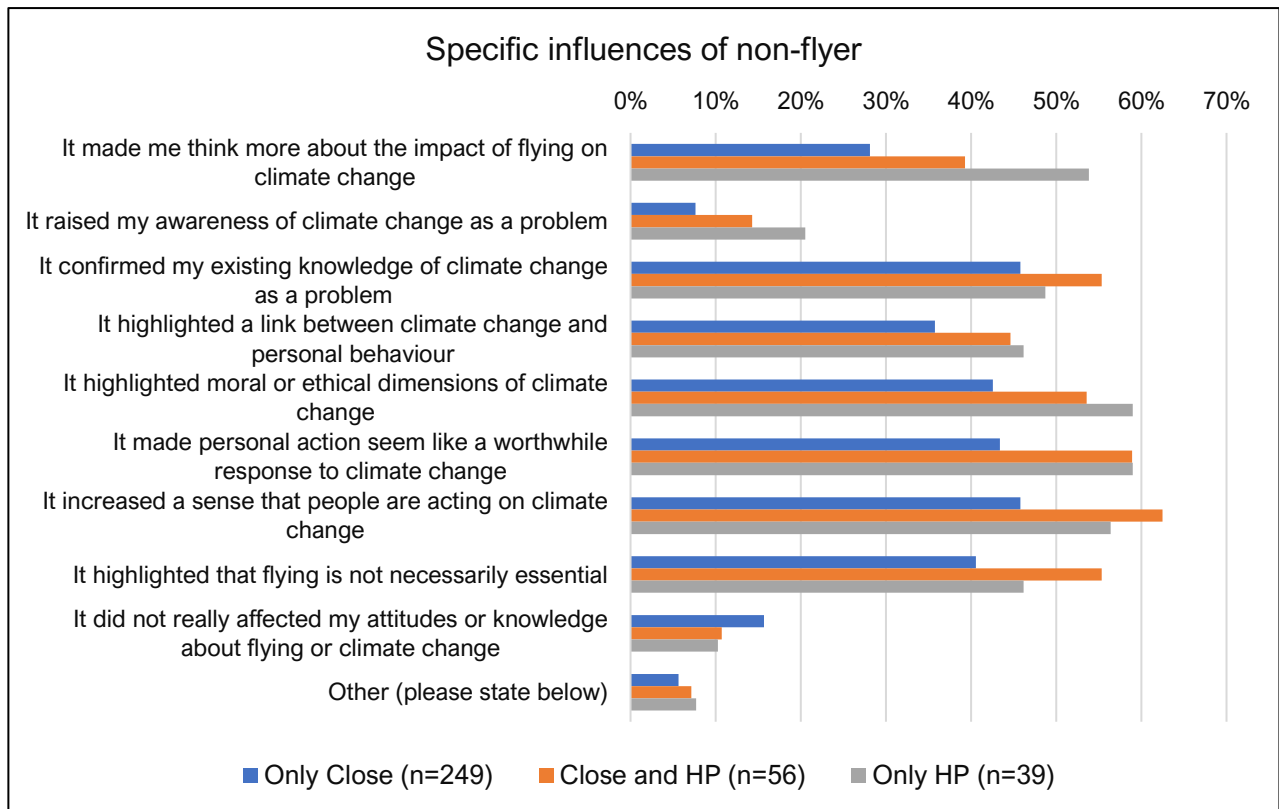
Influence of model	Freq	Percent
It made me think more about the impact of flying on climate change	113	32.8
It raised my awareness of climate change as a problem	35	10.2
It confirmed my existing knowledge of climate change as a problem	164	47.7
It highlighted a link between climate change and personal behaviour	132	38.4
It highlighted moral or ethical dimensions of climate change	159	46.2
It made personal action seem like a worthwhile response to climate change	164	47.7
It increased a sense that people are acting on climate change	171	49.7
It highlighted that flying is not necessarily essential	150	43.6
It did not really affect my attitudes or knowledge about flying or climate change	49	14.2
Other (please state below)	21	6.1

by the model. The most commonly chosen response was “It increased a sense that people are acting on climate change”, with 49.7% selecting this option. The next most commonly chosen answers were “It confirmed my existing knowledge of climate change as a problem”, and “It made personal action seem like a worthwhile response to climate change” (both 47.7%). Taken together the answers indicate that the actions of the models convey multiple messages, for instance increasing a sense of collective action, confirming knowledge that climate change is serious, and asserting the relevance of personal action on climate change.

Only 14.2% of respondents chose the option “*It did not really affect my attitudes or knowledge about flying or climate change*”, indicating that more than 85% report that the model did affect their attitudes¹³.

Figure 7.4 shows the results split by the three groups.

Figure 7.4 Specific influences of model, by group



Quantifying the models' influence

To create an overall score for how much each respondent was influenced by the models, a count was calculated for how many of the statements were selected by each respondent. For instance, if a respondent selected two statements, their *Influence Count* was 2. If they chose seven of the statements on offer, their *Influence Count* was 7, and so on. Two statements were not included in the count (“*It did not really affect my attitudes or knowledge about flying*”).

¹³ This exceeds the level of attitude change found in previous research into the influence of such models. In that research 74% said their attitudes towards flying and climate change had been changed by knowing a model (Westlake, 2017). It is important to remember that the figure of 85% is derived from a subset of the survey respondents, specifically those who know a model *and* who have flown recently. The excluded respondents, who have not flown recently, reported being less influenced by the model, but no such exclusions were in place for research that produced the 74% figure, which may have led to lower overall influence being reported because those people were more established in their views on flying.

or climate change”; and “Other”) meaning there were eight possible statements that could be included in the count. Thus, each participant was given an *Influence Count* score ranging from 0 to 8. The results for all respondents are shown in Table 7.7. We can see that 14% of respondents did not choose any of the counted statements, indicating that 86% reported they were influenced in some way by the model. This proportion of respondents who report having not been influenced corresponds very closely with the 14.2% of people who chose “*It did not really affect my attitudes or knowledge about flying or climate change*”, as reported in the previous section, and which lends validity to the measurements.

Table 7.7 *Influence Count all groups*

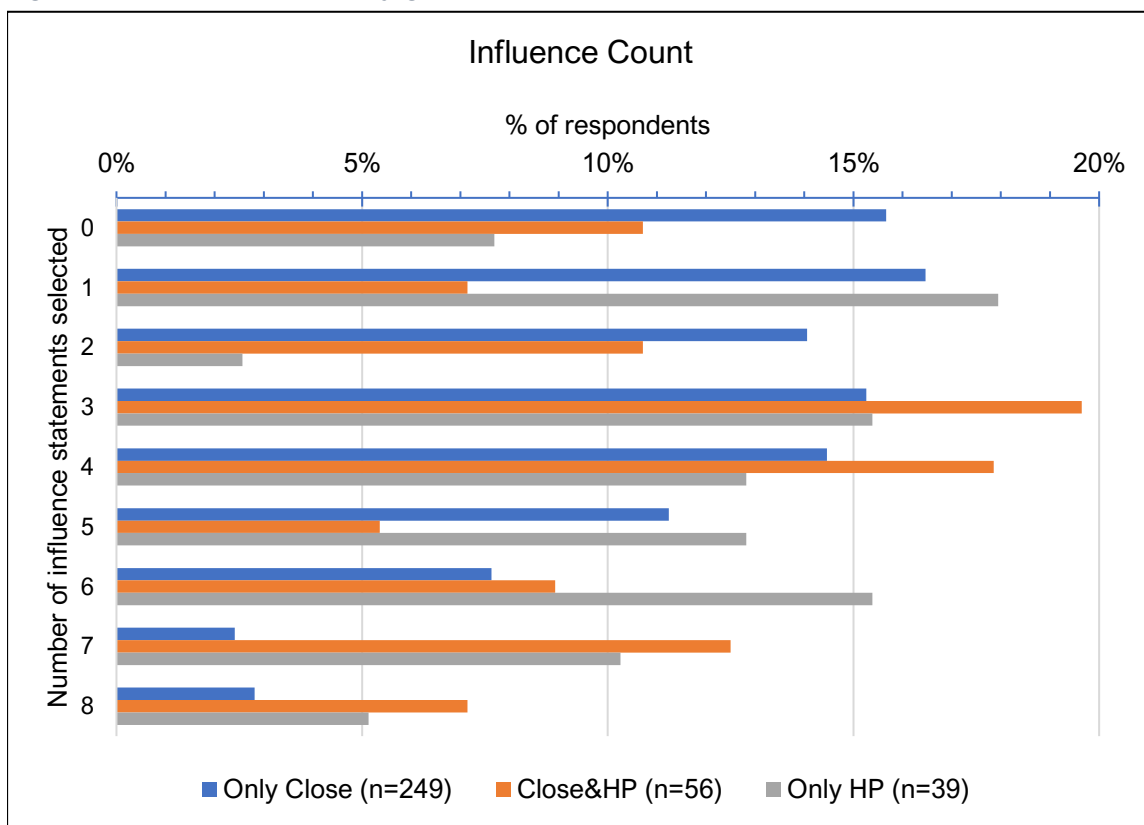
Influence Count (# statements chosen)	Frequency	Percent
0	48	14.0
1	52	15.1
2	42	12.2
3	55	16.0
4	51	14.8
5	36	10.5
6	30	8.7
7	17	4.9
8	13	3.8
Total	344	100.0

The results show that a greater proportion of people report some level of influence (86%) than reported being influenced to sign the pledge (74%). This is perhaps not unexpected, as signing the pledge represents one specific action, whereas the statements here cover a wide range of possible influences. Overall the results suggest there is a broad communicative and influential effect of knowing someone else who has taken high-impact low carbon behaviour, and this influence can stimulate action in others. It is important, however, to consider demand characteristics of the options presented. To some extent, respondents may have answered as they thought they “should” to align with the perceived objectives of the research. The following comparison between groups helps to address this concern by comparing the level of influence reported by those who know high-profile models to those who non-high-profile models. In this way, it is not the absolute level of reported influence that is considered, but rather if and how much it differs between groups.

Figure 7.5 shows *Influence Count* split by the different groups.

In order to test Hypothesis 1, a one-way ANOVA test was conducted for the variables *Influenced To Sign Pledge* and *Influence Count*. The data for both variables are reasonably

Figure 7.5 Influence Count by group



normally distributed for each group, and a Levene’s test of heterogeneity of variance produced no significant results, thus meeting the assumption for ANOVA. The ANOVA produces significant differences between the groups for *Influenced To Sign Pledge* ($F(2,344)=5.915, p=.003$) and *Influence Count* ($F(2,344)=6.579, p=.002$). The mean values for *Influenced To Sign Pledge* for each group are: Only Close ($M=2.01, SD=.835$); Close&HP ($M=2.23, SD=.738$); Only HP ($M=2.46, SD=.854$), indicating the increased influence of high-profile (HP) models. The mean values for *Influence Count* are: Only Close ($M=2.90, SD=2.141$), Close&HP ($M=3.83, SD=2.395$), Only HP ($M=3.90, SD=2.393$), again indicating that high-profile models have greater influence (noting that the group means for Close&HP and Only HP are very close).

Post-hoc Bonferroni corrected pairwise comparisons show that those who know only high-profile models (Only HP) were significantly more *Influenced To Sign Pledge* than those who know only close models (Only Close) ($p=.005, 95\% C.I. = .11, .79$). There was no significant difference in *Influenced To Sign Pledge* between the Only Close and Close&HP groups. The *Influence Count* of the Close&HP group was significantly higher than that of the Only Close group ($p=.013, 95\% C.I. = -1.73, -.08$), and likewise the *Influence Count* of the Only HP group was significantly higher than the Only Close group ($p=.027, C.I. = .08, 1.92$). The results

indicate that those who know a high-profile model report being influenced in more ways than those who know only a close associate model, meaning that Hypothesis 1 is supported. Bonferroni correction was used because it is robust when there are a low number of means to be tested (Field, 2018).

These results offer an interesting challenge to the idea that people's low-carbon behaviour is likely to be more influenced by close associates, in the shape of friends, family or colleagues. That idea is supported by the UK Government survey mentioned in Chapter 1, where 78% of the public said they could be influenced to act more pro-environmentally by friends and family (rising to 87% for those who "want to do a bit more" in terms of environmental behaviour). These figures exceeded the predicted influence of Scientific experts (69%/82%), Politicians, (27%/32%), and Celebrities (23%/27%) (Defra, 2010). However, the results laid out above suggest that, at least when it comes to not flying, high-profile figures may be more influential than close associates. It may also be relevant that the specific low-carbon behaviour in question – not flying because of climate change – is non-normative, making a high-profile model more powerful as a challenge to the social norm (Tankard & Paluck, 2016). This discussion of social norms will be expanded on in the final chapter.

The specific influence of Greta Thunberg is also important to consider here because she was the person most commonly named by those who know a high-profile model. Considerable attention has been paid to "The Greta Effect" (Sabherwal et al., 2021), particularly with respect to the youth climate movement and "flight shame" (Abidin et al., 2020; Gössling, 2019a; Gössling et al., 2020b; Sabherwal et al., 2021). Does Thunberg have special qualities of influence that others perhaps do not possess? The hypothesis tested was:

Hypothesis 2: Greta Thunberg's example of low-carbon behaviour exerts more influence than other high-profile behavioural models

To explore this, a t-test was carried out between those respondents who cited Thunberg as a known high-profile model and those who didn't. The results show that for *Influenced To Sign Pledge* there is no statistically significant difference between the "Greta" group (M=2.44, SD=.743) and the "Not Greta" group (M=2.24, SD=.823) $t(93) = -1.212, p=.23$. Similarly, for *Influence Count* there is no statistically significant difference between the Greta group (M=4.15, SD=2.38) and the Not Greta group (M=3.65, SD=2.38) $t(93) = -1.010, p=.32$. Hypothesis 2 is therefore not supported, indicating that, while an important figure, Thunberg's ability to influence others' low-carbon behaviour via leading by example is not significantly greater than that of other high-profile leaders.

Does the number of models a person knows make a difference to influence?

As seen above in Table 7.3 above, 100 people (29% of sample n=344) knew one model, and 244 people (71%) knew 2 or more models. It might be expected that a greater influence is exerted if someone knows a greater number of behavioural models. To explore whether knowing more models results in higher levels of reported influence, t-tests were conducted. The hypothesis tested was:

Hypothesis 3: Knowing a greater number of behavioural models exhibiting low-carbon behaviour increases their behavioural influence

The results show no significant difference between the mean scores for Influenced To Sign Pledge for those who know one model (M=2.04, SD=.909) and those who know two or more models (M=2.12, SD=.802) $t(342)=-.837, p=.403$. Similarly, there was no significant difference between the mean scores for Influence Count for those who know one model (M=2.93, SD=2.280) and those who know two or more models (M=3.26, SD=2.234) $t(342)=-1.23, p=.220$. Hypothesis 3 is therefore not supported. This is an interesting finding, suggesting in this instance that knowing more behavioural models, which might be expected to be a more powerful indicator of a social norm, does not increase the influence exerted by the models.

Recency of respondents' climate concern and lifestyle changes

Respondents were asked: “**For about how long have you considered climate change to be a serious issue?**”. The results for are shown in Table 7.10. The results show that 85% of

Table 7.8 Recency of Climate Concern, all groups

Recency of climate concern	#	Percent
For the last year or so	7	2.0
For 2-3 years	44	12.8
For 4-10 years	95	27.6
For more than 10 years	198	57.6

Figure 7.6 Recency of Climate Concern, by group

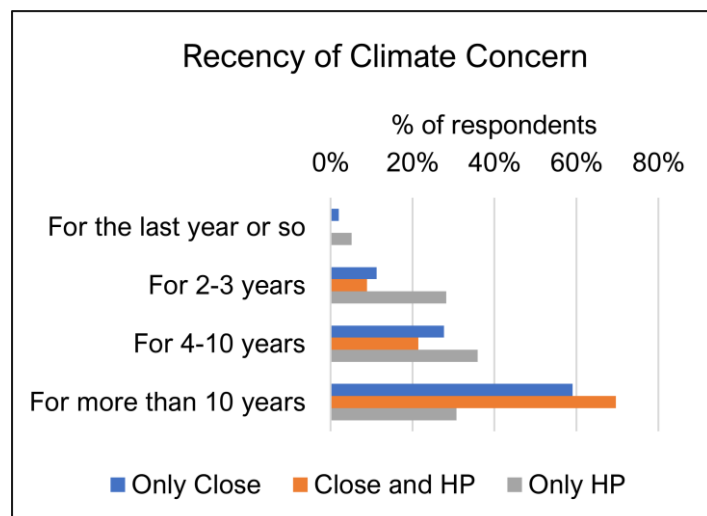
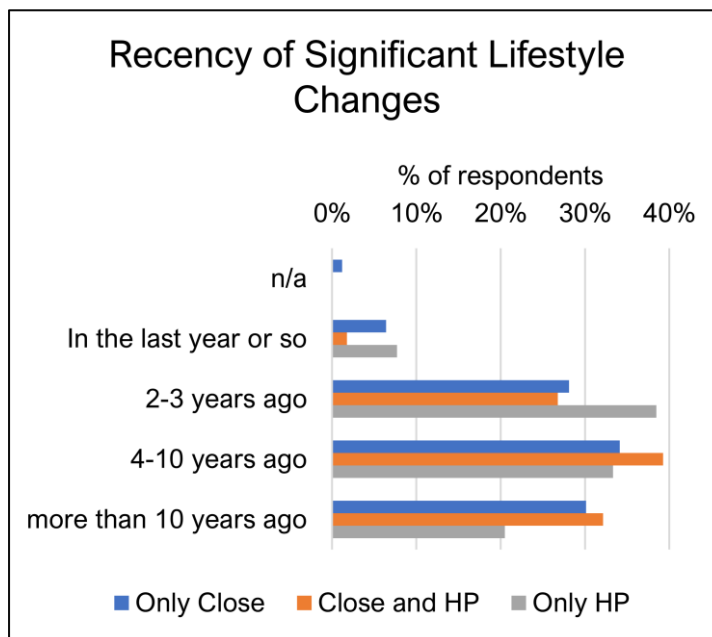


Table 7.9 Recency of Significant Lifestyle Changes, all groups

Recency of Significant Lifestyle Changes	#	Percent
n/a	3	0.9
In the last year or so	20	5.8
2-3 years ago	100	29.1
4-10 years ago	120	34.9
more than 10 years ago	101	29.4

Figure 7.7 Recency of Significant Lifestyle Changes, by group



respondents have considered climate change to be a serious issue for 4 years or more, and 58% for more than ten years. (Nobody selected the option “I don’t think climate change is a serious issue”). Figure 7.6 shows the data split by group.

Recency of respondents’ significant lifestyle changes

Respondents were asked: “When did you first decide to make significant lifestyle changes because of climate change, if at all?” The results are shown in Table 7.11 and Figure 7.7. The results show that 66% of respondents have been making significant lifestyle change for 4 years or more, and 29% for more than ten years.

Recency and Influence

In order to examine the connection, if any, between the recency measures (concern and lifestyle changes) and the level of influence respondents reported, an approximated number of years was allocated to each respondent for their climate concern and their lifestyle changes, based on the category they had chosen. This was done by taking the midpoint of the categories, such that: “In the last year or so” was allocated a value of 1 (year); “2-3 years” was allocated a value of 2.5 years; “4-10 years” was allocated 7 years; and “more than 10 years” was allocated 15 years. While these allocations are necessarily inexact, they are deemed sufficient to explore correlations. New variables were created according to this system called *Years of Climate Concern*, and *Years of Significant Lifestyle Change*. The hypotheses tested were:

Hypothesis 4: People for whom concern about climate change is more recent are more influenced by low-carbon behavioural models

Hypothesis 5: People for whom significant lifestyle change is more recent are more influenced by low-carbon behavioural models

A correlation test was carried out to explore the relationships between the Influence measures and these new variables. For completeness, other demographic variables were also included (Age, Gender, Income). A Spearman's rho test was performed because the data are not normally distributed. The results are shown in Table 7.12. There is no statistically significant (negative) correlation between *Years of Climate Concern* and the Influence variables, meaning that Hypothesis 4 is not supported. The results show a small, statistically significant negative correlation between *Years of Significant Lifestyle Change* and *Influenced To Sign Pledge* $r(344) = -.120, p < 0.05$, and a small/medium, significant negative correlation between *Years of Significant Lifestyle Change* and *Influence Count* $r(344) = -.222, p < .001$. Cohen's standard classifications of small (0.1), medium (0.3) and large (0.5)

Table 7.10 Correlations between Influence and Recency of Climate Concern and Lifestyle Change

Spearman's rho		Influence Count	Years Climate Concern	Years Significant Lifestyle Change	Age	Gender	Income
Influenced To Sign Pledge	Correlation	.473**	-0.067	-.120*	-.141**	0.009	0.030
	Sig. (2-tail)	0.000	0.216	0.026	0.009	0.864	0.598
	N	344	344	344	344	340	320
Influence Count	Correlation		-0.069	-.222**	-.120*	0.003	0.080
	Sig. (2-tail)		0.200	0.000	0.026	0.962	0.151
	N		344	344	344	340	320
Years Climate Concern	Correlation	-0.069		.616**	.176**	-0.053	0.037
	Sig. (2-tail)	0.200		0.000	0.001	0.327	0.510
	N	344		344	344	340	320
Years Significant Lifestyle Change	Correlation	-.222**	.616**		.220**	-0.067	0.002
	Sig. (2-tail)	0.000	0.000		0.000	0.216	0.966
	N	344	344		344	340	320
Age	Correlation	-.120*	.176**	.220**		-0.094	.123*
	Sig. (2-tail)	0.026	0.001	0.000		0.082	0.028
	N	344	344	344		340	320
Gender	Correlation	0.003	-0.053	-0.067	-0.094		-.166**
	Sig. (2-tail)	0.962	0.327	0.216	0.082		0.003
	N	340	340	340	340		320

** . Correlation is significant at the 0.01 level (2-tailed).
 * . Correlation is significant at the 0.05 level (2-tailed).

correlations are used throughout the chapter (Bosco et al., 2015). Hypothesis 5 is therefore supported, i.e. those who are only recently making lifestyle changes have been more influenced by another person who is setting a behavioural example than those who have been making lifestyle changes over a longer period of time.

Age showed a statistically significant negative correlation with *Influenced To Sign Pledge* ($r(344) = -.141, p < .01$) and *Influence Count* ($r(344) = -.120, p < .05$), indicating that younger respondents reported higher levels of being influenced by others. This is consistent with the idea that those with more long-standing climate concern and more commitment to behavioural change are less likely to be influenced by others on the issue of climate change. As might be expected, *Age* was significantly correlated with *Years of Climate Concern* ($r(344) = .176, p < .01$) and *Years of Significant Lifestyle Change* ($r(344) = .220, p < .001$) because older people have had more time to amass years of concern. There were no significant correlations between Influence and Gender or Influence and Income.

Pro-environmental commitment prior to signing the pledge

Respondents were asked: “**Before signing the Flight Free pledge, what if any of the following activities did you take part in? (select all that apply)**” with a list of options such as “Contributed financially to environmental organisations” and “Wrote letters to politicians or decision-makers about environmental issues”. The options reflect commonly used measures of people’s engagement with environmental issues (e.g. Mackay et al., 2021). The full list of answers and those chosen by respondents are shown in Figure 7.8. For each respondent, a total “Prior Activity Level” score was calculated by allocating a score of 1 for each selected activity (excluding “I was not very engaged in environmental issues”). The hypothesis was tested:

Hypothesis 6: People who are less previously committed to environmental issues are more influenced by low-carbon behavioural models

A correlation test was carried out on this variable and the Influence variables. A negative correlation would indicate that those who were less committed to environmental action prior to signing the pledge were more influenced by the behavioural model. The results in Table 7.13 reveal no statistically significant negative correlations between *Prior Activity Level* and the Influence scores, meaning Hypothesis 6 is not supported.

Figure 7.8 Pro-environmental activities of respondents prior to signing pledge

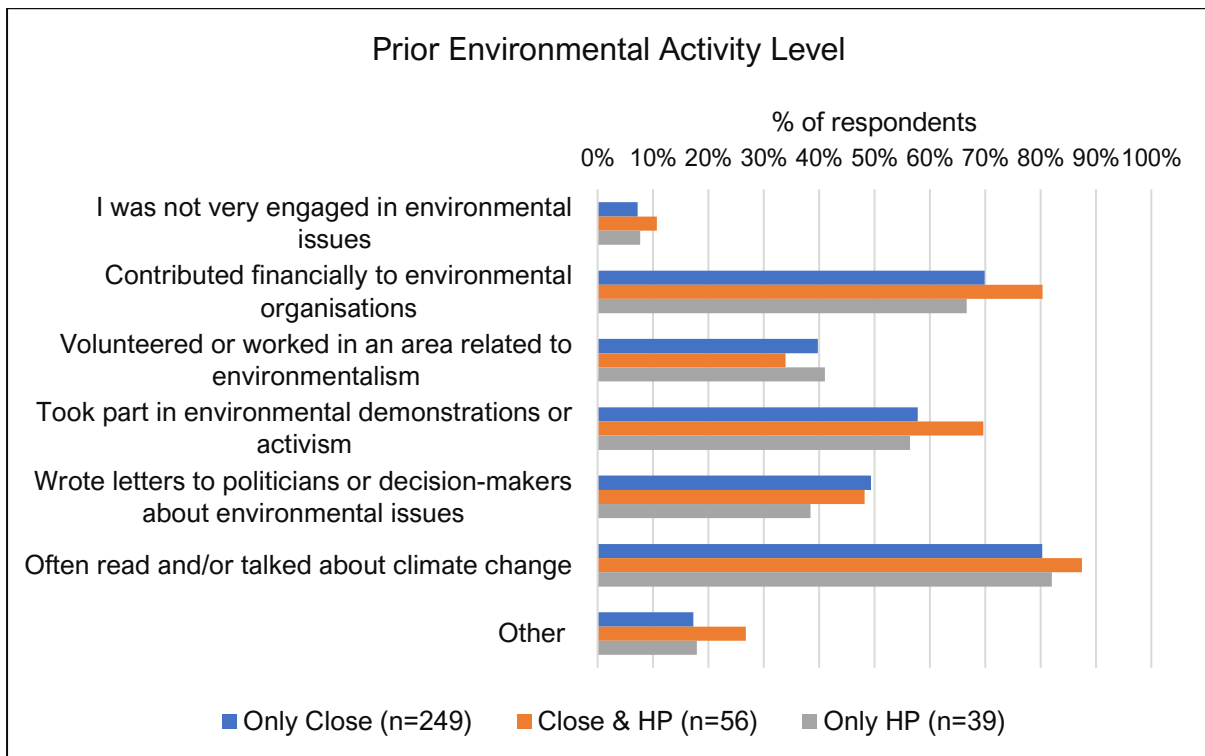


Table 7.11 Prior Activity Level correlation with Influence measures

Spearman's rho		Influence Count	Prior Activity Level
Influenced To Sign Pledge	Correlation	.473**	-0.102
	Sig. (2-tail)	0.000	0.059
	N	344	344
Influence Count	Correlation		-0.099
	Sig. (2-tail)		0.067
	N		344

** . Correlation is significant at the 0.01 level (2-tailed).

Feelings in response to the model

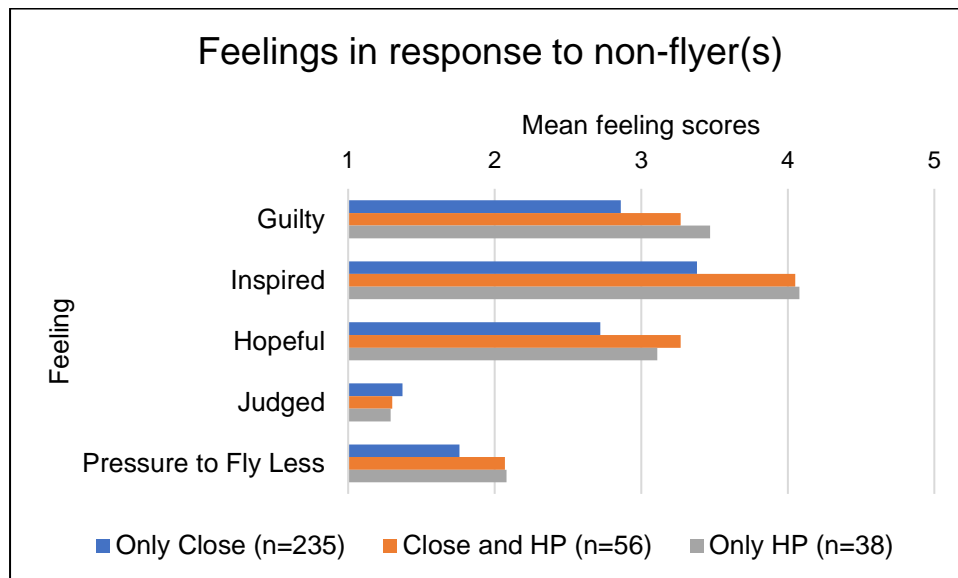
Respondents were asked “**What feelings did you have in response to the other person who flies less because of climate change, if any?**”, with the given options: “I felt guilty about flying”; “I felt inspired”; “I felt hopeful”; “I felt judged by them”; and “I felt pressure to fly less”. Respondents answered on a 5-point Likert scale: “Not at all” (score 1); “A little” (2); “A moderate amount” (3); “A lot” (4); “A great deal” (5). These measures were used to test the hypotheses:

Hypothesis 7: High-profile behavioural models stimulate stronger feelings than socially close models

Hypothesis 8: Negative feelings in response to a behavioural model are more motivational than positive feelings

Across the 344 respondents, there were 15 cases where the respondent did not make any entry for the feelings questions, and so these were excluded, bringing the total down to 329. The mean scores for each feeling are shown in Figure 7.9 split by the same groups as previously.

Figure 7.9 Feelings in response to model(s), by group



Notes: Answers were given on a 5-point Likert scale ranging from “Not at all” (1) to “A great deal” (5).

To explore differences between the groups, a one-way ANOVA test was carried out. There was some non-normality, seemingly caused by boundary effects, particularly for the low-scoring feelings (Judged, Pressure). However, ANOVA is considered robust to this if the populations are of a similar shape (Howell, 2013). Levene’s test of homogeneity of variances was significant for Inspired but not for the other feelings.

The ANOVA shows significant differences between the groups for Guilty $F(2,328)=4.700$, $p=.01$; Inspired $F(2,328)=11.055$, $p<.001$; Hopeful $F(2,328)=5.344$, $p<.01$; and Pressure $F(2,328)3.317$, $p=.037$. Judged was not significantly different between the groups. Post-hoc Bonferroni corrected pairwise comparisons (see Table 7.14) show that the Only HP group has significantly higher mean scores than the Only Close group for Guilty ($p<.05$, 95% C.I. = -1.17, -.05) and Inspired ($p<.01$, 95% C.I. = -1.20, -.20), but not for Hopeful, Judged and Pressure. The Close&HP group has significantly higher mean scores than the Only Close group for Inspired ($p=.001$, 95% C.I. = -1.10, -.25) and Hopeful ($p<.01$, 95% C.I. = -.99, -.11). There were no significant differences between the Only HP and Close&HP groups. The results tend to support Hypothesis 7, and the picture painted in Figure 7.9, that respondents who know a high-profile model report higher levels of feelings in response to the model, with

the exceptions of feeling judged, which is consistently low across groups, and feeling pressure, where any differences are not significant.

Table 7.12 Pairwise comparisons between Feelings and Known model groups

Feeling			Mean Diff	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Guilty	Only Close	Close and HP	-.404	.199	.131	-.88	.08
		Only HP	-.610	.234	.029	-1.17	-.05
	Close and HP	Only HP	-.206	.282	1.000	-.88	.47
Inspired	Only Close	Close and HP	-.671	.176	.001	-1.10	-.25
		Only HP	-.696	.207	.003	-1.20	-.20
	Close and HP	Only HP	-.025	.249	1.000	-.63	.57
Hopeful	Only Close	Close and HP	-.549	.183	.009	-.99	-.11
		Only HP	-.386	.216	.223	-.91	.13
	Close and HP	Only HP	.163	.259	1.000	-.46	.79
Judged	Only Close	Close and HP	.067	.106	1.000	-.19	.32
		Only HP	.081	.124	1.000	-.22	.38
	Close and HP	Only HP	.014	.149	1.000	-.35	.37
Pressure	Only Close	Close and HP	-.314	.150	.111	-.67	.05
		Only HP	-.322	.176	.208	-.75	.10
	Close and HP	Only HP	-.008	.212	1.000	-.52	.50

*. The mean difference is significant at the 0.05 level.

To explore any relationship between feelings towards the model and the extent to which respondents had been influenced by them, a Spearman’s rho correlation test was conducted. The results are shown in Table 7.15. All feelings are positively and significantly correlated with Influenced to Sign Pledge except Hopeful. All feelings are positively and significantly correlated with Influence Count except Hopeful and Judged. The two most highly correlated feelings are Inspired and Guilty. Notably, the feelings that could be described as negative – Guilty, Pressure, Judged – also have moderate positive correlations with Influence (noting the aforementioned non-significant correlation between Judged and Influence Count). This supports prior research indicating that negative emotions such as guilt can be the most effective in stimulating pro-social behaviour (Skatova et al., 2017). The phenomenon of *flight shame* inspired in particular by Greta Thunberg is a well-known example of negative feelings appearing to trigger low-carbon behaviour changes (Gössling et al., 2020a). It is important to consider that the sample in the current survey includes only people who have signed a pledge not to fly, and so by definition does not include anyone who has been deterred from action by such negative feelings. However, the point still stands that negative emotions such as guilt in response to the behaviour of another person are not

detrimental as a general rule, and for some people appear motivating. The feeling that does not correlate with either of the influence measures is Hopeful.

These results support Hypothesis 8, and confirm previous findings that hope is not necessarily the best stimulus for pro-environmental motivation (Hornsey & Fielding, 2016). Emotional responses to issues of climate change are complex, and these findings challenge the wisdom of asserting that particular single emotions are desirable in order to motivate behaviour change (Brosch, 2021; Chapman et al., 2017).

Table 7.13 Relationship between Feelings and Influence

Spearman's rho (n=344)	Influence Count	Guilty	Inspired	Hopeful	Judged	Pressure
Influenced To Sign Pledge	.433**	.343**	.343**	.055	.259**	.319**
Influence Count		.258**	.232**	.079	.101	.208**
Guilty	.258**		.264**	-.019	.306**	.406**
Inspired	.232**	.264**		.465**	.015	.118*
Hopeful	.079	-.019	.465**		-.076	.072
Judged	.101	.306**	.015	-.076		.487**

**Correlation is significant at the <0.01 level (2-tailed); *<0.05

To further explore the dynamics of positive or negative feelings in reaction to the model, a *Positive Emotion Score* and a *Negative Emotion Score* were calculated for each respondent by summing the scores for each emotion in these categories (i.e. Positive Emotion Score = score for Hopeful + score for Inspired. Negative Emotion Score = Guilty + Judged + Pressure). A correlation test was carried out with *Influenced To Sign Pledge* and *Influence Count*. The results are shown in Table 7.16, indicating that negative feelings correlate more strongly with both of the influence measures than do positive feelings. In addition, positive and negative feelings are themselves correlated, indicating that respondents' emotional responses to the model were likely to involve both positive *and* negative emotions, rather than positive *or* negative emotions. Both positive and negative feelings are shown here to be influential in motivating low-carbon behaviour change. This again provides counter-evidence to arguments that positive feelings, and a lack of negative feelings, are prerequisites for bringing about low-carbon behaviour change (Skatova et al., 2017; Wang & Wu, 2016).

As a final observation on the subject of feelings, there was a clear apparent difference between the groups in the distribution of expressions of feeling guilty, with the Only Close group much more likely to report little or no feelings of guilt (45.8%) in comparison to the

Close&HP group (29.4%) Only HP group (28.2%). This may indicate that high-profile models have greater potential to stimulate such feelings by exhibiting high-impact low-carbon behaviour, although other factors may be at play, such as differing social networks.

Table 7.14 Relationship between aggregated Feelings and Influence

Spearman's rho (n=344)	Influenced To Sign Pledge	Influence Count	Negative Emotion Score	Positive Emotion Score
Influenced To Sign Pledge	1.000	.433**	.411**	.248**
Influence Count	.433**	1.000	.277**	.201**
Negative Emotion Score	.411**	.277**	1.000	.155**
Positive Emotion Score	.248**	.201**	.155**	

** Correlation is significant at the <0.01 level (2-tailed).

Influential qualities of the models

Respondents were asked: “**What qualities about the person who is flying less influenced you, if any?** (select all that apply)”. The answers on offer were: Their likeability, Their passion, Their expertise on climate change, Their position of authority, Their clarity on the issue, Their commitment, The fact that they were taking an unusual stand, Other (please state below). These categories were adapted from prior research into leaders who fly less (Westlake, 2017). These measures were used to test the hypothesis:

Hypothesis 9: High-profile behavioural models are rated higher for key leadership qualities than close models

The results are shown in in Figure 7.10. To explore differences between the groups, a one-way ANOVA test was conducted to compare the mean scores for each quality in each group. For each participant, a score of 1 was allocated to each quality they had selected, and 0 was allocated if they had not selected a quality. The ANOVA shows there was a significant difference between the groups for the qualities of: Passion $F(2,343)=8.101, p<.001$; Expertise $F(2,343)=5.657, p=.004$; Authority $F(2,343)= 3.836, p=.023$; Clarity $F(2,343)=8.575, p<.001$; and Commitment $F(2,343)=8.067, p<.001$. There was no significant difference between the groups for Likeability $F(2,343)=.027, p=.974$, and Unusual $F(2,343)=.985, p=.374$. Post-hoc Bonferroni corrected pairwise comparisons (see Table 7.17) show that the Only HP and Close&HP groups have statistically significant higher mean scores than the Only Close group for the qualities of Passion, Expertise, Clarity, and Commitment. The Close&HP group also has a statistically significant higher mean score than the Only Close group for Authority.

Figure 7.10 Influential qualities of model(s), by group

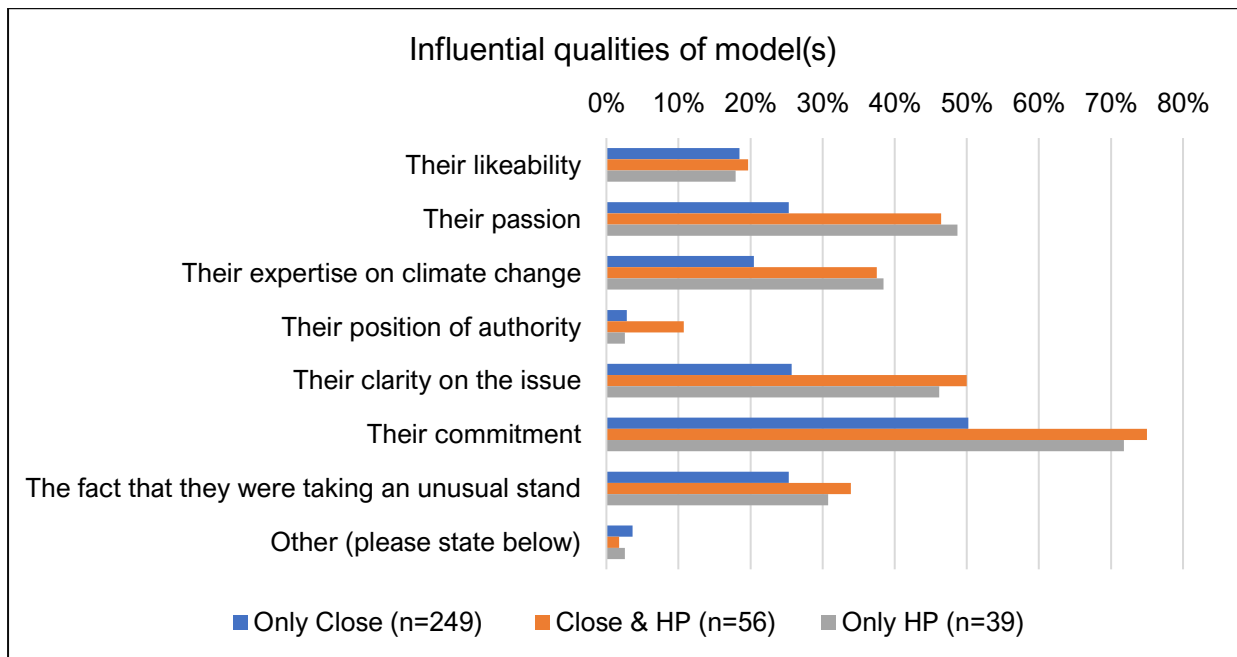


Table 7.15 Pairwise comparisons between Influential qualities and Known model groups

Quality			Mean Diff	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Likeability	Only Close	Close and HP	-0.012	0.058	0.978	-0.15	0.12
		Only HP	0.005	0.067	0.997	-0.15	0.16
	Close and HP	Only HP	0.017	0.082	0.976	-0.17	0.21
Passion	Only Close	Close and HP	-.211*	0.067	0.005	-0.37	-0.05
		Only HP	-.234*	0.078	0.009	-0.42	-0.05
	Close and HP	Only HP	-0.023	0.095	0.968	-0.25	0.20
Expertise	Only Close	Close and HP	-.170*	0.064	0.021	-0.32	-0.02
		Only HP	-.180*	0.074	0.041	-0.35	-0.01
	Close and HP	Only HP	-0.010	0.090	0.994	-0.22	0.20
Authority	Only Close	Close and HP	-.079*	0.029	0.019	-0.15	-0.01
		Only HP	0.002	0.034	0.997	-0.08	0.08
	Close and HP	Only HP	0.082	0.041	0.116	-0.01	0.18
Clarity	Only Close	Close and HP	-.243*	0.068	0.001	-0.40	-0.08
		Only HP	-.205*	0.079	0.026	-0.39	-0.02
	Close and HP	Only HP	0.038	0.095	0.914	-0.19	0.26
Commitment	Only Close	Close and HP	-.248*	0.072	0.002	-0.42	-0.08
		Only HP	-.216*	0.084	0.028	-0.41	-0.02
	Close and HP	Only HP	0.032	0.101	0.946	-0.21	0.27
Unusual	Only Close	Close and HP	-0.086	0.066	0.392	-0.24	0.07
		Only HP	-0.055	0.077	0.757	-0.24	0.13
	Close and HP	Only HP	0.032	0.093	0.938	-0.19	0.25

The results show that: **commitment, clarity, passion** and **expertise** are the most highly rated influential qualities; and that the groups featuring high-profile models are significantly more likely to have chosen these qualities. The qualities of commitment, passion, clarity and expertise have clear synergies with leadership. Hypothesis 9 is therefore supported.

One definition of charismatic leadership outlined in Chapter 2 was: “values-based, symbolic, and emotion-laden leader signaling” (Antonakis et al., 2016 p304). Another definition defined charismatic leaders as being strong role models who: represent beliefs and values; exude competence, articulate ideological and moral aspirations; and raise the perceptions and competence and self-efficacy among followers (Northouse, 2015). The qualities chosen by respondents to describe high-profile models who have influenced them appear to be consistent with charismatic leadership.

7.4 Discussion

The evidence presented in this chapter points towards the substantial influence of leaders’ high-impact low-carbon behaviour. In the Flight Free 2020 survey, 74% of respondents who knew someone who was flying less because of climate change said they had been influenced by that person to sign a flight free pledge for a year¹⁴. This number rose to 85% if the known person was a high-profile figure (a leader). When respondents were asked about the specific influences of the person, 86% specified at least one form of influence, rising to 94% if the known person was a high-profile figure.

The results demonstrate that high-profile behavioural models (leaders) appear to exert a significantly greater influence over respondents than do close associates, in both a qualitative and quantitative sense. Qualitatively, respondents who knew high-profile models reported having been influenced in a wider variety of ways. Quantitatively, respondents who knew a high-profile model said they were influenced to a greater extent to sign a flight free pledge than those who knew a model that was a close associate (i.e. a friend, family member, or work colleague).

There was also an apparent difference in influence depending on the length of time over which respondents had been making significant lifestyle changes because of climate change. Respondents for whom significant lifestyle changes were more recent reported higher levels

¹⁴ The signees in question were people who had flown within the last few years, rather than being long-term non-flyers, so in effect they had “given up” flying for a year because of climate change.

of having been influenced by a high-profile model, indicating that leaders may have a particular role to play in challenging social norms and encouraging new modes of low-carbon behaviour (Tankard & Paluck, 2016).

The feelings that respondents reported in relation to the behavioural models appeared to vary according to whether the model was a close associate or a high-profile person. Those who knew a high-profile model reported higher levels of feeling inspired, guilty, hopeful, and pressure to fly less. These feelings were all positively correlated with the model's influence, indicating that negative as well as positive feelings are associated with increased motivation to adopt high-impact low-carbon behaviour. There was no significant difference in the extent to which respondents felt judged by the behavioural models. Furthermore, those who knew high-profile models were more likely to attribute influential qualities to the model, such as commitment, clarity, passion and expertise – qualities that are often associated with leadership.

Taken together, these findings suggest that people who adopt high-impact low-carbon behaviour are setting a behavioural example that can inform, challenge and inspire others to emulate the behaviour. This effect appears to be enhanced when the behavioural model is high-profile, or what can be termed a leader. The inspirational effect appears to work through various means of communication including: raising awareness, demonstrating commitment and clarity, providing a moral direction, and creating a sense of collective endeavour. These are all established functions of leadership. That high-profile models appear to have more influence than close associates may be connected to a process of “moral balancing” where moral behaviour from close associates is felt to give someone tacit permission to act less morally, because the behaviours are believed to balance out. This process has been found not to occur with those at a greater social distance (Meijers et al., 2019).

While the actions of leaders appear to carry extra weight, the results in this chapter do not diminish the influence or importance of close associates such as friends, family, and colleagues, in providing a behavioural example for others. In the same way as high-profile leaders, close associates are shown to have exerted multifaceted influence over respondents' choices to not fly because of climate change, albeit to a slightly lesser extent. Furthermore the clear majority of respondents (72%) cited a close associate as being a behavioural model, confirming their importance to the influence mechanisms that might lead to the changing of social norms or social tipping points (Centola et al., 2018; Lenton et al., 2022; Otto, Donges, et al., 2020; Smith et al., 2020).

7.4.1 Limitations and further considerations

The evidence in this chapter has some important limitations. The survey findings are based on respondents' self-reported judgements of the extent to which they have been influenced by models, and their feelings in response to the models. Such judgements are inherently subjective and may be susceptible to demand characteristics and variations according to the personalities of respondents. However, if it can be assumed that respondents were reasonably accurate when reporting the models they know who are flying less (i.e. close associates or high profile models) then the comparisons between the influence of the close associates or high-profile models do not rely on the absolute accuracy of the self-reported measures, but rather on the aggregate differences between the groups. The question remains, however, whether self-reported influence equates to *actual* influence in practice. This is likely to require further research, and may also benefit from leaders trialling the modelling of behaviour. Such research could feature more varied and highly developed measures of how people are influenced by the low-carbon actions of others.

While the prompting of negative feelings (guilt, pressure, being judged) seems to have had motivational effects for the respondents to this survey, such feelings experienced by others who are not inclined to sign a flight free pledge may have an adverse effect, for instance by triggering reactance against a perception of moral threat (Minson & Monin, 2012; Sparkman & Attari, 2020). This highlights a crucial consideration: that the sample for this survey consists of those who have enough environmental concern and interest to commit to not flying for a year, *and* to complete a survey about the Flight Free Pledge. As such their responses to behavioural models are likely to be positive, whereas this may be different with a representative sample of the population. That said, the evidence from the focus groups (chapter 4) and the survey experiment (chapter 6) suggests that people in general do have an approving response to leaders who lead by example with high-impact low-carbon action. A further consideration is the extent to which the models (close associates or high-profile) may have *recommended* that other people sign the pledge. The differential influence of such advocacy could be the subject of future research.

Another limitation of the survey is the cross-sectional nature of the research such that it measures respondents' thoughts and feelings at only one moment in time. While the results may be instructive, it is possible that the influence of high-profile models, compared to that of close associates, may vary as time progresses, such that either type of model may have a greater or more enduring relevance in the long run. For instance, it is conceivable that the behaviour of close associates, while apparently having less influence according to this

survey, has greater or more consistent influence over time. This again could be explored in future research.

7.5 Conclusion

This chapter concludes the evidence collected for the thesis. It has provided data on whether leading by example can stimulate actual behaviour change in the shape of signing a pledge to not fly for a year. The results suggest leaders have more influence than friends, family, work colleagues and other close associates, although close associates *do* also have considerable influence. The leaders' behaviour can challenge and inspire others to adopt similar behaviour by setting an example that communicates the importance and efficacy of collective action on climate change, and stimulates motivational feelings.

The final chapter that follows will synthesise the findings of the four preceding evidence chapters, drawing conclusions about the potential for leading by example with high-impact low-carbon behaviour, and making recommendations for leaders, policymakers, climate advocates and researchers.

Chapter 8 Discussion and conclusions

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“Government institutions and high-profile individuals should lead by example and display committed and visible consistency with their own Net Zero narrative.”

(UK Government, 2021, p25. Document published then immediately deleted)¹⁵.

8.1 Introduction

The research presented in this thesis explores whether leading by example with high-impact low-carbon behaviour could help to reduce greenhouse emissions by inspiring others to act, changing social norms, and increasing trust in leaders. “High-impact” behaviours are classed as those that make the biggest contribution to reducing an individual’s greenhouse gas emissions: flying less, eating less meat, driving electric cars or living car-free, improving home energy efficiency, having fewer children¹⁶, and using active travel.

The research is set within a political context where leading by example is described as crucial at a national level to show the way forward to other countries, but is largely absent at an individual level, both discursively and in practice. Exemplifying this apparent dissonance is the quote at the top of the page, which was contained in an official document from which the UK Government quickly distanced itself.

Behaviour change constitutes an essential part of “demand-side” emissions reductions, which can make a major contribution to tackling climate change according to scientists at the IPCC (Creutzig et al., 2022). However, political leaders continue to shy away from discussing most low-carbon behaviour changes (Whitmarsh, Steentjes, et al., 2021; Willis, 2020), while the high-carbon lifestyles of celebrities and business leaders go largely unchallenged despite contributing to environmental damage that is often 10s, 100s or even 1,000s of times greater than the average citizen (Baltruszewicz et al., 2023; Gössling, 2019b; Otto et al., 2019).

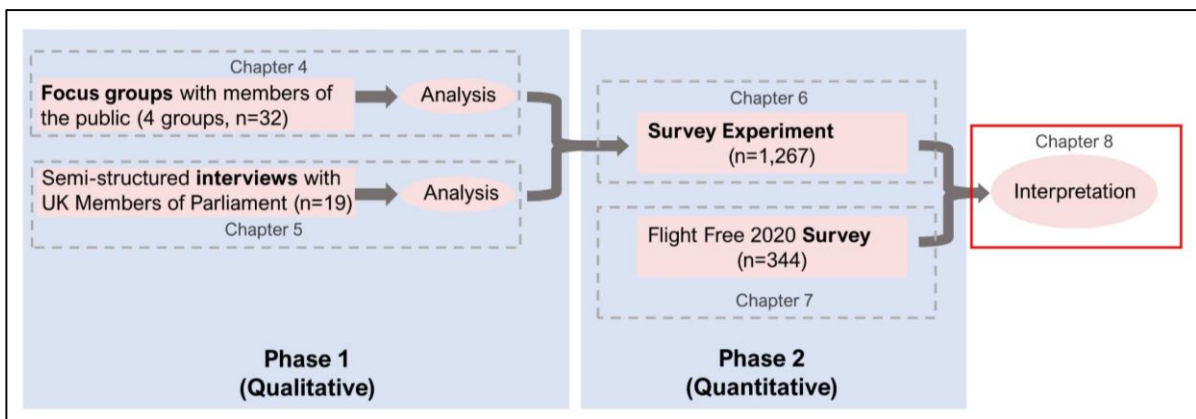
Against this backdrop, this thesis presents novel evidence suggesting that leading by example could be an effective and disruptive intervention from leaders that makes behaviour change more likely, communicates the urgency of climate action, and increases leader credibility and effectiveness.

¹⁵ This quote is from a UK Government research paper that was published by the Department for Business Energy & Industrial Strategy, then deleted a few hours later (Laville, 2021).

¹⁶ The topic of having fewer children can be controversial and has been connected with problematic narratives of population size reduction in the Global South. It is included in this research because it is a persistent element of discussions of behavioural choices, and the focus of this research is on behaviour change in wealthy nations with relatively high emission in the Global North.

The chapter will draw together the evidence from four data-gathering stages: focus groups, leader interviews, a survey experiment, and a survey of people who pledged not to fly in 2020. Combining these qualitative and quantitative data using a mixed methods approach, as shown in Figure 8.1, allows for new understandings of how leading by example might be effective, while shedding light on the nuances and complexities involved.

Figure 8.1 Research design



Notes: The red box indicates the phase of the research design considered in this chapter.

With little existing evidence in this area, the current research is exploratory and broad-ranging, attempting to situate leading by example within a societal context that encompasses individual and collective psychology, identity, politics and culture.

The following five research questions were established in Chapter 1:

- **RQ1:** How do the public interpret the actions of leaders who adopt visible high-impact low-carbon behaviours?
- **RQ2:** Are people more willing to adopt high-impact low-carbon behaviours if they observe a leader modelling such behaviour first?
- **RQ3:** How do leaders themselves view leading by example with high-impact low-carbon behaviour, and do they think it could be effective?
- **RQ4:** If a leader adopts visible high-impact low-carbon behaviour, how does this affect people's perceptions of the leader? How do these perceptions affect the extent to which people follow the leader's example?
- **RQ5:** Does leading by example with high-impact low-carbon behaviour have the potential to stimulate a faster societal response to climate change?

The questions sought to encompass: the meanings people attach to leading by example; the potential for emulation; whether leaders will actually do it; the mechanisms of influence; and the wider societal effects.

Two primary conclusions from the research will be laid out next, followed by analysis of how the findings relate to existing research on leadership and behaviour change, particularly focusing on leader credibility, social norms, collective action, and identity. Reflections on the methods used and their limitations will inform a discussion about extensive possibilities for future research. This will be followed by recommendations for leaders, and reflections on the theme of “embodied leadership”. Finally I will reflect on the critical and reflexive approaches adopted during the research.

8.2 Conclusion 1: leading by example can result in emulation

Leaders who lead by example with high-impact low-carbon behaviours can inspire others to follow suit, while leaders who *do not* lead by example are detrimental to others’ willingness to change their behaviour.

This conclusion is supported by evidence from the focus groups, the survey experiment, the Flight Free 2020 survey, and to some extent the MP interviews. Within this conclusion are answers to research questions 1, 2, 3 and 5.

The **qualitative phase** of the research (focus groups and interviews) established that leading by example is a normative good, with members of the public wanting and expecting leaders to lead by example, and leaders themselves, in the shape of Members of Parliament, generally aspiring to do so as a basic function of leadership. When presented with cue material featuring various leaders describing their adoption of low-carbon behaviours, **focus group** participants largely agreed that this personal action from leaders was a good thing that could result in emulation. Such action also signalled leader commitment and accountability, provided the leaders were also performing their other leadership functions, not *just* leading by example. For instance, participants said MPs should also be prioritising new legislation that tackles climate change, and business leaders should be making their businesses more climate friendly. If personal action from leaders was interpreted as the *only* thing they were doing, it was deemed insufficient. A short survey at the end of the focus groups supported the generally positive appraisals of leaders’ personal actions, with many (but not all) participants indicating that they believed they could be influenced by leaders leading by example, depending on the action taken by the leader.

In contrast, when discussing leaders who were observed *not* leading by example – for instance a politician who took a helicopter to an event where climate change was discussed – participants expressed cynicism and distrust, labelling the politician a hypocrite who was unwilling to make personal sacrifices. Such behaviour was deemed to confirm that the leader

was not committed or serious about climate change and was motivated by personal not collective interests.

In the **interviews**, MPs generally concurred that a visible lack of leading by example would be detrimental, both in general and in relation to low-carbon behaviours. Less conclusive were the MPs' views about whether their own behaviour could stimulate others to follow suit. Some MPs who were strong advocates for climate action believed leading by example was important in order to give credibility to their climate advocacy and to guard against accusations of hypocrisy. Some also expressed a belief that modelling low-carbon behaviour was important in itself and could lead to emulation. However, these and other MPs also questioned whether individual behaviour should be prioritised, and many believed high-impact low-carbon behaviour would be interpreted as "virtue signalling". Some said they did not feel pressure from their constituents to adopt such behaviour, and furthermore that they did not agree with putting an emphasis on individual action as opposed to systemic and legislative changes. Two MPs were sceptical about the nature and fairness of current climate policies, although largely accepting of the reality of climate change. They expressed very strong criticism of what they saw as hypocrisy from climate advocates who are not reducing their own carbon footprints by, for instance, avoiding optional plane travel. This criticism was directed at celebrities and fellow MPs. The detrimental effect of not leading by example, which was described as hypocrisy, was therefore identified and called out by some leaders themselves in the interviews, as well as being criticised by the public in the focus groups.

Taken together, the focus groups and interviews provided evidence of a normative desire for leading by example, while also highlighting the complexities, nuances and uncertain results that may result from it. These nuances will be explored throughout the chapter.

The findings from the focus groups and interviews were incorporated in the **quantitative phase** of the research and used to design a **survey experiment**. This showed that observing a politician or celebrity who leads by example with high-impact low-carbon behaviour results in observers reporting a greater willingness to adopt similar behaviour, when compared to a leader who does not lead by example. The scale of this effect will be discussed below. The observers' increased willingness comes despite (or perhaps because of) the leader not explicitly advocating that the observer should adopt similar behaviour, and therefore it appears to be the leaders' behavioural example itself, rather than their advocacy, that stimulates emulation. The effects on observers' willingness to act were statistically significant and small. However, the effects on observers' perceptions of the leader were large, as will be discussed below.

Leaders that were observed not leading by example prompted lower levels of willingness to act among observers than the simple provision of information about the need for climate action. This supports the evidence in the focus groups, and to some extent the MP interviews, that a visible lack of leading by example is likely to be detrimental to progress towards low-carbon behaviour change because it lessens others' willingness to adopt such behaviour.

The **Flight Free 2020** survey provided another line of evidence that leaders who adopt low-carbon behaviour can influence others to do likewise. The survey revealed that people who had chosen to stop flying for a year because of climate change were influenced to a considerable extent by others who were known to be flying less. This self-reported influence was greater when the known person was a high-profile figure (referred to as a “leader” in this context).

Together, these four sets of data provide compelling, novel evidence that leading by example with high-impact low-carbon behaviour has potentially substantial knock-on effects that could help to reduce greenhouse emissions by stimulating low-carbon behaviour change in others. It also suggests that leaders who are observed not leading by example are likely to hinder and slow the general uptake of low-carbon behaviour. As such, it is argued here that high-impact low-carbon behaviour could be a deliberate intervention from leaders because it sends strong signals to observers. The nature of these signals will be discussed in detail further below.

8.2.1 Size of the effects of leading by example

The research provided quantitative evidence pointing towards the potential size of the effects of leading by example. This will be discussed next, with the important caveat that is not possible to quantify precisely actual behaviour change that is directly attributable to leaders.

In the **focus groups**, after lengthy discussions about the various leaders' behaviours, a questionnaire asked participants how much they might be influenced by the leaders. 62.5% of participants saying they could be influenced “Maybe a little” or more by the MP who stops flying, 37.5% saying they could be influenced by the Director who adopts a plant-based diet, 34.3% by the celebrity who opts to have only one child, and 81.2% by the local community leader who lives car free. These numbers reveal a substantial level of openness to the idea of being influenced by various leaders (while acknowledging that exact quantification is not possible). It should be noted that there may also have been demand characteristics at play, such that participants may (or may not) have felt inclined to answer according to what they

presumed the researcher wanted. However, the figures indicate that a leader who adopts overt low-carbon behaviour with a view to influencing others is pushing at an open door, for many people at least, even when levels of trust in such leaders are low and their actions are viewed with suspicion, as was the case in the focus groups.

In the **interviews**, MPs were circumspect about the level of influence they might have over others' low-carbon behaviour. Some of them did suggest they have potential influence, and had themselves adopted visible low-carbon behaviours with this in mind. MPs' lack of certainty over their own influence is not surprising, and conventions of modesty might also have reduced their claims to have influenced others, even when such influence was suspected or known about. Previous research confirms this gap between a leaders' impression of their influence over others' low-carbon behaviour and the actual influence reported by followers (Westlake, 2017). Bearing in mind the evidence from the focus groups and surveys in the current research, a sensible conclusion is that leading by example may be an effective intervention even when leaders lack certainty about their own influence.

The **survey experiment** quantified respondents' self-reported "willingness to act" after observing a leader who was, or wasn't, modelling high-impact low-carbon behaviours (i.e. leading by example). The difference in willingness was small: an average increase of willingness of 0.2 on a 7-point Likert scale, which is a 3% difference on the scale¹⁷. While the 3% figure cannot be interpreted as representing a 3% increase in the behaviours in question¹⁸, it does indicate that observing a leader adopting high-impact low-carbon behaviour in response to climate change stimulates greater willingness, overall, in others to do so too. A 3% reduction in a carbon-intensive activity across an entire population is not insignificant. Furthermore, 3% may not reflect the full potential of leading by example were it to be adopted more widely. This is because the survey experiment presented a *single* instance of an *individual* leader in an *imaginary* interview. If, however, a variety of leaders in differing positions were observed leading by example, low-carbon behaviours would be modelled and observed repeatedly. Indeed multiple behavioural models have been shown to result in greater and more durable emulation of behaviour relating to pro-environmental waste-disposal (Sussman et al., 2013).

¹⁷ The statistical p -value=0.003, Cohen's d =0.19, η^2_p =0.009, confirming a small, statistically significant effect. See Chapter 6 for full statistical data.

¹⁸ This is because *willingness* is not action itself, and each gradation on the Likert scale cannot be assumed to represent a quantity of willingness that is equal to every other gradation.

The effect of leading by example has the potential to amplify in two important ways: (1) if multiple leaders are seen to lead by example then such behaviour change becomes more normalised, sending a signal that this is a desirable direction of travel for society; (2) the influence of a leader on an observer's willingness to act may transfer through the observers' social network, contributing to changes in social norms (Tankard & Paluck, 2016). As such, the 3% overall increase in willingness seen in this experiment may substantially underestimate the potential scale of the effects of leading by example were it to be adopted by leaders more widely. Such an argument gains support from the previously mentioned focus group mini-survey, and the flight free survey, as described next. There are of course many complexities and uncertainties in this process, which will be discussed throughout this chapter.

The **Flight Free Survey** provided several layers of quantitative evidence for the scale of leaders' influence and followers' resultant behaviour change. Flying is a high-impact behaviour in climate terms, and avoiding long-haul flights is has been identified as key to demand-side emissions reductions (Creutzig et al., 2022). For those who fly regularly, flying can easily represent half or more of their carbon footprint (Otto et al., 2019). In the survey, most respondents (74%) who knew someone who was flying less because of climate change said they had been influenced by that person to sign a flight free pledge for a year¹⁹, with more saying this if the known person was a high-profile figure (85%). Similarly, when respondents were asked about the specific influences of the person, 86% specified at least one form of influence, rising to 94% if the known person was a high-profile figure. It can be questioned whether people accurately self-report how much they have been influenced, but with such high figures, it is reasonable to believe that the influence was substantial even when considering possible "demand effects".

This evidence points towards a potentially large effect of leading by example with high-impact low-carbon behaviour. The potential may vary considerably for different people, but is perhaps especially relevant for people who are open to making personal changes but need some impetus or rationale for doing so, or those who are at particular "moments of change" in their lives where an example from others could stimulate new lifestyle choices (Thompson et al., 2011; Whitmarsh, Poortinga, et al., 2021).

¹⁹ The signees in question were people who had flown within the last few years, rather than being long-term non-flyers, so in effect they had "given up" flying for a year because of climate change.

Taken together the evidence in this thesis indicates a significant potential for leading by example to stimulate behaviour change in others. Therefore the answer to RQ2 is “yes”. However, for any particular leader the effects are uncertain, and leaders may doubt their capacity to inspire behaviour change. There may also be backfire effects. For some people, seeing a leader adopting a behaviour that is perceived as challenging may trigger a response that makes them less likely to follow suit, or even do the reverse. The focus groups revealed the potential for this response (known as “reactance”), while the survey experiment revealed the opposite: it was leaders *not* leading by example who triggered negative responses. These ideas will be explored further below.

8.3 Conclusion 2: leading by example sends powerful signals

Leading by example with high-impact low-carbon behaviour prompts others to interpret the behaviour, often increasing the credibility and approval of leaders

This conclusion begins to unpack the mechanisms by which leading by example works, and how it could potentially backfire in some situations. The conclusion provides answers to all five research questions, with a particular contribution to RQ4 about the mechanisms and social processes of leading by example.

The **focus groups** provided a rich body of data revealing how low-carbon actions from leaders are interpreted. Importantly, the reactions of participants to the leaders’ actions tended to be strong rather than ambivalent, and were largely consistent across the groups. Participants appeared to really care about the leaders’ behaviour and, unprompted by the moderator, immediately assessed the merit of the leaders’ behaviour against various criteria: whether it represented good leadership; whether it was appropriate; what the leader was trying to achieve; whether it would be effective; and the implications of the leaders’ actions for participants’ own behaviour and that of other people, and for society’s response to climate change more generally. As such, the **meanings** of each leader’s low-carbon behaviour were negotiated and teased out by focus group participants. These meanings varied, and multiple meanings were apparent concurrently.

The leaders’ actions therefore had much more effect than simply reducing the leader’s carbon footprint. The survey at the end of the focus groups provided a useful barometer indicating that leading by example is generally approved of and has potential for emulation. Even after scrutiny, criticism and some cynicism about the leaders’ motivations for acting, and uncertainty about the effectiveness of the behaviour, the majority of participants expressed approval for the leaders’ personal action. This suggests caution is sensible when

interpreting instantaneous reactions to leaders' low-carbon behaviour to avoid over-stating seemingly negative (or positive) reactions.

Building on this qualitative and quantitative data, the **survey experiment** provided very clear evidence that leading by example with high-impact low-carbon behaviour results in much greater approval of the leader. This is in a specific context where behaviour change is established as one of the necessary measures to address climate change, and where the leader has adopted several high-impact low-carbon behaviours. Leading by example in this way signalled to respondents that the leader: cared more about climate; believed it was more serious; was more knowledgeable about the problem; was a more effective leader; and was more competent and likeable as a leader. Leading by example also increased respondents' reported likelihood of voting for the leader (in the case of the politician) and the extent to which the leader is liked and admired (in the case of the celebrity). Leaders who didn't lead by example were rated much lower on these measures and scored negatively for trustworthiness, making moral and ethical decisions, and being inspirational. A mediation analysis indicated that it was the increased approval of the leader that was the most important factor influencing observers' greater willingness to act. The next most important factor was a lack of negative "reactance" to the leader.

8.3.1 Credibility enhancing displays

One of the key theories underpinning the research in this thesis is that of "credibility enhancing displays" (CREDEs) – the idea that taking action that is perceived to incur some personal cost increases leader credibility because it signals that the leader truly believes in their message. This makes them more convincing as an advocate and more likely to be emulated (Henrich, 2009; Kraft-Todd et al., 2018). Credibility was established in Chapters 1 and 2 as a fundamental part of leadership, involving being perceived as trustworthy, competent, honest, reliable, committed to a direction of travel, knowledgeable and skilled (Gill, 2011; Kouzes & Posner, 2004). These factors of leader credibility were shown in the survey experiment to be significantly enhanced by leading by example (see chapter 6). The mediation analysis mentioned above showed that it is the perception of leaders' credibility, captured by the warmth/competence measure, that helps to explain the effect of leading by example on observers' willingness to act. This provides evidence that credibility enhancing displays from leaders can stimulate low-carbon high-impact behaviour change in others. This can also be viewed from the opposite perspective: *not* leading by example harms credibility, with Figure 8.5 showing a negative score for leader trustworthiness. Not leading by example in a context where behaviour change is asserted as necessary could be said to be a

credibility *undermining* display – or a CRUD (Turpin et al., 2019). Supporting the findings that credibility is central to a leader’s influence, the **Flight Free Survey** found that the most popular terms associated with the leader who had influenced people were *commitment*, *passion*, *clarity* and *expertise* – all qualities that align with ideas of leader credibility.

These results support and go beyond previous study findings that indicate a climate advocate’s low-carbon behaviour enhances their perceived credibility (Attari et al., 2016, 2019; Sparkman & Attari, 2020), and that credibility enhancing displays prompt pro-environmental behaviour change in others (Kraft-Todd et al., 2018). While studies by Sparkman and Attari (2020) and Stouten et al. (2013) have found an adverse effect of leaders being perceived as too extreme in pro-environmental or ethical behaviour, this effect was not in evidence in the survey experiment. This suggests that the suite of low-carbon behaviours adopted by the leader were not perceived as going too far and did not trigger a defensive reaction in observers. However, ideas of “extreme” behaviour were raised in the focus groups (particularly having no children because of climate change) and in the interviews, where MPs were fearful of being perceived as “too perfect”.

The qualitative data showed that the context and fine detail of a leader’s actions are crucial to whether credibility is gained, maintained, or lost. In the focus groups there was considerable criticism of the leader if their low-carbon action was perceived to be the *only thing* that they were doing to address climate change (an impression that stemmed from the content of the vignettes, and was deliberately designed out of the survey experiment). In this case the leaders were viewed variously as not fulfilling their role as leaders, being self-indulgent and perhaps engaging in virtue signalling, a publicity stunt, or a pointless exercise. This issue of low-carbon individual action being insufficient on its own was raised by an MP too, who said it was perfectly plausible to envisage politicians taking personal action as a signal of commitment while failing to use their legislative power due to the politically difficulties this might entail. To be credible therefore, the leader’s action has to be perceived as consistent with the rest of their lifestyle and in addition to a suitable use of their sphere of influence.

The MP interviews supported the idea that credibility could be maintained by leading by example, and lost in its absence. However, MPs did not frame high-impact low-carbon behaviour as something that was likely to *increase* their credibility, and furthermore they suggested the negative portrayal of such behaviour by political rivals or media would likely result in a loss of credibility if it was labelled virtue-signalling or perceived to be carried out

only for publicity. These perceived risks to leader credibility were supported by the focus groups.

8.3.2 The role of sacrifice

Credibility enhancing displays can involve sacrifice, and indeed it is the cultural power and social history of sacrifice that gives the theory much of its potency (Henrich, 2009; Peterson, 2010). The focus group participants sometimes discussed the leaders' actions in terms of the level of sacrifice that each action represented, with higher levels of sacrifice carrying more communicative power. Perceived sacrifice had the potential to increase the leader's credibility, provided the sacrifice was deemed worthwhile and was undertaken with genuine motives. However, if the sacrifice was thought to be inappropriate or ineffective then it was seen by some participants in a negative light. For instance, limiting family size or having no children because of climate change was described by some as distasteful or pointless in the face of global emissions. A clear finding was that perceived sacrifice has communicative power with the potential to stimulate discussions about appropriate action and to motivate others. Furthermore, a lack of appropriate sacrifice was deemed detrimental to leader credibility, for instance taking a helicopter to a climate conference that could be reached by train (*"he's not willing to sacrifice his time for climate change"*). There were differing opinions expressed as to whether world leaders should make symbolic personal sacrifices, or simply model behaviour that others could easily emulate.

The MPs did not talk about personal sacrifice as a necessary or desirable response to climate change. The overall tone of the interviews, although not explicitly stated, was that if MPs made personal sacrifices because of climate change this risked distancing them from their constituents resulting in a loss of credibility. Specifically, one MP suggested that if they were to, for example, sign a pledge to not fly for a year (similar to the Flight Free 2020 pledge) this would be interpreted by some constituents as seeking to "ban" them from their annual family holiday flight. In this way the MP believed their own sacrifice would be seen as a demand for their constituents to also make (undesired) sacrifices, an idea that aligns with the communicative power of individual behaviour. This could be viewed as a variation of a "governance trap" explored in Chapter 1 (Newell et al., 2015; Pidgeon, 2012), where politicians and the public look to each other to act first, with neither actually doing so.

The survey experiment painted a different picture, however. Perceptions of leader sacrifice were approved of and correlated with respondents' own self-declared willingness to make sacrifices, and with positive appraisals of the leader, including perceptions of leader effectiveness, warmth and competence, and increased approval. Each of these are important

elements of leader credibility and charisma; and such correlations have been confirmed in a meta-study of leader self-sacrifice (Yang et al., 2021). Too much self-sacrifice has been shown to be detrimental to followers' perceptions of leaders in a business setting where the leader has power over followers (Stouten et al., 2013). However, there was no evidence of this detrimental effect in the survey experiment. The focus groups did point towards levels of sacrifice that may go too far for some people, for instance not having children was described as a "severe" level of sacrifice.

As with the focus groups, the Flight Free Survey did not ask participants to consider sacrifice directly, but a few respondents did refer to "sacrifice" in the open text answers. Not flying was described as a sacrifice by some, and its communicative power was acknowledged. Others said it was no sacrifice to not fly. Appendix D contains all references to sacrifice in this survey.

Sacrifice discussion

Whether high-impact low-carbon behaviour actually represents "sacrifice", or whether the word should be used at all, are contested topics. Firstly, lifestyles that involve less of a supposedly "sacrificed" activity can often be experienced as an improvement over time as people's value judgements change. Secondly, the language of sacrifice is often considered counterproductive because it frames mitigating climate change as inherently unpleasant and undesirable, which in turn serves those who seek to delay climate action by emphasising the unpopular sacrifices involved. However, the evidence from the current research suggests that sacrifice is language that ordinary people already deploy in relation to high-impact low-carbon behaviour change, and perceptions of sacrifice may serve to heighten the effects of leading by example, as will be explored next.

Previous research in an organisational/business context has indicated that leader self-sacrifice makes more of a difference when the leader is not prototypical of the group being led. This is because self-sacrifice signals group orientedness to followers, and prototypical leaders are already perceived to have high levels group orientedness due to their prototypicality (van Knippenberg & van Knippenberg, 2005). This may help to explain the positive effects of sacrifice found in the current research, because politicians, celebrities and business leaders are not perceived by the general population as "like them" (i.e. they are not prototypical) even if some MPs view themselves as ordinary people (YouGov, 2019). The acts of perceived self-sacrifice therefore help to forge a sense of collective identity because self-sacrificing leaders are considered closer to being "one of us" and more willing to work on behalf of the group (group orientedness).

Leader self-sacrifice has also been said to be more important at a time of crisis because of its symbolism and the value-laden messages it sends. Furthermore, it has been linked to ideas of reciprocity such that a leader's self-sacrifice can increase a follower's desire or sense of obligation to behave in kind. It may be that the approval (or disapproval) of perceived sacrifice from leaders in the current research is due in part to a sense from participants that personal sacrifice in response to the climate crisis is appropriate (or inappropriate) (Choi & Mai-Dalton, 1998; Helsloot & Groenendaal, 2017). Similarly, approval of the leader's perceived self-sacrifice may have stemmed from participants' felt sense of willingness (or unwillingness) to reciprocate.

Taken together, I argue that these measures of leader approval, including credibility, competence, trustworthiness and willingness to sacrifice, provide strong evidence that the leaders who lead by example with high-impact low-carbon behaviour are perceived as **better** leaders. This could be significant because, if effective leadership is underpinned by followers approving of their leaders, then leading by example could improve climate leadership *independent* of its potential effects on others' behaviour, simply because it increases leader approval, which in turn allows more effective leadership.

An important caveat to these conclusions is the context of the current research where the low-carbon actions of leaders are under the spotlight. If leaders' low-carbon actions are not an explicit focus, as is perhaps the case most of the time, then the behaviour of leaders may be less important to leader effectiveness. That said, as the need for behaviour change becomes a proportionally more important part of decarbonisation, as identified in the latest IPCC report (Creutzig et al., 2022), the extent to which leaders' own behaviour can remain out of the spotlight may dwindle, and so leaders' high-carbon behaviour may become harder to ignore and an increasing drag on low-carbon behaviour change more widely.

8.4 Collective action, identity, and social norms

Having laid out two primary conclusions from the research, next I will relate the findings to the theories and mechanisms of leadership laid out in Chapters 1 and 2, and the resultant theoretical framework.

Collective action is at the very heart of leadership (Gill, 2011; Haslam et al., 2020). Indeed the definition of leadership adopted for this thesis is: "A process whereby an individual intentionally influences a group to achieve a common goal" (adapted from Northouse 2015, p6). Leadership involves creating a vision, a direction of travel, a shared sense of identity, and motivating others to act. Furthermore, fostering a sense of *collective* identity is central to

leadership and is increasingly seen as an important building block of climate action (Haslam et al., 2020; Vesely et al., 2021). The extent to which leading by example with high-impact low-carbon behaviour can foster collective action, and how this relates to identity and social norms, will be explored below.

Where the leaders' actions received a positive appraisal in the **focus groups**, this often occurred in reference to the potential for collective action in response to the leaders' behaviour, for instance a perception that others might emulate the leader or receive important signals from their action. In such cases the leader's behaviour is not interpreted as solving anything *by itself*, but rather it is pointing towards a collective response by way of modelling actions others can take, which in total will make a difference. This challenges the fundamental idea that individual action is *individual*, especially in the case of leaders. By way of support, many of the criticisms levelled at the leaders' actions in the focus groups related to perceptions that the leaders were motivated by self-interest rather than collective interests.

Greta Thunberg's action of taking a racing yacht across the Atlantic was appreciated by some for its symbolic challenge to the social norm of flying. This views Thunberg's action through a collective lens by assessing what her action means for others' behaviour. Conversely, Thunberg's yacht journey was criticised by others because it was perceived as exclusive, implying it was individualistic and not collective. Here again we see the apparent importance of leaders' low-carbon behaviour being perceived as relevant to a collective effort rather than serving individual interests.

In the **interviews**, the MPs' conceptions of collective effort often centred around the various constituents they represent, and how MPs' low-carbon behaviour would be appraised by them. Some of the MPs who were advocates of exemplifying low-carbon behaviours spoke of "take[ing] people on a journey" and being "ahead of the curve and not outside the curve", thus emphasising an imperative to remain (physically) close to those whom they might influence. This need for proximity to followers was also emphasised by MPs' use of language that alluded to behavioural *normality*, set in contrast to behaviour that might be viewed as non-normal or extreme. For instance one MP said: "I'm not going to turn into a vegan, [a] person who wears linen and goes around in a tepee or whatever. I'm gonna still be of this world." Another said: "You take people with you on a journey of changing. I think that's a better role model than being out there, being absolutely fabulous and perfect." These MPs paint a picture of an out-group (i.e. those who are fabulous, perfect, other worldly, avoid meat, or frequent tee-pees) and then locate the domain of collective effort as separate from

that rather alien group. Such a framing seems consistent with a generally accepted social norm that involves high-carbon behaviour (Gifford, 2011) which can best be tackled with a slow, incremental approach to collective behaviour change. Indeed several MPs advocated “baby steps” and “little changes” as opposed to large or rapid changes. This appears to be a manifestation of MPs “taming” climate change for their constituents (and perhaps themselves) to avoid more challenging narratives of rapid, high-impact transformations, as found in previous research (Willis, 2017).

Bearing in mind this positioning of behavioural normality, and the small incremental steps away from social norms that are deemed suitable, it is interesting that in the **survey experiment** the politician and celebrity who had already adopted a suite of low-carbon behaviours to halve their carbon footprint,²⁰ which is behaviour that might be considered outside the social norm or even extreme (Gifford, 2011), were viewed much more favourably than those that did not adopt the behaviours. Importantly, the low-carbon leaders were perceived as *socially closer* to survey respondents, in the sense of sharing “similar values” and being considered more “warm and friendly” than the politician and celebrity that did not engage in high-impact low-carbon behaviours. This sense of identification indicates that the low-carbon leader was considered “one of us” and prototypical of the group to a greater extent than the high-carbon leader, which in turn ought to improve their ability to act as a leader and motivate a collective effort (Haslam et al., 2020). As evidence of this, the low-carbon leaders stimulated a greater self-reported willingness among participants to act in low-carbon ways, solely in response to viewing the leaders’ behaviour rather than any overt advocacy from the leader. Furthermore, low-carbon leaders appeared to stimulate a small positive difference in respondents’ self-declared pro-environmental identity, and their belief that others are also willing to adopt low-carbon behaviour, although these effects were not statistically significant at the $p=0.01$ level.

The question remains as to whether leaders modelling low-carbon behaviour will be inherently divisive and result in “cultural protest” whereby some people actively refuse to adopt behaviours because they do not identify with people who advocate for them (Jackson, 2005). It is well established that those on the political right tend to express lower levels of commitment to climate action than those on the left (Hornsey et al., 2016; Lee et al., 2015; McCright et al., 2016; Newman et al., 2020; Poortinga et al., 2019). However, there is no

²⁰ The behaviours were: not flying for holidays, eating less meat, improving home energy efficiency, driving an electric car, and active travel.

evidence from the current research that suggests leading by example with high-impact low-carbon behaviour is less popular with those on the political right.

Importantly, the experiment deliberately attempted to create in-group associations by invoking a politician “you might consider voting for” or a celebrity “you like and admire”. It is probable that invoking out-group associations with the leader (e.g. a politician “you would never vote for”) would reduce the positive effects of leading by example seen in the experiment. It would be valuable to explore this in future research. For the moment, it seems plausible that for leading by example to have widespread positive impact, while avoiding cultural protest, it would likely need to involve leaders representing different political parties and social groupings. This diversity of leadership might also mitigate against attacks from opponents and the media because such behaviour would be less easily dismissed as partisan or extreme.

The positive response to low-carbon leaders, in spite of their adoption of behaviour that goes against social norms, may result from the leaders’ adherence to other norms that took precedence for respondents; namely the norms of *acting in a manner that is consistent with your words*; and the norm of *leading by example*. The experimental manipulation involved a direct contrast of both of these norms, with one leader leading by example in accordance with their words about the need for behaviour change, and another leader not doing this. It could be argued that such a stark contrast rarely manifests in normal life because a leader is unlikely to say directly: “behaviour change is necessary to tackle climate change, but I am not doing it myself yet” (although the Ed Miliband interview in Appendix C comes close to this). However, perhaps this is exactly what leaders are saying *implicitly* when they advocate for climate action in accordance with the IPCC’s recommendations while electively maintaining high-carbon lifestyles. Furthermore, many people may have a sense of this “leadership contradiction”, which would help to explain some of the well-documented dissatisfaction with current climate leadership (Bedford et al., 2010; Bickerstaff et al., 2008; Willis, 2020) and the common accusations of hypocrisy levelled at leaders, notwithstanding that some of these accusations are made in bad faith. With this in mind, I argue the leadership norms of leading by example, especially in a crisis, open the door for leaders to challenge high-carbon social norms by modelling low-carbon behaviour that defies those norms.

In the interviews, some MPs talked about themselves being just ordinary people, representing their constituents. A corollary of this self-definition was that their behavioural norms must remain close to the norms of the general population. Such a view suggests

these MPs consider their behaviour ought to align with “descriptive norms” – what people believe the social norm *is* – rather than aiming to influence “injunctive norms” – what is believed to be socially *appropriate* (Cialdini, 2003, 2007a). This tendency to remain close to the established group norm is an understandable position for leaders, who risk alienating followers if they stray too far (Ladkin & Taylor, 2010). While many MPs acknowledged that they did feel a duty to set a behavioural example that might extend beyond current norms, at the same time they were very wary of being perceived as extreme. However, some MPs’ self-perception of being “one of the people” is not supported by evidence. For instance 69% of the UK population consider MPs to be part of the “ruling elite”, and only 13% believe they are *not* part of the ruling elite. Therefore the type of behaviour from MPs that the public desire and approve of may differ from descriptive norms, especially in the context of a crisis where leadership is required (Boin et al., 2013; Helsloot & Groenendaal, 2017). This is consistent with evidence from the survey experiment, where behaviour that likely deviates from the social norm results in much greater approval. This suggests that leading by example with high-impact low-carbon behaviour can help to shape the “injunctive norm”, thus signalling how the norm *should be* rather than how it is at present, and that this injunction gains approval from observers, perhaps because shaping the future is what leaders *should* do in response to a climate crisis (Tankard & Paluck, 2016). This would benefit from further research. From the opposite perspective, leaders’ adherence to the descriptive norm of high-carbon behaviour, or their reticence about communicating an injunctive norm of low-carbon behaviour, is likely to perpetuate behaviour as usual. This essentially reflects the current situation where low-carbon behaviour change is avoided in political and societal discourse.

In contrast, the **flight free survey** showed how the non-normative behaviour of the non-flying models stimulated others to re-evaluate the norm. This effect was increased for those for whom pro-environmental behaviour change was more recent, and the effect was greater for high-profile models. This supports the idea that leaders are “social referents” who have more power to challenge norms than close associates (Tankard & Paluck, 2016). Two of the most popular statements selected describing how respondents had been influenced were “It increased a sense that people are acting on climate change” – thus evoking a descriptive norm that a greater number of other people are acting than previously thought – and “It made personal action seem like a worthwhile response to climate change” – thus signalling that flying was a social norm that could be re-evaluated. The increased sense that others are

acting on climate change also highlights that leaders' actions can help to foster a collective, rather than individual, response to climate change.

8.4.1 Morality

The research in this thesis explored ideas of morality, asking to what extent leading by example heightens a sense that climate change is a moral issue and whether increased moral salience contributes to the efficacy of leading by example.

The focus groups painted a mixed picture as to whether leaders have a moral obligation to lead by example with low-carbon behaviour. Leading by example in principle appeared to be viewed as a moral good, but high-impact low-carbon behaviour would not necessarily be interpreted as moral unless a leader was also fulfilling more impactful leadership duties. When leaders were seen to model behaviour that presented a challenge to social norms, there was some evidence of potential “do-gooder derogation” where the leaders' motives are questioned and the efficacy of their action doubted in order to protect the observer's positive moral self-image (Minson & Monin, 2012). However, when leaders were observed *not* leading by example this was generally perceived as morally offensive and a dereliction of duty.

The MP interviews also painted a mixed moral picture. Leading by example was generally seen as a normative good. But it was argued by some MPs that visibly adopting low-carbon behaviour that involved privilege (for example incurring the financial costs of heat pumps or solar panels) was a moral negative because it might be interpreted as exclusive, virtue-signalling behaviour that was not available to less well-off people. The fear of being perceived as “virtue-signalling” was a strong brake on MPs' enthusiasm for overt low-carbon behaviour, confirming the morally loaded nature of low-carbon leading by example.

Things were much more clear-cut in the survey experiment, where respondents' level of agreement with the statement “The politician/celebrity probably makes moral and ethical decisions” was considerably higher when the leader was leading by example. Overall, leaders who did not lead by example had a mean negative score for this measure of morality, meaning they were perceived as probably not making moral and ethical decisions (see Figure 8.4). Similarly, the measure of negative reactance, which includes ideas of being morally judged and being preached at, showed that leading by example did *not* trigger reactance, whereas leaders who did not lead by example *did* trigger reactance. One of the measures in the survey experiment explored the “moral salience” of climate change – the extent to which respondents viewed climate change as a moral issue for which personal

responsibility should be taken. There was no statistically significant difference in this measure. This therefore does not match the findings of a previous US study where images of a leader (the Pope) increased the moral salience of climate change (Schuldt, 2017).

The flight free survey suggests, however, that moral salience is raised by leaders: 46% of those who said they had been influenced by someone who was flying less or had given up flying, said the other person's example "highlighted moral or ethical dimensions of climate change." This figure rose to 57% for those who knew a high-profile behavioural model. The heightened influence of the high-profile model appears consistent with the idea of "moral offsetting", which occurs when the moral behaviour of close associates gives people license to act less morally – a process that does not happen in response to more socially distant behavioural models (Meijers et al., 2019). Furthermore, the survey indicated that morally charged negative emotions in response to the leaders' example of behaviour (guilt, feeling judged) correlated with the leaders' influence and therefore appeared to have motivating power for the respondents.

Taken together, the different phases of research present strong, consistent evidence that a visible *absence* of appropriate low-carbon behaviour from leaders will result in negative moral appraisals of the leaders. Meanwhile, leading by example with high-impact low-carbon behaviour has the potential to stimulate positive moral appraisals of leaders, which can contribute to personal motivation to emulate the behaviour. All four sets of data confirmed that ideas of morality are embedded within appraisals of behaviour and contribute to the potential efficacy of leading by example. It seems likely that associations with morality give leading by example much of its potency, while also making it a febrile subject for leaders and followers. As a final note, the moral dimensions of leading by example may help to explain why it appeals to those on the political right, for whom self-regulation and individual responsibility underpin a conservative moral framework (Lakoff, 1995). This points towards the potential of leading by example as a leadership intervention which might be effective across the political spectrum.

8.4.2 Emotions in response to leading by example

The emotional responses to examples of leading by example were varied, including both positive and negative emotions, sometimes concurrently. As revealed by the focus groups, and referenced above, the appraisal of the leader is more complex than a simple positive-negative binary in response to the leader's action. Participants were often critical of the leader and questioned their motives, while also approving of the leader's action and accepting that it might be influential. This multifaceted reaction is evidenced further by the

Flight Free 2020 survey where respondents reported a mix of positive and negative emotions in response to a leader who was flying less or had stopped flying because of climate change. These included feeling guilty, inspired, hopeful, judged, and pressure (to fly less).

Respondents who stated they were most influenced by the leader also tended to express higher levels of both positive and negative emotions in response to the leader. Furthermore, higher levels of emotion were reported in response to high-profile leaders. Notably, feeling guilty was positively correlated with being both influenced by the leader and feeling inspired by them. This is consistent with prior research showing that negative feelings, including feelings of guilt, motivate people more strongly to take corrective low-carbon action than positive feelings (Brosch, 2021; Chapman et al., 2017; Harth et al., 2013; Skatova et al., 2017; Swim & Bloodhart, 2013). It can also be inferred from the results of the survey experiment that if leading by example with high-impact low-carbon behaviour stimulates negative emotions to some degree, which seems likely in light of the evidence from the focus groups and flight free survey, these negative emotions coincide with positive perceptions of the leader and with increased willingness from respondents' to follow the leader's example. Further research could test this directly.

Emotional responses have been said to underpin moral frameworks (Haidt & Joseph, 2004). If this is accepted, then the mixed emotional responses to leading by example, including positive and negative emotions, appear to resolve themselves into a positive moral judgement of the leader. This positive moral resolution may help to explain why, in the focus groups, the tone of the discussion was quite often negative, and yet the overall verdict on the leaders' behaviour tended towards the positive, in spite of the perceived shortcomings of the behavioural examples discussed in the focus groups. This may be because leading by example is generally perceived as a moral good, even if it challenges observers and stimulates mixed emotions.

There are relevant emotional dimensions to leadership too. Charismatic leadership heightens followers "emotional involvement" (Northouse, 2015, p165), and charisma has been defined as "values-based, symbolic, and **emotion-laden** leader signaling" (Antonakis et al., 2016 p304, emphasis added). Furthermore, an embodied approach to leadership pays explicit attention to the emotions of leaders and followers, while critiquing the idea that leadership and followership processes are predominantly rational (Knights, 2021; Ladkin & Taylor, 2010). Rejecting an over-emphasis on positive emotions, scholars of critical leadership studies also warn against "Prozac" leadership that attempts to maintain relentlessly positive

mindsets in relation to problems and solutions. People quickly see through Prozac leadership and tend to resist or rebel (Collinson, 2012).

Against this background, the negative as well as positive emotions seen in the current research, in conjunction with the overwhelming positive response to leading by example in the survey experiment, confirm the inadequacy of simple imperatives to “make people feel good” to achieve behaviour change (Brosch, 2021; Chapman et al., 2017; Hornsey & Fielding, 2016). This suggests that MPs’ inclination to “tame” climate change by insulating constituents from potentially uncomfortable feelings, while understandable, may not be necessary and could be counter-productive. The motivating potential of negative emotions may also add nuance to popular “co-benefits” narratives, which emphasise the positives of low-carbon behaviour change but may run the risk of overlooking the motivating power of more varied emotions.

8.5 Power

“Power” has been identified as a missing consideration in the field of climate-related behaviour change (Fuchs et al., 2016; Isenhour et al., 2019; Middlemiss et al., 2019). Relevant manifestations of power in this context include: decisions relating to infrastructure, services and standards; government policies and laws (or lack thereof); pressure from vested interests; and the social and political conventions that define and curate societal and behavioural norms and options for change. The particular focus in the current research is the power of leaders to bring about or inhibit behaviour change through their own behavioural example, and how this interacts with the broader workings of power just outlined. Individuals, and specifically leaders, can be considered to have *position* power, flowing directly from their leadership position, and *personal* power, deriving from such qualities as knowledge and competence, and the respect that flows from these (Gill, 2011; Northouse, 2021). Another useful categorisation is that leaders can exert *reinforcive* power (that maintains the status quo), *innovative* power (that facilitates new solutions) or *transformative* power (that drives change in social systems) (Avelino, 2021). Chapter 2 details these varying classifications of power.

The research in this thesis indicates that leaders have considerable power to influence others’ behaviour and raise the salience of behaviour change as a subject of discussion and negotiation, with the potential to change social norms. They also have the potential to increase their leadership power via the boost to credibility that leading by example can give

them. *“When leaders act in ways that are important to followers, it gives leaders power”* (Northouse, 2021, p12).

“Power” was mentioned often by participants in the focus groups, predominantly in respect of the perceived power held by the different kinds of leaders and the extent to which low-carbon behaviour was an effective use of their power. For those in positions of perceived high power (the politicians, company bosses, and celebrities) leading by example had the potential to signal commitment and inspire others, but on its own was considered an insufficient use of a leader’s power. The power of leaders’ behaviour to stimulate detailed discussions about climate action and appropriate social norms was very much in evidence in the focus groups, as discussed already. This confirms that the power of a leader’s actions extends beyond the power of their words, while also having the potential to complement their words via consistency and increased credibility.

In the interviews, the MPs generally confirmed the potential power of leading by example, but tended to emphasise negative rather than positive manifestations of power. MPs anticipated that overt high-impact low-carbon behaviour could lead to accusations of virtue-signalling, or accusations of hypocrisy if some other aspects of their lives were not deemed to be environmentally perfect. They implied that these accusations could reduce their personal credibility and power as leaders, citing the media criticisms of Prince Harry and Meghan Markle, and Greta Thunberg. One form of power in clear evidence, therefore, is the power of the media and other critics to delegitimise leaders’ low-carbon behaviour, making it less likely that leaders will adopt such behaviour for fear of derogation. Even MPs who were in favour of climate action sometimes framed high-impact low-carbon behaviour as extreme and something worthy of ridicule (as discussed above), seemingly acceding to the power of a perceived social norm of anti-green attitudes. This framing from MPs was perhaps underpinned by social norms of do-gooder derogation (itself a form of moral power) and leaders’ desire to retain the approval of high-status peers (a form of system protective power) (Hornung, 2022; Rickards et al., 2014).

Another form of power in evidence was that exerted by vested interests for whom low-carbon behaviour change from MPs might be seen to threaten their business, for instance the car and aircraft industries. Some MPs said representing these constituency interests limited the extent to which they would feel comfortable enacting and advocating certain high-impact low-carbon behaviours, for instance not flying or living car-free. A perceived absence of a mandate from constituents for MPs to adopt high-impact low-carbon behaviour, or legislate for it, was also in evidence and used to justify avoiding behaviour change as a

subject of contention. These are examples of *reinforcive* power that maintains the status quo and helps foreclose transformative change. Together, these effects of power on MPs appear to coalesce into a collective mentality that views high-impact low-carbon behaviour change as something largely off-limits, thus making legislation to bring about society-wide change less likely. This adds to the evidence explaining why politicians avoid grappling with climate related behaviour change (Willis, 2020), and augments previous scholarship asserting that considerations of power are crucial to this question (Fuchs et al., 2016; Hargreaves, 2019; Isenhour et al., 2019; Soron, 2019).

The evidence from the current research suggests that leaders have the potential to employ considerable transformative power were they to lead by example with high-impact low-carbon behaviour. In the context of a public that yearns for clear climate leadership, leading by example may have the potential to contribute to social tipping points where a rapid change of social norms takes place (Lenton et al., 2022; Stadelmann-Steffen et al., 2021). However, leaders are also subject to considerable reinforcive power in the shape of perceived social norms, peer pressure, and media-amplified negative attitudes towards pro-environmental behaviour which, when combined, may seem to limit leaders' behavioural options, or even risk damaging their reputation were they to act in low-carbon ways. However, the evidence in this thesis may help to challenge this reinforcive power by highlighting its workings and exposing its weak points.

8.6 Hierarchy, justice and appetite for leadership

Along with power, some specific considerations of hierarchy and justice have been largely absent in the discourse of behaviour change scholarship and policy – in particular the fact that behaviour-related emissions are very unevenly distributed among populations, both historically and in the present (Akenji et al., 2021; Capstick, Wang, et al., 2020; Gössling, 2019b). Furthermore people's scope for making high-impact low-carbon behaviour changes also correlates closely with wealth (Nielsen et al., 2021; Otto et al., 2019; Otto, Wiedermann, et al., 2020). Viewing behaviour change through this lens raises questions about whose behaviour should change the most and who, if anybody, should lead the way, thus moving beyond a flat view of society and the rather unnuanced imperative that “we all need to change our behaviour”.

The current research therefore has at its heart a *sequencing* of behaviour change – with leaders acting first with a view to other people following their lead. In addition, it is assumed that leaders are likely to have relatively high individual emissions due to their status in

society, compared to the average citizen, thus linking the sequencing of behaviour to issues of differential responsibility, justice and fairness.

The evidence laid out so far indicates the potential positive effects of leaders acting first. In addition to this, the survey experiment data indicates that the public *wants* leaders and those with the largest environmental impact to act first and to make the biggest changes. For instance 90% of respondents agreed to some extent that “People with the biggest carbon footprints should make the biggest lifestyle changes to tackle climate change”, and only 3% disagreed. This strong appetite for leadership may help to explain why the leaders who were leading by example in the survey experiment were appraised so much more favourably than those that weren’t leading by example.

These results contribute to the existing evidence of an “appetite for leadership” among the public (Westlake, 2017). It is already well established that people want government and businesses to take a lead on climate change because they realise a systemic response is essential (Bedford et al., 2010; Bickerstaff et al., 2008; Willis, 2020). Furthermore, this appetite seems likely to be rooted, at least in part, by considerations of justice and fairness, with those with the biggest environmental impact expected to act first and make the biggest changes (Capstick, Khosla, et al., 2020; Otto et al., 2019). The importance of perceived fairness in relation to climate action has been a repeated finding of academic research and deliberative processes with the public (e.g. Demski et al., 2015; Parkhill et al., 2013; UK Climate Assembly, 2020). The IPCC also highlights the importance of social justice “between and *within* countries and communities” (Masson-Delmotte et al., 2018, emphasis added).

8.7 Methods, limitations, and future research

The exploratory mixed methods approach adopted in this thesis provided multi-faceted evidence comprising a rich qualitative dataset complemented by some clear quantitative findings. The research design shown in Figure 8.1 remained consistent throughout the project and allowed for iterative interpretation of the different datasets. The qualitative phase (focus groups and interviews) supported and augmented a-priori theories, and informed the design of the survey experiment, allowing for confounds to be avoided, such as the potential drawbacks of a leader adopting a single low-carbon behaviour that can be considered a publicity stunt. The findings of the experiment were then used to aid further interpretation of the focus groups and interviews, for instance providing counter-evidence to some of the MPs’ assertions that celebrities would be more effective behavioural models than politicians. Findings from the focus groups and the interviews also provided valuable insights to assist

with the interpretation of the survey experiment and the flight free survey. Likewise, the quantitative phase provided triangulation of the qualitative data, allowing for more robust conclusions to be drawn.

Three of the four data gathering exercises took a “bottom up” approach to the study of leadership, in the sense that it was members of the public (aka “followers”) who were the subjects of the research. One phase, the MP interviews, took a “top down” perspective exploring what leaders themselves thought would be practical and effective. This 3:1 balance between bottom-up and top-down was deemed consistent with the chosen critical research outlook, which prioritised a radical and potentially transformative form of leadership (low-carbon leading by example), rather than investigating more established forms of leadership or prioritising leaders’ own views of “good” leadership. This approach revealed valuable insights into some consistencies between leaders and followers, but also pertinent contradictions where the perspectives of leaders and followers diverged.

Interviewing just one cohort of leaders (the MPs) was a limitation of the research, however, as it illuminates the perspective of only a very particular type of leadership, albeit one at the heart of the political and societal response to climate change. It would be valuable therefore to conduct further interviews with business leaders, celebrities, musicians, sports stars and other high-profile figures to explore whether their aspirations to leadership and perceived barriers to change coincide with the MPs’.

From a followers’ perspective, the research revealed interestingly little difference between the reactions to MPs and celebrities in the survey experiment, suggesting that the principles of leading by example and word-action consistency apply quite equally across these two types of leader. This may point to a general principle when it comes to leaders’ climate-related behaviour. This consistency went some way to address the limitation of the focus group design, which featured *different* leaders adopting *different* behaviours, therefore preventing conclusions being drawn about whether it was the leaders or the behaviours that were driving respondents’ reactions. Further research on responses to individual actions and individual leaders would be a valuable.

Another feature of the research design was its primary focus on **individuals**. The cue material in the focus groups, and the vignettes in the survey experiment, featured an individual leader. In the case of the survey experiment, it was individuals who provided the response data, in contrast to the group discussion in the focus groups. While this emphasis on individuals provided valuable findings on the effects of leading by example, it also

introduced a limitation by isolating leadership examples, and responses to them, from a wider societal context where a multitude of leaders might be acting (or not acting). Because of this, the findings may underplay the potential effects of leading by example, as discussed earlier. Further research could begin to address this limitation by exploring the effects of multiple leaders visibly adopting high-impact low-carbon behaviours. This might be particularly interesting if leaders from different political parties, or representing other distinct interest groups, were seen to be acting with consistent low-carbon behaviours.

The data collection phases treated low-carbon behaviours in slightly different ways. The focus groups discussed specific individual behaviours in relation to different leaders, whereas the survey experiment considered a leader adopting a whole suite of low-carbon behaviours. The flight free survey explored just one high-impact behaviour – flying – which has very particular qualities and associations (travel; holidays; pleasure; culture; prestige). There are important considerations in respect of this. For instance the dynamics of leader influence are likely to be different for different behaviours. Furthermore, a leader adopting a single low-carbon behaviour is qualitatively different to them adopting all of the most impactful behaviours. Future research would be valuable to shed light on this by exploring reactions to different leader behaviours, and combinations of behaviours.

8.7.1 Leading by example as a leadership intervention

The evidence presented in this thesis suggests that leading by example with high-impact low-carbon behaviour has potential to be a **leadership intervention** with the aim of stimulating behaviour change and speeding a transition to more sustainable living. Here I outline some more avenues of future research and, where appropriate, indicate how these relate to the theories of behaviour change and leadership described in Chapters 1 and 2.

The research is set against an extensive body of literature and theory, some of which connects leadership to human evolution (Henrich, 2015). Evidence suggests leader-follower relationships are deeply embedded in our psyches, and our responses to leadership are only partially rational (Fritsche et al., 2018; Meindl, 1995; Shamir, 2007; Tomkins, 2020; Van Vugt, 2006). The evidence in this thesis has revealed strong responses to the low-carbon behaviour of leaders, or its visible absence, and these responses tap into several key concepts underpinning leadership that have been discussed in this chapter: morality, charisma, credibility, identity, trust, and meaning-making in times of crisis (Boin et al., 2017; Kouzes & Posner, 2004). Existing leadership theory, therefore, provides strong support for the potential efficacy of leading by example that is evidenced here.

Leading by example has been shown in this research to act as a form of communication, focusing attention on the high-impact behaviour changes that have a significant environmental benefit, in contrast to less impactful but oft-mentioned behaviours such as recycling. Further research could explore this communicative function in more detail, for instance by examining how leading by example affects observers' knowledge and aspirations relating to a range of low-carbon behaviours that have more or less impact. In effect this would examine whether leading by example increases people's "carbon capability" (Whitmarsh et al., 2011) by addressing the current **information deficit** that surrounds the types of behaviours that need to change most, and the scale of the changes required (House of Lords, 2022). A further area of future study in relation to the communicative effect of leaders' low-carbon action is the way that the action is itself communicated. For instance, is it more effective for leaders to speak directly about their own low-carbon actions, or for the message to be transmitted predominantly by other means – e.g. via written statements, imagery and video, or other people highlighting the behaviour? If leaders do speak about their own behaviour, what is the most effective language and framing for them to use, and how does this land with various audiences? This area was touched upon in Chapter 4 but could be examined in greater detail.

The communicative aspect of leaders modelling choices has clear resonances with **social marketing**. Leading by example could be a potent form of social marketing were it adopted by celebrities and other leaders; "potent" precisely because it challenges some of the consumption and behavioural norms that often accompany high socio-economic status (Gössling, 2019b; Nielsen et al., 2021; Otto et al., 2019). The current research has found a broad positive effect of leading by example and an overall normative positivity toward leaders who do it. Future research could use the segmentation that underpins social marketing (Peattie & Peattie, 2011) to test whether different social categories respond more or less favourably to low-carbon leading by example. Of particular interest perhaps would be those in high socio-economic categories as their behaviour changes have the most potential to reduce emissions, and their social and cultural power makes their attitudes and behaviour central to the likely viability of societal shifts to lower-carbon living (Nielsen et al., 2021; Otto et al., 2019; Stoddard et al., 2021).

Segmentation links to the idea that any leader is likely to appeal only to a subset of the population, which could result in "cultural protest" and resistance from those who do not identify with a particular leader (Jackson, 2005). Future research could explore this in detail, for instance testing the tentative finding of the current research that those on the political

right have at least as much affinity with low-carbon leading by example as those on the left. Further research could also delve deeper into the effects of real-life leaders whose low-carbon behaviour is observed in practice – if such leaders can be encouraged to model low-carbon behaviours. Leadership within different cultures and nations would be worthy of further study as the current research was predominantly focused on the UK, with a substantial Swedish cohort in the survey experiment. Perhaps the United States is of particular interest due to its contribution to global emissions, its strong narratives of personal freedom, and its current polarisation when it comes to politics and climate. Populous countries such as China and India would also be particularly worthy of study. Such international research could test the theory that the efficacy of leading by example and credibility enhancing displays is consistent across cultures thanks to its asserted origins in human cultural evolution (Henrich, 2009) and its moral foundations (Haidt & Joseph, 2004). Furthermore, the effects of perceived sacrifice from leaders could be examined in more detail, along with related perceptions of charisma and other metrics of leadership such as competence, warmth, effectiveness, decisiveness and honesty.

The importance of coherence between a leader's words and their actions is a key finding of the current research. The precise nature and nuances of this coherence could also be studied further, seeking to establish what types and quantities of high-carbon behaviours from leaders are viewed as consistent with a message that climate change must be addressed and low-carbon behaviour change is required. In addition, responses to different behaviours, and combinations of behaviours, could be explored, as mentioned above. For example, it is likely that judgements about leaders' flying, meat eating, or home efficiency are underpinned by different values, rationales and emotional responses. Likewise, the effect of different leaders modelling the behaviours could be explored in more detail. This could include further examination of the relative effects of leaders who are socially distant from followers (e.g. politicians, celebrities) compared to those who are closer at hand (e.g. local community leaders). Taking this further, the effect of several leaders adopting low-carbon behaviours could be compared with the effect of action from solitary leaders, and such comparisons could be extended to homogeneous or diverse groups of leaders.

Through the lens of **nudge theory**, future research could also explore the extent to which peoples' decision-making processes are influenced by leaders' behaviour in comparison to other elements of the "choice architecture" – a term that refers to the salient factors and conditions that may steer people, perhaps subconsciously, towards decisions. In addition, people's perceptions of descriptive and injunctive social norms could be further examined,

and perhaps quantified, in response to leaders modelling low-carbon behaviours, which could be considered a “norm intervention” (Tankard & Paluck, 2016). How leading by example affects other inputs to theoretical models of behaviour, such as attitudes, values, identity, and perceived behavioural control, could also be tested (Whitmarsh, Poortinga, et al., 2021). Longitudinal studies could test the extent to which people’s behaviour is influenced over time, and whether example-setting by leaders is a consistent stimulus or peaks and troughs for various reasons.

The evidence in this thesis also suggests that leading by example has the potential to challenge and change the *meanings* people attach to low-carbon behaviours, thus shaping one of the three constituents of practices as laid out by **practice theory** (Shove, 2012). Future research could further explore how leader action can shape such meanings. Furthermore, by explicitly taking a lead with behaviour that acknowledges differential responsibility and goes some way to reduce inequality, leaders inject fairness and justice into the behavioural equation, factors that are increasingly acknowledged as being essential for public buy-in and climate policy success (Creutzig et al., 2022; Evensen et al., 2018; UK Climate Assembly, 2020). Taking this perspective, leading by example eschews a flat view of society because leaders acknowledge and respond to their position in the emissions hierarchy, recognising that justice is served by them acting first with voluntary emissions cuts. These ideas of fairness and justice in relation to leader behaviour could be explored further in future research.

Leading by example by politicians, celebrities and business leaders could be examined as a **form of public engagement** because it raises the salience of climate change and connects a complex global issue to everyday life via the signals of social influence. The UK Climate Assembly and other advisory reports have concluded that public engagement and communication from Government about climate change is a top priority (House of Lords, 2022; UK Climate Assembly, 2020). Further research could explore whether leading by example increases public engagement and understanding, and forges a sense of collective endeavour.

Taking a reverse perspective to the positive effects of leading by example, more work could be done to explore the effect of a *lack of* leading by example, and how this may slow behaviour change – perhaps with an emphasis on the effects of perceived hypocrisy. Considering the strength of feeling attached to narratives of hypocrisy, along with their persistence in the media, this could be a fruitful area of study. Furthermore, the forces working in opposition to leading by example could be examined. For instance, there is

considerable resistance in some quarters to the idea that high-emitting individuals have extra responsibility to change their behaviour, perhaps due to the political and social implications of connecting individual consumption with climate damage. Research could explore how and why powerful actors are resistive to imperatives for low-carbon leading by example.

Research on leaders themselves could examine any links between their own low- or high-carbon behaviours, their conceptions of climate change as a problem, and the solutions they advocate for. This could explore if and how leaders' low- or high-carbon behaviour shapes their outlooks and attitudes, rather than a more conventional perspective that presumes (leaders') knowledge and attitudes shape their behaviours. This links to the theory of embodied leadership and asks the critical question of whether leaders who manifest elective high-carbon lifestyles have the essential capacity to lead towards a low-carbon future.

Taking a cross-disciplinary approach, the effects and mechanisms of leading by example could also be explored from a neurological perspective, for instance with a focus on mirroring and mirror neurons. These have been found to activate both when a person takes action and also when they observe *others* taking action (Bonini et al., 2022; Glenberg, 2010). Such enquiries may align with a recent call for increased research into the links between neuroscience and people's responses to climate change (Wang & van den Berg, 2021).

Finally, from a more philosophical perspective, leading by example with high-impact low-carbon behaviour could be explored using the framework of imitation, contagion and suggestion (ICS), and through the lens of mimetics (Borch, 2019) because "*imitation provides the scaffolding upon which the whole edifice of consciousness, society, and politics are built - domains shot through with power, conflict, as well as cooperation and peace*" (Brighi, 2019, p126). Such a perspective may seem appropriate for the "super-wicked" problem of climate change, a specific feature of which is that those with most power to solve it are simultaneously the most responsible for causing it (Levin et al., 2012).

8.8 Recommendations for leaders

The evidence presented in the previous chapters points towards some general recommendations for leaders who are minded to lead by example:

Leaders should use their full sphere of influence. Leading by example is most likely to be effective if the leader is also seen to be using the full scope of their leadership power – or their sphere of influence – to address climate change. For instance politicians should be campaigning and legislating; company directors should be making pro-climate changes in their organisations; celebrities should be using their status to raise awareness and promote

climate action. These visible actions should be taken *as well as* leading by example with low-carbon behaviour. Together this sends a signal that the leader is serious and committed, and lessens the chances of their personal action being dismissed as virtue signalling.

Leaders' behaviour changes should make a substantial difference to their *total* environmental impact. Making pro-climate behaviour changes that appear to be undermined by other lifestyle activities will likely reduce the effect of leading by example and allow it to be dismissed as a token gesture. For instance, the positive messaging effect of reducing meat consumption or using active travel will be undermined by private jet use, unnecessary flights or driving large SUVs. The entirety of a leader's lifestyle emissions should therefore be reduced, rather than just one aspect. The public understands that leaders must sometimes engage in high-carbon activities such as flying, but efforts should be made to visibly reduce unnecessary carbon-intensive behaviours.

Clearly communicate the effects of the behaviour changes. It is important that observers understand by how much a leader's high-impact low-carbon behaviour reduces their carbon footprint. This helps to highlight the most impactful behaviours and avoid misconceptions that a particular behaviour is irrelevant, or that a low-impact behaviour is more effective than it actually is. For example, if particular behaviour changes halve a leader's carbon footprint, it would be wise to say this.

Emphasise a sense of moral responsibility and collective purpose. People respond to leaders who take morally motivated action, including self-sacrifice, for the benefit of the groups they lead (Haslam et al., 2020; Yang et al., 2021). A sense of collective action can be encouraged when leading by example is perceived as genuinely motivated.

Acknowledge situational and temporal realities. Leaders are likely to have more choice in their behavioural options than many followers, and more scope to reduce emissions immediately. Acknowledging that "not everyone can do this now" is likely to avoid reactance based on perceptions of inequality and privilege.

Make it clear that behaviour change is only *part* of the solution. The public understands that systemic changes are required to tackle climate change and objects to primary responsibility being laid at the feet of individuals (Bedford et al., 2010). Therefore leading by example should be framed as a *contribution* along with new technologies and international cooperation, rather than being framed as a standalone solution.

Lead by example together. The extent to which observers identify with a leader is likely to be a key factor in how much influence the behaviour has. Since people are prone to in-group and out-group loyalties, “cultural protest” against out-group leaders could be mitigated by leaders acting in concert with others who represent different groups (Jackson, 2005).

Be ready for a rough ride. The unforgiving combination of public and media scrutiny was very apparent in the qualitative elements of this research. A leader who adopts high-impact low-carbon behaviour that challenges social norms can be viewed as exercising power, and the research suggests this can prompt strong positive *and* negative reactions. Persistence is likely to be required when leading by example with low-carbon behaviour, along with a thick skin.

Consistency over time is crucial. People are highly attuned to publicity stunts and opportunism from leaders. To increase trust and the potential for emulation, behaviour changes should be long-term, and preferably motivated by genuine concern.

Keep going. Leadership is about movement and maintaining a direction of travel towards shared goals. Lifestyle changes to reduce emissions are likely to be necessary as an ongoing process and not something that is “achieved” and then forgotten about.

8.9 Embodied leadership

In Chapter 2 I proposed that the overt low- or high-carbon actions adopted by leaders represent an embodiment of a leader’s response to climate change, and that there may be “a **contradiction of leadership** if leaders are both working towards a low-carbon future while continuing to exhibit high-carbon behaviour”. I suggested that this contradiction may be slowing behaviour change because it locks in current social norms and perpetuates behaviour as usual. In contrast, I suggested that “*leading by example presents people with a story, a challenge, it prompts affect and emotional responses, it creates meaning, and it gives clarity. It is in this sense that embodied leadership provides an overarching theory for the present research.*” Here I will argue that there is evidence in the thesis to support this formulation of embodied leadership.

In the focus groups, the consideration of what leaders were *physically doing* triggered spontaneous discussions about their other leadership functions, and also what behaviours are appropriate in society as a whole. The leader’s embodied response to climate change was therefore used as an indicator and a benchmark against which to assess the leader, other people, and the general societal response to climate change. Contradictions of leadership were highlighted and described as undermining the leaders’ credibility on climate

change, for instance the Deputy Prime Minister flying in a helicopter to a climate event, and Harry and Meghan's use of private jets. In the survey experiment, a leader's personal actions had a very marked effect on perceptions of the leader, and also had a subtle effect on respondents' own outlooks. The flight free survey showed that a leader who embodies climate change by flying less signals commitment and passion, triggers positive and negative emotions in respondents, and strongly influences them to take personal action.

It is suggested therefore that embodying climate change by way of leading by example points to a physical truth and an imperative for action that goes beyond a leader's words and rational arguments. Figures 8.4 and 8.5 shows clearly the effect of embodiment on observers' perceptions of leaders. If leaders tend to "tame" climate change by shielding followers from the stark realities and widespread societal changes that are required (Willis, 2017), I suggest that embodied leadership can "rewild" climate change, making it visceral, challenging and real. That is not to say the only thing that leaders need to do is take high-impact low-carbon behaviour and nothings else. Decarbonisation obviously needs a vast response in terms of systemic, technological, political, and infrastructural changes. However, embodied leadership makes all of this more likely due to the powerful signals it sends in terms of commitment and direction of travel. In the context of climate change as a highly-complex "super-wicked" problem that is largely caused by those trying to fix it (Levin et al., 2012), leading by example provides much-needed clarity and direction by establishing a physical, embodied connection between a global-scale problem and everyday life.

8.10 Contradictions

Several contradictions have been apparent in the research and are discussed throughout the thesis. I summarise these briefly below and suggest what they may mean for climate leadership.

In the focus groups, participants said **leaders should lead by example in principle, but there are more pressing things for them to do** (Chapter 4). The focus groups and Flight Free Survey revealed **negative responses to leaders, but approval of their low-carbon actions** (Chapters 4 & 7). The survey experiment appeared to show respondents' desire that **leaders should act first, but everyone should act at the same time** (Chapter 6). Several strands of data revealed that **politicians are not viewed as influential, but actually they are** (Chapters 4, 5 & 6). The focus group participants said that **leaders should make sacrifices, but only make small changes** (Chapter 4).

These contradictions confirm the complexity of a socially constructed world where meanings are contested and in constant flux, and emotions and attitudes are multi-valent, sometimes conflicting, and concurrent. The contradictions highlight the contestation surrounding issues of individual behaviour change and personal responsibility vs system change. They warn against a tendency towards reductive and simplistic conclusions, thereby adding important nuance to the quantitative survey data. In the context of the current research that focuses on leadership, I suggest these contradictions point towards the need for courage and commitment from leaders. The role of leaders laid out in Chapter 2 is to curate and communicate a vision, forge collective meanings, motivate and inspire, especially in times of uncertainty and crisis. Leaders who aspire to lead by example with low-carbon behaviour will need the conviction to face down these contradictions by setting a clear and decisive path.

8.11 Critical approach

In Chapter 3 I outlined the principles of a critical approach to the research, with a starting point that climate leadership so far has failed to bring about significant behaviour change. The five principles underpinning a critical approach were cited as: researcher reflexivity; a focus on power differentials; conflicts and contradictions; a big picture analysis; and the acknowledgement of normative judgements within the research (Death, 2013). Power differentials, a big picture analysis, normative judgements, and contradictions have been evident in this chapter and the thesis so far. Reflexivity will therefore be discussed next.

8.11.1 Reflexivity and reflections

Reflexivity requires the researcher to reflect upon and lay out their motivations, biases, and aspirations for their research. Prior to and throughout the research I have felt a recurring sense that the behavioural example set by high-profile leaders is not commensurate with the climate crisis and the urgent need to bring down emissions. Obvious examples of this are then UK Prime Minister Boris Johnson taking a private jet flight to London from the COP26 climate conference, Leonardo Di Caprio holidaying on a super yacht shortly after the launch of the climate film *Don't Look Up*, Jeff Bezos being given a platform at COP26 while also advocating for ultra-high-carbon space tourism. Such examples are accompanied by a general absence more widely of critical attention to the climate impacts of the lifestyles of high-consuming cohorts in wealthy nations. Although increasing attention *is* being paid to this in academia and some media (e.g. Akenji et al., 2021; Capstick, 2020), in policy circles and society more widely such discussions rarely move beyond abstract aspirations to “fairness”.

My relationship with this situation is often felt as a sense of injustice, a feeling that “*this is clearly wrong because it means overconsumption and extreme emissions inequality will continue, when very rapid behaviour change is required.*” I suspect that the ongoing high-carbon behaviour of leaders is stalling progress and dampening a widespread sense of urgency within society.

Clearly this perspective indicates a strong affinity with my hypotheses about the efficacy of, and need for, overt behaviour change from leaders. The risk therefore is that I have designed my research simply to find what I am looking for, paying less attention, consciously or unconsciously, to evidence that might contradict my hypotheses. In view of this, I have aimed to provide a thick description of the qualitative data and consciously attempted to include evidence that might be viewed as contradicting my hypotheses. Such evidence can be seen in the focus groups (see chapter 4) where leaders’ actions received a very mixed response; in the MP interviews, where the realities of leadership are said to make performative behaviour liable to backfire; in the experimental survey where the apparent effect of leading by example on respondents’ willingness to act is acknowledged as small; in the flight free survey which could be said to be sampling a small environmentally-minded segment of the population. The reader of the research is best placed to judge the robustness of my research design and the coherence of my conclusions, alert to my potential biases.

During the four years I’ve been working on this PhD I have had many conversations where I have explained my research topic. People’s reaction is often: “but isn’t it just *obvious* they should lead by example?”. For many the answer seems to be clear.

Even the UK government’s behavioural experts suggest as much, including the quote at the beginning of this chapter that stated: “*Government institutions and **high-profile individuals should lead by example** and display committed and visible consistency with their own Net Zero narrative.*” (BEIS, 2021 emphasis added). The document was hastily deleted from the website a few hours after publication (Laville, 2021). So we seem to be at an impasse: still caught in a governance trap (Pidgeon, 2012); engaged in a “dance of partial commitment” (Jordan et al., 2022, p9); and confused by a leadership contradiction. I suggest that leading by example can spring an escape from the trap, conduct a dance of full commitment, and resolve the leadership contradiction.

If leaders lead by example with high-impact low-carbon behaviour they have the potential to send very strong signals that cut through the myriad complexities and uncertainties of climate action. By doing this they provide a clear message that climate change is serious;

that significant societal change is necessary and urgent; and that it is appropriate for leaders to go first. This has some profound implications: that consuming less energy by way of transport choices, home choices, diet choices, and even perhaps family choices, is good and necessary; that economic, political and cultural systems should be designed to facilitate this; and that those in positions of great power, whose lifestyle emissions are much higher than average, should do the most. This would be radical.

8.11.2 But is leading by example *realistic*?

Perhaps the strongest arguments against promoting leading by example as an intervention are twofold: First, ***it's just not going to happen***: a realist perspective on power and politics might take for granted that powerful elites will not voluntarily enact personal behaviour changes that might impinge on their prestige and reduce inequality; leaders simply will not adopt high-impact low-carbon behaviour for various reasons including: they don't want to; they don't believe it will work; it doesn't feel fair; it's not how they view their role as leaders; it requires too much perceived personal sacrifice; it doesn't fit with their theories of change or worldviews; they feel restricted by the interests they represent or by social and physical limitations; or they fear negative reactions. Second; ***high-impact behaviour low-carbon from leaders will be culturally divisive and counter-productive***. As alluded to by Jackson (2005), leading by example may result in "cultural protest" that divides people into separate groups of those in favour of behaviour change and those against, thus doing more harm than good. This division will preclude a unified response to climate change and turn off those who favour climate action but are not minded to make significant lifestyle changes.

While these arguments have merit, they can be countered. To the first argument, a simple answer is: *it will happen if leaders choose to make it happen*, a situation made more likely if the positive effects of leading by example are made apparent, and if the public demands such leadership. The evidence in this thesis goes some way to dispel arguments that leading by example won't work and so isn't worth doing. In view of this, leaders who do not lead by example could be viewed as choosing *not* to enact an effective climate solution.

To the second argument a counter-point is: perhaps facing up to cultural trauma (Brulle & Norgaard, 2019) and cultural protest is necessary to escape the governance trap (Pidgeon, 2012). Addressing climate change is already a highly contested area, and the elimination of greenhouse gas emissions continues to lag far behind what is required even where there is consensus around the need for action. Bringing behaviour change into the field of cultural contestation may force a more "realistic" appraisal of the societal transformations that are necessary to address the climate crisis.

8.12 Conclusion

The research presented in this thesis sheds light on the effects of leading by example with high-impact low-carbon behaviour. It provides novel insights into the potential of leading by example as a leadership intervention to promote lower-carbon lifestyles, increase leader credibility, and act as a form of public engagement on climate change. When leaders adopt high-impact low-carbon actions, it stimulates observers to interpret the meaning of the actions and increases the likelihood that they will adopt similar actions. Leaders who lead by example in this way enjoy greater approval and are considered to: care more about climate change, believe it's more serious, be more knowledgeable about it, and be more effective as leaders. However, this seemingly simple picture involves many layers of complexity. The conditions under which leading by example "works" are contingent on many specifics of the situation and the relationship between the leader and followers. A leader's low-carbon actions can elicit negative as well as positive reactions, which resolve themselves in uncertain ways. A clear insight of the research is that low-carbon leading by example sends strong signals and has power to stimulate change. The exploratory research in this thesis also lays the ground for a broad spectrum of further research on the nature of climate leadership and the importance of walking the talk.

8.13 Postscript: A vision of sustainable leadership

If the current structure and scale of global civilisation is to survive, leaders will soon have to model low-carbon, low impact living. The inherent tendency to imitate those with prestige, and for systems of status and power to reinforce and amplify themselves (Henrich, 2015) means social elites will have to limit the trappings of their status and success to modest, sustainable proportions: trimming, reducing, eschewing excess, thereby sending an ongoing signal that sufficiency should be prized instead of excessive luxury and unnecessary consumption (Baltruszewicz et al., 2023; Millward-Hopkins et al., 2020). This will require a revolution of collective meanings and an advancement of society. It will involve a rejection of many of the values that are currently celebrated: extreme individualism; the worship of acquisition; the Cartesian separation of body and mind. In place of these, collective well-being and planetary stewardship will be elevated. This will reinvigorate values and outlooks that pervade our history and our present, but ones that have been overwhelmed by modern ideologies of exceptionalism, unlimited growth, domination and accumulation. The models already exist. Lessons can be (re)learned from indigenous ways of living in balance with the Earth, such as *Buen vivir* (Vanhulst & Beling, 2014). It will not be easy of course.

Leaders are essential to this transformation. They have the power to create or destroy the vision of a sustainable civilisation. To make progress, they must *embody* lifestyles where their behaviours continually motivate others physically and symbolically towards, not away from, a society that lives in balance with the biosphere.

The question this thesis poses to leaders is... what are you going to *do*?

References

- Abidin, C., Brockington, D., Goodman, M. K., Mostafanezhad, M., & Richey, L. A. (2020). The Tropes of Celebrity Environmentalism. *Annual Review of Environment and Resources*, 45(1), 387–410. <https://doi.org/10.1146/annurev-environ-012320-081703>
- Adams, M. (2021). Critical psychologies and climate change. *Current Opinion in Psychology*, 42, 13–18. <https://doi.org/10.1016/j.copsyc.2021.01.007>
- Ahmad, M. G., Klotz, A. C., & Bolino, M. C. (2020). Can good followers create unethical leaders? How follower citizenship leads to leader moral licensing and unethical behavior. *Journal of Applied Psychology*. <https://doi.org/10.1037/apl0000839>
- Akenji, L., Bengtsson, M., Toivio, V., Lettenmeier, M., Fawcett, T., Parag, Y., Saheb, Y., Coote, A., Spangenberg, J. H., Capstick, S., Gore, T., Coscieme, L., Wackernagel, M., & Kenner, D. (2021). *1.5-Degree Lifestyles: Towards A Fair Consumption Space for All*. <https://hotorcool.org/1-5-degree-lifestyles/>
- Alexander, J. (2013). The case of the green vampire: Eco-celebrity, Twitter and youth engagement. *Celebrity Studies*, 4(3), 353–368. <https://doi.org/10.1080/19392397.2013.831625>
- Alvesson, M., & Einola, K. (2019). Warning for excessive positivity: Authentic leadership and other traps in leadership studies. *The Leadership Quarterly*, 30(4), 383–395. <https://doi.org/10.1016/j.leaqua.2019.04.001>
- Anderson, K. (2013). *Hypocrites in the air: Should climate change academics lead by example?* | kevinanderson.info. <https://kevinanderson.info/blog/hypocrites-in-the-air-should-climate-change-academics-lead-by-example/>
- Antonakis, J., Bastardo, N., Jacquart, P., & Shamir, B. (2016). Charisma: An Ill-Defined and Ill-Measured Gift. *Annual Review of Organizational Psychology and Organizational Behavior*, 3(1), 293–319. <https://doi.org/10.1146/annurev-orgpsych-041015-062305>
- Arnold, K. A., & Loughlin, C. (2010). Individually considerate transformational leadership behaviour and self sacrifice. *Leadership & Organization Development Journal*, 31(8), 670–686. <https://doi.org/10.1108/01437731011094748>
- Attari, S. Z., Krantz, D. H., & Weber, E. U. (2016). Statements about climate researchers' carbon footprints affect their credibility and the impact of their advice. *Climatic Change*, 138(1–2), 325–338. <https://doi.org/10.1007/s10584-016-1713-2>
- Attari, S. Z., Krantz, D. H., & Weber, E. U. (2019). Climate change communicators' carbon footprints affect their audience's policy support. *Climatic Change*, 154(3–4), 529–545. <https://doi.org/10.1007/s10584-019-02463-0>
- Avelino, F. (2017). Power in Sustainability Transitions: Analysing power and (dis)empowerment in transformative change towards sustainability. *Environmental Policy and Governance*, 27(6), 505–520. <https://doi.org/10.1002/et.1777>
- Avelino, F. (2021). Theories of power and social change. Power contestations and their implications for research on social change and innovation. *Journal of Political Power*, 0(0), 1–24. <https://doi.org/10.1080/2158379X.2021.1875307>
- Baltruszewicz, M., Steinberger, J. K., Paavola, J., Ivanova, D., Brand-Correa, L. I., & Owen, A. (2023). Social outcomes of energy use in the United Kingdom: Household energy footprints and their links to well-being. *Ecological Economics*, 205, 107686. <https://doi.org/10.1016/j.ecolecon.2022.107686>

- Barasi, L., & Murray, L. (2016). *Air Traffic Controls The hidden costs of a new London runway*. <https://s3-eu-west-1.amazonaws.com/media.afreeride.org/documents/Air+Traffic+Controls.pdf>
- Barr, S., Shaw, G., & Coles, T. (2011). Times for (Un)sustainability? Challenges and opportunities for developing behaviour change policy. A case-study of consumers at home and away. *Global Environmental Change*, 21(4), 1234–1244. <https://doi.org/10.1016/j.gloenvcha.2011.07.011>
- Barrett, J., Pye, S., Betts-Davies, S., Eyre, N., Broad, O., Price, J., Norman, J., Anable, J., Bennett, G., Brand, C., Carr-Whitworth, R., Marsden, G., Oreszczyn, T., Giesekam, J., Garvey, A., Ruyssevelt, P., & Scott, K. (2021). *The role of energy demand reduction in achieving net-zero in the UK*. Centre for Research into Energy Demand Solutions. <https://www.creds.ac.uk/publications/the-role-of-energy-demand-reduction-in-achieving-net-zero-in-the-uk/>
- Bartlett, N. (2019, June 28). *Deputy PM squirms as he admits flying to Manchester to discuss climate change*. Mirror. <https://www.mirror.co.uk/news/politics/deputy-pm-squirms-admits-flying-17270086>
- Bateman, T. S., & Mann, M. E. (2016). The supply of climate leaders must grow. *Nature Climate Change*, 6(12), 1052–1054. <https://doi.org/10.1038/nclimate3166>
- Bedford, T., Collingwood, P., Darnton, A., Evans, D., Gatersleben, B., Abrahamse, W., & Jackson, T. (2010). *Motivations for Pro-environmental behaviour—A research report completed for the Department for Environment, Food and Rural Affairs*. DEFRA. <https://randd.defra.gov.uk/ProjectDetails?ProjectId=15628>
- Bendell, J., Little, R., & Sutherland, N. (2018). The Seven Unsustainabilities of Mainstream Leadership. In B. Redekop, D. Rigling Gallagher, & R. Satterwhite (Eds.), *Innovation in Environmental Leadership* (1st ed.). Routledge. <https://doi.org/10.4324/9781315205892>
- Bickerstaff, K., Simmons, P., & Pidgeon, N. (2008). Constructing Responsibilities for Risk: Negotiating Citizen — State Relationships. *Environment and Planning A*, 40(6), 1312–1330. <https://doi.org/10.1068/a39150>
- Biden, J. (2020). *American Leadership | Joe Biden*. Joe Biden for President: Official Campaign Website. <https://joebiden.com/americanleadership/>
- Bilandzic, H., Kalch, A., & Soentgen, J. (2017). Effects of Goal Framing and Emotions on Perceived Threat and Willingness to Sacrifice for Climate Change. *Science Communication*, 39(4), 466–491. <https://doi.org/10.1177/1075547017718553>
- Boin, A., Hart, P., Stern, E., & Sundelius, B. (2017). *The Politics of Crisis Management: Public Leadership under Pressure*. Cambridge University Press. https://doi.org/10.1111/j.1467-9299.2007.00656_8.x
- Boin, A., Kuipers, S., & Overdijk, W. (2013). Leadership in Times of Crisis: A Framework for Assessment. *International Review of Public Administration*, 18(1), 79–91. <https://doi.org/10.1080/12294659.2013.10805241>
- Bolderdijk, J. W., Brouwer, C., & Cornelissen, G. (2018). When Do Morally Motivated Innovators Elicit Inspiration Instead of Irritation? *Frontiers in Psychology*, 8, 2362. <https://doi.org/10.3389/fpsyg.2017.02362>
- Bonaccio, S., O'Reilly, J., O'Sullivan, S. L., & Chiochio, F. (2016). Nonverbal Behavior and Communication in the Workplace: A Review and an Agenda for Research. *Journal of Management*, 42(5), 1044–1074. <https://doi.org/10.1177/0149206315621146>

- Bonini, L., Rotunno, C., Arcuri, E., & Gallese, V. (2022). Mirror neurons 30 years later: Implications and applications. *Trends in Cognitive Sciences*, 26(9), 767–781. <https://doi.org/10.1016/j.tics.2022.06.003>
- Borch, C. (2019). *Imitation, Contagion, Suggestion: On Mimesis and Society*. Routledge.
- Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. *Journal of Applied Psychology*, 100(2), 431–449. <https://doi.org/10.1037/a0038047>
- Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511812507>
- Boykoff, M. T., & Goodman, M. K. (2009). Conspicuous redemption? Reflections on the promises and perils of the ‘Celebrization’ of climate change. *Geoforum*, 40(3), 395–406. <https://doi.org/10.1016/j.geoforum.2008.04.006>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brighi, E. (2019). Charlie Hebdo and the two sides of imitation. In *Imitation, Contagion, Suggestion: On Mimesis and Society* (1st ed.). Routledge.
- Brooks, J. S., & Wilson, C. (2015). The influence of contextual cues on the perceived status of consumption-reducing behavior. *Ecological Economics*, 117, 108–117. <https://doi.org/10.1016/j.ecolecon.2015.06.015>
- Brosch, T. (2021). Affect and emotions as drivers of climate change perception and action: A review. *Current Opinion in Behavioral Sciences*, 42, 15–21. <https://doi.org/10.1016/j.cobeha.2021.02.001>
- Brown, K. W., & Kasser, T. (2005). Are Psychological and Ecological Well-being Compatible? The Role of Values, Mindfulness, and Lifestyle. *Social Indicators Research*, 74(2), 349–368. <https://doi.org/10.1007/s11205-004-8207-8>
- Brulle, R. J., & Norgaard, K. M. (2019). Avoiding cultural trauma: Climate change and social inertia. *Environmental Politics*, 28(5), 886–908. <https://doi.org/10.1080/09644016.2018.1562138>
- Bryman, A. (2016). *Social research methods* (Fifth edition). Oxford University Press.
- Butler, J. (1988). Performative Acts and Gender Constitution: An Essay in Phenomenology and Feminist Theory. *Theatre Journal*, 40(4), 519. <https://doi.org/10.2307/3207893>
- Cabinet Office. (2010). *MINDSPACE Influencing behaviour through public policy*. <https://www.instituteforgovernment.org.uk/sites/default/files/publications/MINDSPACE.pdf>
- Caillaud, S., & Flick, U. (2017). Focus Groups in Triangulation Contexts. In R. S. Barbour & D. L. Morgan (Eds.), *A New Era in Focus Group Research* (pp. 155–177). Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-58614-8_8
- Callahan, J. L., Whitener, J. K., & Sandlin, J. A. (2007). The Art of Creating Leaders: Popular Culture Artifacts as Pathways for Development. *Advances in Developing Human Resources*, 9(2), 146–165. <https://doi.org/10.1177/1523422306298856>
- Cannavò, P. F. (2010). Civic Virtue and Sacrifice in a Suburban Nation. In M. Maniates & J. M. Meyer (Eds.), *The Environmental Politics of Sacrifice*. The MIT Press. <https://doi.org/10.7551/mitpress/9780262014366.003.0084>

- Cappella, J. N., & Jamieson, K. H. (1996). News Frames, Political Cynicism, and Media Cynicism. *The ANNALS of the American Academy of Political and Social Science*, 546(1), 71–84. <https://doi.org/10.1177/0002716296546001007>
- Capstick, S., Demski, C., Sposato, R. G., Pidgeon, N., Spence, A., & Corner, A. (2015). *Public perceptions of climate change in Britain following the winter 2013/2014 flooding*. <http://orca.cf.ac.uk/74368/1/URG%2015-01%20Flood%20Climate%20report%201%20May%202015%20final.pdf>
- Capstick, S., Khosla, R., & Wang, S. (2020). Bridging the gap – the role of equitable low-carbon lifestyles. In *United Nations Environment Programme Emissions Gap Report 2020*.
- Capstick, S., Lorenzoni, I., Corner, A., & Whitmarsh, L. (2014). Prospects for radical emissions reduction through behavior and lifestyle change. *Carbon Management*, 5(4), 429–445. <https://doi.org/10.1080/17583004.2015.1020011>
- Capstick, S., Wang, S., Khosla, R., & Corner, A. (2020). *Achieving low-carbon and equitable lifestyle change*. <https://cast.ac.uk/wp-content/uploads/2021/01/CAST-Briefing06.pdf>
- Capstick, S., Whitmarsh, L., Poortinga, W., Pidgeon, N., & Upham, P. (2015). International trends in public perceptions of climate change over the past quarter century. *WIREs Climate Change*, 6(1), 35–61. <https://doi.org/10.1002/wcc.321>
- Carmichael, J. T., & Brulle, R. J. (2017). Elite cues, media coverage, and public concern: An integrated path analysis of public opinion on climate change, 2001–2013. *Environmental Politics*, 26(2), 232–252. <https://doi.org/10.1080/09644016.2016.1263433>
- Carrington, D. (2018). David Attenborough: Collapse of civilisation is on the horizon. *The Guardian*. <https://www.theguardian.com/environment/2018/dec/03/david-attenborough-collapse-civilisation-on-horizon-un-climate-summit>
- Cass, N., Lucas, K., Adeel, M., Anable, J., Buchs, M., Lovelace, R., Morgan, M., & Mullen, C. (2022). *Curbing excess: High energy consumption and the fair energy transition*.
- CAST. (2022). *Public worry about climate change and energy security in the cost-of-living crisis*. Cast Centre. <https://cast.ac.uk/wp-content/uploads/2022/11/CAST-Briefing-17.pdf>
- CCC. (2019). *Net-Zero-The-UKs-contribution-to-stopping-global-warming*. <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>
- Centola, D., Becker, J., Brackbill, D., & Baronchelli, A. (2018). Experimental evidence for tipping points in social convention. *Science*, 360(6393), 1116–1119. <https://doi.org/10.1126/science.aas8827>
- Chapman, D. A., Lickel, B., & Markowitz, E. M. (2017). Reassessing emotion in climate change communication. *Nature Climate Change*, 7(12), Article 12. <https://doi.org/10.1038/s41558-017-0021-9>
- Chatterton, T., & Wilson, C. (2014). The ‘Four Dimensions of Behaviour’ framework: A tool for characterising behaviours to help design better interventions. *Transportation Planning and Technology*, 37(1), 38–61. <https://doi.org/10.1080/03081060.2013.850257>
- Choi, Y., & Mai-Dalton, R. R. (1998). On the leadership function of self-sacrifice. *The Leadership Quarterly*, 9(4), 475–501. [https://doi.org/10.1016/S1048-9843\(98\)90012-1](https://doi.org/10.1016/S1048-9843(98)90012-1)

- Cialdini, R. B. (2003). Crafting Normative Messages to Protect the Environment. *Current Directions in Psychological Science*, 12(4), 105–109. <https://doi.org/10.1111/1467-8721.01242>
- Cialdini, R. B. (2007a). Descriptive Social Norms as Underappreciated Sources of Social Control. *Psychometrika*, 72(2), 263–268. <https://doi.org/10.1007/s11336-006-1560-6>
- Cialdini, R. B. (2007b). *Influence: The psychology of persuasion* (1st Revised). Collins.
- Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298. <https://doi.org/10.1080/17439760.2016.1262613>
- Collinson, D. (2005). Dialectics of leadership. *Human Relations*, 58(11), 1419–1442. <https://doi.org/10.1177/0018726705060902>
- Collinson, D. (2012). Prozac leadership and the limits of positive thinking. *Leadership*, 8(2), 87–107. <https://doi.org/10.1177/1742715011434738>
- Collinson, D. (2020). *False Positives: A Pandemic of Prozac Leadership*. International Leadership Association. <https://ilglobalnetwork.org/false-positives-a-pandemic-of-prozac-leadership/>
- Collinson, D., Smolović Jones, O., & Grint, K. (2018). ‘No More Heroes’: Critical Perspectives on Leadership Romanticism. *Organization Studies*, 39(11), 1625–1647. <https://doi.org/10.1177/0170840617727784>
- Collinson, M. (2018). What’s new about Leadership-as-Practice? *Leadership*, 14(3), 363–370. <https://doi.org/10.1177/1742715017726879>
- Corner, A. (2020). System change vs behaviour change is a false choice—Covid-19 shows how they’re connected. *Climate Outreach*. <https://climateoutreach.org/system-change-vs-behaviour-change-is-a-false-choice-covid-19-shows-how-theyre-connected/>
- Corner, A., Latter, B., & Badiali, C. (2022). *From Carbon Footprints to Cultural Influence*. <https://www.vision2025.org.uk/reports-guides/engaging-live-music-audiences-on-travel-choices/>
- Corner, A., & Randall, A. (2011). Selling climate change? The limitations of social marketing as a strategy for climate change public engagement. *Global Environmental Change*, 21(3), 1005–1014. <https://doi.org/10.1016/j.gloenvcha.2011.05.002>
- Cremer, D. D., & Knippenberg, D. van. (2004). Leader self-sacrifice and leadership effectiveness: The moderating role of leader self-confidence. *Organizational Behavior and Human Decision Processes*, 95(2), 140–155. <https://doi.org/10.1016/j.obhdp.2004.04.002>
- Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Fourth edition). SAGE Publications, Inc.
- Creutzig, F., Roy, J., Diaz-Jose, J., Geels, F. W., Grubler, A., Maizi, N., Masanet, E., Mulugetta, Y., Onyige, C. D., Perkins, P., Sanches-Pereira, A., & Weber, E. U. (2022). Demand, services and social aspects of mitigation. In *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter_05.pdf
- Cuilla, J. (2005). Integrating leadership with ethics: Is good leadership contrary to human nature? In J. Doh & S. Stumpf (Eds.), *Handbook on Responsible Leadership and*

Governance in Global Business. Edward Elgar Publishing Limited.
<https://doi.org/10.4337/9781845425562>

- Daldal, A. (2014). Power and Ideology in Michel Foucault and Antonio Gramsci: A Comparative Analysis. *Review of History and Political Science*, 2(2), 149–167.
- Daly, P., & Jones, A. (2021). *Miliband: I want to spearhead electric car revolution... but I do not own one*. Yahoo News. <https://uk.news.yahoo.com/miliband-want-spearhead-electric-car-134729251.html>
- De Cremer, D., Mayer, D. M., van Dijke, M., Schouten, B. C., & Bardes, M. (2009). When does self-sacrificial leadership motivate prosocial behavior? It depends on followers' prevention focus. *Journal of Applied Psychology*, 94(4), 887–899.
<https://doi.org/10.1037/a0014782>
- de Leeuw, E. D., Hox, J. J., & Boevé, A. (2016). Handling Do-Not-Know Answers: Exploring New Approaches in Online and Mixed-Mode Surveys. *Social Science Computer Review*, 34(1), 116–132. <https://doi.org/10.1177/0894439315573744>
- Death, C. (2013). *Critical Environmental Politics* (1st ed.). Routledge.
<https://doi.org/10.4324/9781315883076>
- Defra. (2008). *A framework for pro-environmental behaviours*.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb13574-behaviours-report-080110.pdf
- Defra. (2010). *2010 Omnibus Survey on Public attitudes and behaviours towards the environment*.
<http://webarchive.nationalarchives.gov.uk/20110704135447/http://archive.defra.gov.uk/evidence/statistics/environment/pubatt/index.htm>
- Demski, C., Butler, C., Parkhill, K. A., Spence, A., & Pidgeon, N. F. (2015). Public values for energy system change. *Global Environmental Change*, 34, 59–69.
<https://doi.org/10.1016/j.gloenvcha.2015.06.014>
- Devlin, S., & Bernick, S. (2015). *Managing aviation passenger demand with a frequent flyer levy*. https://neweconomics.org/uploads/files/58e9fad2705500ed8d_hzm6yx1zf.pdf
- DfT. (2014). *Public experiences of and attitudes towards air travel*.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/336702/experiences-of-attitudes-towards-air-travel.pdf
- DfT. (2015). *National Travel Survey 2015*.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/551437/national-travel-survey-2015.pdf
- Dirks, K. T., & Skarlicki, D. (2004). Trust in Leaders: Existing Research and Emerging Issues. In *The Russell Sage Foundation series on trust. Trust and distrust in organizations: Dilemmas and approaches* (p. 29). Russell Sage Foundation.
- Donders, A. R. T., van der Heijden, G. J. M. G., Stijnen, T., & Moons, K. G. M. (2006). Review: A gentle introduction to imputation of missing values. *Journal of Clinical Epidemiology*, 59(10), 1087–1091. <https://doi.org/10.1016/j.jclinepi.2006.01.014>
- Dooley, K., Holz, C., Kartha, S., Klinsky, S., Roberts, J. T., Shue, H., Winkler, H., Athanasiou, T., Caney, S., Cripps, E., Dubash, N. K., Hall, G., Harris, P. G., Lahn, B., Moellendorf, D., Müller, B., Sagar, A., & Singer, P. (2021). Ethical choices behind quantifications of fair contributions under the Paris Agreement. *Nature Climate Change*, 11(4), 300–305. <https://doi.org/10.1038/s41558-021-01015-8>

- Doyle, J., Farrell, N., & Goodman, M. K. (2017). *Celebrities and Climate Change* (Vol. 1). Oxford University Press. <https://doi.org/10.1093/acrefore/9780190228620.013.596>
- Dubois, G., Sovacool, B., Aall, C., Nilsson, M., Barbier, C., Herrmann, A., Bruyère, S., Andersson, C., Skold, B., Nadaud, F., Dorner, F., Moberg, K. R., Ceron, J. P., Fischer, H., Amelung, D., Baltruszewicz, M., Fischer, J., Benevise, F., Louis, V. R., & Sauerborn, R. (2019). It starts at home? Climate policies targeting household consumption and behavioral decisions are key to low-carbon futures. *Energy Research & Social Science*, *52*, 144–158. <https://doi.org/10.1016/j.erss.2019.02.001>
- Edelman. (2020a). *Edelman Trust Barometer 2020 Global*. Edelman. https://cdn2.hubspot.net/hubfs/440941/Trust%20Barometer%202020/2020%20Edelman%20Trust%20Barometer%20Global%20Report.pdf?utm_campaign=Global:%20Trust%20Barometer%202020&utm_source=Website
- Edelman. (2020b). *Edelman Trust Barometer 2020 UK Supplement*. Edelman. <https://www.edelman.co.uk/sites/g/files/aatuss301/files/2020-02/2020%20Edelman%20Trust%20Barometer%20UK%20Launch%20Deck.pdf>
- Ellemers, N., & Van der Toorn, J. (2015). Groups as moral anchors. *Current Opinion in Psychology*, *6*, 189–194. <https://doi.org/10.1016/j.copsyc.2015.08.018>
- Engelen, B., Thomas, A., Archer, A., & van de Ven, N. (2018). Exemplars and nudges: Combining two strategies for moral education. *Journal of Moral Education*, *47*(3), 346–365. <https://doi.org/10.1080/03057240.2017.1396966>
- Epitropaki, O., Kark, R., Mainemelis, C., & Lord, R. G. (2017). Leadership and followership identity processes: A multilevel review. *The Leadership Quarterly*, *28*(1), 104–129. <https://doi.org/10.1016/j.leaqua.2016.10.003>
- Evensen, D., Demski, C., Becker, S., & Pidgeon, N. (2018). The relationship between justice and acceptance of energy transition costs in the UK. *Applied Energy*, *222*, 451–459. <https://doi.org/10.1016/j.apenergy.2018.03.165>
- Fairhurst, G. T., & Grant, D. (2010). The Social Construction of Leadership: A Sailing Guide. *Management Communication Quarterly*, *24*(2), 171–210. <https://doi.org/10.1177/0893318909359697>
- Feinberg, M., & Willer, R. (2013). The Moral Roots of Environmental Attitudes. *Psychological Science*, *24*(1), 56–62. <https://doi.org/10.1177/0956797612449177>
- Ferguson, M. A., & Branscombe, N. R. (2010). Collective guilt mediates the effect of beliefs about global warming on willingness to engage in mitigation behavior. *Journal of Environmental Psychology*, *30*(2), 135–142. <https://doi.org/10.1016/j.jenvp.2009.11.010>
- Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). SAGE Publications Ltd. <http://uk.sagepub.com/en-gb/eur/discovering-statistics-using-ibm-spss-statistics/book257672>
- Fielding, K. S., & Hornsey, M. J. (2016). A Social Identity Analysis of Climate Change and Environmental Attitudes and Behaviors: Insights and Opportunities. *Frontiers in Psychology*, *7*, 121. <https://doi.org/10.3389/fpsyg.2016.00121>
- Finnish Govt. (2022). *Medium-term Climate Change Policy Plan: Towards a carbon-neutral society*. Ministry of the Environment Finland.
- Fisher, M. (2009). *Capitalist Realism: Is There No Alternative?* Zero Books. <https://www.johnhuntpublishing.com/zer0-books/our-books/capitalist-realism>

- Fiske, S. T. (2018). Stereotype Content: Warmth and Competence Endure. *Current Directions in Psychological Science*, 27(2), 67–73. <https://doi.org/10.1177/0963721417738825>
- Frimer, J. A., Biesanz, J. C., Walker, L. J., & MacKinlay, C. W. (2013). Liberals and conservatives rely on common moral foundations when making moral judgments about influential people. *Journal of Personality and Social Psychology*, 104(6), 1040–1059. <https://doi.org/10.1037/a0032277>
- Fritsche, I., Barth, M., Jugert, P., Masson, T., & Reese, G. (2018). A Social Identity Model of Pro-Environmental Action (SIMPEA). *Psychological Review*, 125(2), 245–269. <https://doi.org/10.1037/rev0000090>
- Fritz, C. O., Morris, P. E., & Richler, J. J. (2012). Effect size estimates: Current use, calculations, and interpretation. *Journal of Experimental Psychology: General*, 141(1), 2–18. <https://doi.org/10.1037/a0024338>
- Fuchs, D., Di Giulio, A., Glaab, K., Lorek, S., Maniates, M., Princen, T., & Röpke, I. (2016). Power: The missing element in sustainable consumption and absolute reductions research and action. *Journal of Cleaner Production*, 132, 298–307. <https://doi.org/10.1016/j.jclepro.2015.02.006>
- Gant, J. (2021, March 25). *Ed Miliband says UK needs 'electric cars'... But DOESN'T own one*. Mail Online. <https://www.dailymail.co.uk/news/article-9400979/Ed-Miliband-declares-UK-needs-electric-car-revolution-admitting-DOESNT-one.html>
- Gardner, J. W. (2009). The Tasks of Leadership. In *The Jossey-Bass Reader on Nonprofit and Public Leadership*. John Wiley and Sons.
- Gemmill, G., & Oakley, J. (1992). Leadership: An Alienating Social Myth? *Human Relations*, 45(2), 113–129. <https://doi.org/10.1177/001872679204500201>
- Giannella, V. A., Pagliaro, S., & Barreto, M. (2022). Leader's morality, prototypicality, and followers' reactions. *The Leadership Quarterly*, 33(4), 101596. <https://doi.org/10.1016/j.leaqua.2021.101596>
- Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290–302. <https://doi.org/10.1037/a0023566>
- Gifford, R., & Comeau, L. A. (2011). Message framing influences perceived climate change competence, engagement, and behavioral intentions. *Global Environmental Change*, 21(4), 1301–1307. <https://doi.org/10.1016/j.gloenvcha.2011.06.004>
- Gill, R. (2011). *Theory and practice of leadership* (2nd ed.). SAGE.
- Glenberg, A. M. (2010). Embodiment as a unifying perspective for psychology: Embodiment as a unifying perspective. *Wiley Interdisciplinary Reviews: Cognitive Science*, 1(4), 586–596. <https://doi.org/10.1002/wcs.55>
- Glover, M. (2019). *World leaders 'have moral obligation to go vegan'*. The Ecologist. <https://theecologist.org/2019/feb/21/world-leaders-have-moral-obligation-go-vegan>
- Goldberg, M. H., van der Linden, S., Leiserowitz, A., & Maibach, E. (2020). Perceived Social Consensus Can Reduce Ideological Biases on Climate Change. *Environment and Behavior*, 52(5), 495–517. <https://doi.org/10.1177/0013916519853302>
- Goodwin, G. P., Piazza, J., & Rozin, P. (2014). Moral character predominates in person perception and evaluation. *Journal of Personality and Social Psychology*, 106(1), 148–168. <https://doi.org/10.1037/a0034726>

- Gore, T. (2015). *Extreme Carbon Inequality: Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first*.
<https://oxfamilibrary.openrepository.com/bitstream/handle/10546/582545/mb-extreme-carbon-inequality-021215-en.pdf>
- Gore, T. (2020). *Confronting Carbon Inequality: Putting climate justice at the heart of the COVID-19 recovery*.
<https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920-en.pdf>
- Gössling, S. (2019a). Celebrities, air travel, and social norms. *Annals of Tourism Research*, 79, 102775. <https://doi.org/10.1016/j.annals.2019.102775>
- Gössling, S. (2019b). *These celebrities cause 10,000 times more carbon emissions from flying than the average person*. The Conversation. <http://theconversation.com/these-celebrities-cause-10-000-times-more-carbon-emissions-from-flying-than-the-average-person-123886>
- Gössling, S., Humpe, A., & Bausch, T. (2020a). Does ‘flight shame’ affect social norms? Changing perspectives on the desirability of air travel in Germany. *Journal of Cleaner Production*, 266, 122015. <https://doi.org/10.1016/j.jclepro.2020.122015>
- Gössling, S., Humpe, A., & Bausch, T. (2020b). Does ‘flight shame’ affect social norms? Changing perspectives on the desirability of air travel in Germany. *Journal of Cleaner Production*, 122015. <https://doi.org/10.1016/j.jclepro.2020.122015>
- Grabo, A., Spisak, B. R., & van Vugt, M. (2017). Charisma as signal: An evolutionary perspective on charismatic leadership. *The Leadership Quarterly*, 28(4), 473–485. <https://doi.org/10.1016/j.leaqua.2017.05.001>
- Graeber, D., & Wengrow, D. (2021). *The Dawn of Everything: A New History of Humanity* (1st edition). Allen Lane.
- Graeber, D., & Wengrow, D. (2018). *How to change the course of human history*. <https://www.eurozine.com/change-course-human-history/>
- Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, 96(5), 1029–1046. <https://doi.org/10.1037/a0015141>
- Green, F. (2018). Anti-fossil fuel norms. *Climatic Change*, 150(1), 103–116. <https://doi.org/10.1007/s10584-017-2134-6>
- Grint, K. (2005). Problems, problems, problems: The social construction of ‘leadership’. *Human Relations*, 58(11), 1467–1494. <https://doi.org/10.1177/0018726705061314>
- Grint, K. (2010a). The Sacred in Leadership: Separation, Sacrifice and Silence. *Organization Studies*, 31(1), 89–107. <https://doi.org/10.1177/0170840609347054>
- Grint, K. (2010b). Wicked problems and clumsy solutions: The role of leadership. In *The New Public Leadership Challenge* (pp. 169–186). Palgrave Macmillan.
- Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology*, 98(3), 392–404. <https://doi.org/10.1037/a0017346>
- Gumbert, T. (2019). Freedom, autonomy, and sustainable behaviours: The politics of designing consumer choice. In *Power and politics in sustainable consumption research and practice*. Routledge.

- Guy, J. (2019, July 30). *Prince Harry says he is only having two children 'maximum' for the sake of the planet*. CNN. <https://www.cnn.com/2019/07/30/uk/prince-harry-babies-scli-intl/index.html>
- Haidt, J., & Joseph, C. (2004). Intuitive ethics: How innately prepared intuitions generate culturally variable virtues. *Daedalus*, 133(4), 55–66. <https://doi.org/10.1162/0011526042365555>
- Halverson, S. K., Holladay, C. L., Kazama, S. M., & Quiñones, M. A. (2004). Self-sacrificial behavior in crisis situations: The competing roles of behavioral and situational factors. *The Leadership Quarterly*, 15(2), 263–275. <https://doi.org/10.1016/j.leaqua.2004.02.001>
- Hammersley, M. (2011). *Methodology—Who needs it?* Sage.
- Hansen, P. G., & Jespersen, A. M. (2013). Nudge and the Manipulation of Choice: A Framework for the Responsible Use of the Nudge Approach to Behaviour Change in Public Policy. *European Journal of Risk Regulation*, 4(1), 3–28. <https://doi.org/10.1017/S1867299X00002762>
- Hares, A., Dickinson, J., & Wilkes, K. (2010). Climate change and the air travel decisions of UK tourists. *Journal of Transport Geography*, 18(3), 466–473. <https://doi.org/10.1016/j.jtrangeo.2009.06.018>
- Hargreaves, T. (2019). Pro-environmental behaviour change and governmentality: Counter-conduct and the making up of environmental individuals. In *Power and politics in sustainable consumption research and practice*. Routledge.
- Harth, N. S., Leach, C. W., & Kessler, T. (2013). Guilt, anger, and pride about in-group environmental behaviour: Different emotions predict distinct intentions. *Journal of Environmental Psychology*, 34, 18–26. <https://doi.org/10.1016/j.jenvp.2012.12.005>
- Haslam, S. A., Platow, M. J., Turner, J. C., Reynolds, K. J., McGarty, C., Oakes, P. J., Johnson, S., Ryan, M. K., & Veenstra, K. (2001). Social Identity and the Romance of Leadership: The Importance of being Seen to be 'Doing it for Us'. *Group Processes & Intergroup Relations*, 4(3), 191–205. <https://doi.org/10.1177/1368430201004003002>
- Haslam, S. A., Reicher, S. D., & Platow, M. J. (2020). *The New Psychology of Leadership: Identity, Influence and Power*. Routledge.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (pp. xvii, 507). Guilford Press.
- Helsloot, I., & Groenendaal, J. (2017). It's meaning making, stupid! Success of public leadership during flash crises. *Journal of Contingencies and Crisis Management*, 25(4), 350–353. <https://doi.org/10.1111/1468-5973.12166>
- Henrich, J. (2009). The evolution of costly displays, cooperation and religion. *Evolution and Human Behavior*, 30(4), 244–260. <https://doi.org/10.1016/j.evolhumbehav.2009.03.005>
- Henrich, J. (2015). *The Secret of Our Success: How Culture Is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*. Princeton University Press.
- Henrich, J., Chudek, M., & Boyd, R. (2015). The Big Man Mechanism: How prestige fosters cooperation and creates prosocial leaders. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 370(1683), 20150013. <https://doi.org/10.1098/rstb.2015.0013>
- Hickel, J. (2020). *Less is More: How Degrowth Will Save the World*. William Heinemann.

- Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey. *The Lancet Planetary Health*, 5(12), e863–e873. [https://doi.org/10.1016/S2542-5196\(21\)00278-3](https://doi.org/10.1016/S2542-5196(21)00278-3)
- Holzmer, D. (2013). Leadership in the Time of Liminality. In *The Embodiment of Leadership: A Volume in the International Leadership Series, Building Leadership Bridges*. John Wiley & Sons.
- Hoogendoorn, G., Sütterlin, B., & Siegrist, M. (2019). When good intentions go bad: The biased perception of the environmental impact of a behavior due to reliance on an actor's behavioral intention. *Journal of Environmental Psychology*, 64, 65–77. <https://doi.org/10.1016/j.jenvp.2019.05.003>
- Hornsey, M. J., & Fielding, K. S. (2016). A cautionary note about messages of hope: Focusing on progress in reducing carbon emissions weakens mitigation motivation. *Global Environmental Change*, 39, 26–34. <https://doi.org/10.1016/j.gloenvcha.2016.04.003>
- Hornsey, M. J., Harris, E. A., Bain, P. G., & Fielding, K. S. (2016). Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change*, 6(6), Article 6. <https://doi.org/10.1038/nclimate2943>
- Hornung, J. (2022). Social identities in climate action. *Climate Action*, 1(1), 4. <https://doi.org/10.1007/s44168-022-00005-6>
- Hosking, G. (2014). *Trust: A History*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198712381.001.0001>
- Hourdequin, M. (2010). Climate, Collective Action and Individual Ethical Obligations. *Environmental Values*, 19(4), 443–464. <https://doi.org/10.3197/096327110X531552>
- House of Lords. (2022). *In our hands: Behaviour change for climate and environmental goals*. <https://committees.parliament.uk/publications/30146/documents/174873/default/>
- Howell, D. (2013). *Statistical methods for psychology* (8th edition). Wadsworth Cengage Learning.
- Hunt, E. (2019, March 12). BirthStrikers: Meet the women who refuse to have children until climate change ends. *The Guardian*. <https://www.theguardian.com/lifeandstyle/2019/mar/12/birthstrikers-meet-the-women-who-refuse-to-have-children-until-climate-change-ends>
- Ipsos CAST. (2022). *Net Zero Living*. <https://www.ipsos.com/sites/default/files/ct/publication/documents/2022-06/net-zero-living-ipsos-cast-2022.pdf>
- Ipsos Mori. (2021). *Earth Day 2021: IPSOS Global Advisor—Public opinion on and action on climate change: GB and the world*. <https://www.ipsos.com/sites/default/files/ct/news/documents/2021-04/Earth%20Day%202021.pdf>
- Isenhour, C., Martiskainen, M., & Middlemiss, L. (2019). *Power and politics in sustainable consumption research and practice*. Routledge.
- Jackson, T. (2005). *Motivating sustainable consumption* (p. 30). <https://timjackson.org.uk/wp-content/uploads/2018/04/Jackson.-2005.-Motivating-Sustainable-Consumption.pdf>

- Jackson, T. (2006). Consuming paradise? Towards a social and cultural psychology of sustainable consumption. In T. Jackson (Ed.), *The Earthscan Reader on Sustainable Consumption* (pp. 387–390). Earthscan.
- Johnson, S. K., Murphy, S. E., Zewdie, S., & Reichard, R. J. (2008). The strong, sensitive type: Effects of gender stereotypes and leadership prototypes on the evaluation of male and female leaders. *Organizational Behavior and Human Decision Processes*, *106*(1), 39–60. <https://doi.org/10.1016/j.obhdp.2007.12.002>
- Jordan, A., Lorenzoni, I., Tosun, J., i Saus, J. E., Geese, L., Kenny, J., Saad, E. L., Moore, B., & Schaub, S. G. (2022). The political challenges of deep decarbonisation: Towards a more integrated agenda. *Climate Action*, *1*(1), 6. <https://doi.org/10.1007/s44168-022-00004-7>
- Jugert, P., Greenaway, K. H., Barth, M., Büchner, R., Eisentraut, S., & Fritsche, I. (2016). Collective efficacy increases pro-environmental intentions through increasing self-efficacy. *Journal of Environmental Psychology*, *48*, 12–23. <https://doi.org/10.1016/j.jenvp.2016.08.003>
- Keller, T. (1999). Images of the familiar: Individual differences and implicit leadership theories. *The Leadership Quarterly*, *10*(4), 589–607. [https://doi.org/10.1016/S1048-9843\(99\)00033-8](https://doi.org/10.1016/S1048-9843(99)00033-8)
- Kennedy, T. (2019, September 19). *MPs Took Hundreds of 'Unnecessary' Commuter Flights Last Year*. Vice. <https://www.vice.com/en/article/3kxvbw/politicians-internal-flights-uk-climate-emergency>
- Knights, D. (2021). *Leadership, Gender and Ethics: Embodied Reason in Challenging Masculinities* (1st ed.). Routledge. <https://doi.org/10.4324/9781351030342>
- Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Kouzes, J. M., & Posner, B. Z. (2004). Follower-Oriented Leadership. In G. Goethals, G. Sorenson, & J. Burns, *Encyclopedia of Leadership*. SAGE Publications, Inc. <https://doi.org/10.4135/9781412952392.n111>
- Kraft-Todd, G. T., Bollinger, B., Gillingham, K., Lamp, S., & Rand, D. G. (2018). Credibility-enhancing displays promote the provision of non-normative public goods. *Nature*, *563*(7730), 245–248. <https://doi.org/10.1038/s41586-018-0647-4>
- Kroesen, M. (2013). Exploring people's viewpoints on air travel and climate change: Understanding inconsistencies. *Journal of Sustainable Tourism*, *21*(2), 271–290. <https://doi.org/10.1080/09669582.2012.692686>
- Kurz, T., Gardner, B., Verplanken, B., & Abraham, C. (2015). Habitual behaviors or patterns of practice? Explaining and changing repetitive climate-relevant actions: Habitual behaviors or patterns of practice? *Wiley Interdisciplinary Reviews: Climate Change*, *6*(1), 113–128. <https://doi.org/10.1002/wcc.327>
- Ladkin, D., & Taylor, S. S. (2010). Enacting the 'true self': Towards a theory of embodied authentic leadership. *The Leadership Quarterly*, *21*(1), 64–74. <https://doi.org/10.1016/j.leaqua.2009.10.005>
- Laerd. (2022). *Two-way ANOVA in SPSS Statistics—Step-by-step procedure including testing of assumptions* | Laerd Statistics. <https://statistics.laerd.com/spss-tutorials/two-way-anova-using-spss-statistics.php>

- Lakoff, G. (1995). Metaphor, Morality, and Politics, Or, Why Conservatives Have Left Liberals In the Dust. *Social Research*, 62(2), 177–213.
- Lamb, W. F., Mattioli, G., Levi, S., Roberts, J. T., Capstick, S., Creutzig, F., Minx, J. C., Müller-Hansen, F., Culhane, T., & Steinberger, J. K. (2020). Discourses of climate delay. *Global Sustainability*, 3, e17. <https://doi.org/10.1017/sus.2020.13>
- Laussel, D., & Van Long, N. (2020). Tying the politicians' hands: The optimal limits to representative democracy. *Journal of Public Economic Theory*, 22(1), 25–48. <https://doi.org/10.1111/jpet.12388>
- Laustsen, L., & Bor, A. (2017). The relative weight of character traits in political candidate evaluations: Warmth is more important than competence, leadership and integrity. *Electoral Studies*, 49, 96–107. <https://doi.org/10.1016/j.electstud.2017.08.001>
- Laville, S. (2021). UK meat tax and frequent-flyer levy proposals briefly published then deleted. *The Guardian*. <https://www.theguardian.com/environment/2021/oct/20/meat-tax-and-frequent-flyer-levy-advice-dropped-from-uk-net-zero-strategy>
- Lee, T. M., Markowitz, E. M., Howe, P. D., Ko, C.-Y., & Leiserowitz, A. A. (2015). Predictors of public climate change awareness and risk perception around the world. *Nature Climate Change*, 5(11), Article 11. <https://doi.org/10.1038/nclimate2728>
- Lemke, T. (2001). 'The birth of bio-politics': Michel Foucault's lecture at the Collège de France on neo-liberal governmentality. *Economy and Society*, 30(2), 190–207. <https://doi.org/10.1080/03085140120042271>
- Lenton, T. M., Benson, S., Smith, T., Ewer, T., Lanel, V., Petykowski, E., Powell, T. W. R., Abrams, J. F., Blomsma, F., & Sharpe, S. (2022). Operationalising positive tipping points towards global sustainability. *Global Sustainability*, 5, e1. <https://doi.org/10.1017/sus.2021.30>
- Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences*, 45(2), 123–152. <https://doi.org/10.1007/s11077-012-9151-0>
- Leys, C., Klein, O., Dominicy, Y., & Ley, C. (2018). Detecting multivariate outliers: Use a robust variant of the Mahalanobis distance. *Journal of Experimental Social Psychology*, 74, 150–156. <https://doi.org/10.1016/j.jesp.2017.09.011>
- Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, 83(4), 854–864. <https://doi.org/10.1037/0022-3514.83.4.854>
- Londakova, K., Park, T., Jake, R., & Wodak, S. (2021). *Net Zero: Principles for successful behaviour change initiatives—BEIS Research Paper Number 2021/063*. BEIS. https://drive.google.com/file/d/1-NhoheMrPtm6Cf42LKPNZvCaeJFphrh/view?usp=embed_facebook
- Lord, R. G., Foti, R. J., & De Vader, C. L. (1984). A test of leadership categorization theory: Internal structure, information processing, and leadership perceptions. *Organizational Behavior and Human Performance*, 34(3), 343–378. [https://doi.org/10.1016/0030-5073\(84\)90043-6](https://doi.org/10.1016/0030-5073(84)90043-6)
- Lord, R. G., & Shondrick, S. J. (2011). Leadership and knowledge: Symbolic, connectionist, and embodied perspectives. *The Leadership Quarterly*, 22(1), 207–222. <https://doi.org/10.1016/j.leaqua.2010.12.016>
- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the mlq

- literature. *The Leadership Quarterly*, 7(3), 385–425. [https://doi.org/10.1016/S1048-9843\(96\)90027-2](https://doi.org/10.1016/S1048-9843(96)90027-2)
- Lukes, S. (2005). *Power a radical view* (2nd ed.). Palgrave Macmillan.
- Luttmer, E. F. P., & Singhal, M. (2014). Tax Morale. *Journal of Economic Perspectives*, 28(4), 149–168. <https://doi.org/10.1257/jep.28.4.149>
- Macias, T. (2015). Risks, Trust, and Sacrifice: Social Structural Motivators for Environmental Change*: Risks, Trust, and Sacrifice. *Social Science Quarterly*, 96(5), 1264–1276. <https://doi.org/10.1111/ssqu.12201>
- Mackay, C. M. L., Cristoffanini, F., Wright, J. D., Neufeld, S. D., Ogawa, H. F., & Schmitt, M. T. (2021). Connection to nature and environmental activism: Politicized environmental identity mediates a relationship between identification with nature and observed environmental activist behaviour. *Current Research in Ecological and Social Psychology*, 2, 100009. <https://doi.org/10.1016/j.cresp.2021.100009>
- Mann, M. E. (2021). *The New Climate War: The Fight to Take Back Our Planet*. Public Affairs.
- Mann, M. E., & Brockopp, J. (2019). *Climate change requires government action, not just personal steps*. USA Today. <https://www.usatoday.com/story/opinion/2019/06/03/climate-change-requires-collective-action-more-than-single-acts-column/1275965001/>
- Marais, E. (2021). *Space tourism: Rockets emit 100 times more CO₂ per passenger than flights – imagine a whole industry*. The Conversation. <http://theconversation.com/space-tourism-rockets-emit-100-times-more-co-per-passenger-than-flights-imagine-a-whole-industry-164601>
- Markowitz, E. M. (2012). Is climate change an ethical issue? Examining young adults' beliefs about climate and morality. *Climatic Change*, 114(3), 479–495. <https://doi.org/10.1007/s10584-012-0422-8>
- Masson-Delmotte, V., Pörtner, H.-O., Skea, J., Zhai, P., Roberts, D., Shukla, P. R., Pirani, A., Pidcock, R., Chen, Y., Lonnoy, E., Moufouma-Okia, W., Péan, C., Connors, S., Matthews, J. B. R., Zhou, X., Gomis, M. I., Maycock, T., Tignor, M., & Waterfield, T. (2018). *An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. IPCC.
- McCright, A. M., Dunlap, R. E., & Marquart-Pyatt, S. T. (2016). Political ideology and views about climate change in the European Union. *Environmental Politics*, 25(2), 338–358. <https://doi.org/10.1080/09644016.2015.1090371>
- Meijers, M. H. C., Noordewier, M. K., Verlegh, P. W. J., Zebregs, S., & Smit, E. G. (2019). Taking Close Others' Environmental Behavior Into Account When Striking the Moral Balance? Evidence for Vicarious Licensing, Not for Vicarious Cleansing. *Environment and Behavior*, 51(9–10), 1027–1054. <https://doi.org/10.1177/0013916518773148>
- Meindl, J. R. (1995). The romance of leadership as a follower-centric theory: A social constructionist approach. *The Leadership Quarterly*, 6(3), 329–341. [https://doi.org/10.1016/1048-9843\(95\)90012-8](https://doi.org/10.1016/1048-9843(95)90012-8)
- Melina, L. R. (2013). *The embodiment of leadership, Introduction* (First Edition). Jossey-Bass.
- Middlemiss, L., Isenhour, C., & Martiskainen, M. (2019). Introduction: Power, politics, and (un)sustainable consumption. In *Power and Politics in Sustainable Consumption Research and Practice*. Routledge.

- Millward-Hopkins, J., Steinberger, J. K., Rao, N. D., & Oswald, Y. (2020). Providing decent living with minimum energy: A global scenario. *Global Environmental Change*, *65*, 102168. <https://doi.org/10.1016/j.gloenvcha.2020.102168>
- Minson, J. A., & Monin, B. (2012). Do-Goooder Derogation: Disparaging Morally Motivated Minorities to Defuse Anticipated Reproach. *Social Psychological and Personality Science*, *3*(2), 200–207. <https://doi.org/10.1177/1948550611415695>
- Mols, F., Haslam, S. A., Jetten, J., & Steffens, N. K. (2015). Why a nudge is not enough: A social identity critique of governance by stealth. *European Journal of Political Research*, *54*(1), 81–98. <https://doi.org/10.1111/1475-6765.12073>
- Monin, B., Sawyer, P. J., & Marquez, M. J. (2008). The rejection of moral rebels: Resenting those who do the right thing. *Journal of Personality and Social Psychology*, *95*(1), 76–93. <https://doi.org/10.1037/0022-3514.95.1.76>
- Moore, F. C., Lacasse, K., Mach, K. J., Shin, Y. A., Gross, L. J., & Beckage, B. (2022). Determinants of emissions pathways in the coupled climate–social system. *Nature*, *603*(7899), Article 7899. <https://doi.org/10.1038/s41586-022-04423-8>
- Mundy, S. (2022). The carbon footprint fixation is getting out of hand. *Financial Times*. <https://www.ft.com/content/7135e4d8-96ec-4c2f-984b-855f1c83300a>
- Nash, N., Whitmarsh, L., Capstick, S., Hargreaves, T., Poortinga, W., Thomas, G., Sautkina, E., & Xenias, D. (2017). Climate-relevant behavioral spillover and the potential contribution of social practice theory. *WIREs Climate Change*, *8*(6), e481. <https://doi.org/10.1002/wcc.481>
- Nelson, S., & Allwood, J. (2021). Technology or behaviour? Balanced disruption in the race to net zero emissions. *Energy Research & Social Science*, *78*, 102124. <https://doi.org/10.1016/j.erss.2021.102124>
- Newell, P., Bulkeley, H., Turner, K., Shaw, C., Caney, S., Shove, E., & Pidgeon, N. (2015). Governance traps in climate change politics: Re-framing the debate in terms of responsibilities and rights: Governance traps in climate change politics. *Wiley Interdisciplinary Reviews: Climate Change*, *6*(6), 535–540. <https://doi.org/10.1002/wcc.356>
- Newell, P., Daley, F., & Twena, M. (2021). *Changing our ways? Behaviour change and the climate crisis*. The Cambridge Sustainability Commission on Scaling Behaviour Change.
- Newman, N., Fletcher, R., Schulz, A., Andi, S., & Nielsen, R. K. (2020). *Reuters Institute Digital News Report 2020* (p. 112). https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2020-06/DNR_2020_FINAL.pdf
- Ng, S., & Bradac, J. (1993). *Power in Language: Verbal communication and social influence*. SAGE Publications.
- Nicholas, K. A. (2017). Calling individual climate leaders. *Association for Women in Science*. http://www.kimnicholas.com/uploads/2/5/7/6/25766487/nicholas-2017-awis_2.pdf
- Nielsen, K. S., & Hofmann, W. (2021). Motivating sustainability through morality: A daily diary study on the link between moral self-control and clothing consumption. *Journal of Environmental Psychology*, 101551. <https://doi.org/10.1016/j.jenvp.2021.101551>
- Nielsen, K. S., Nicholas, K. A., Creutzig, F., Dietz, T., & Stern, P. C. (2021). The role of high-socioeconomic-status people in locking in or rapidly reducing energy-driven

- greenhouse gas emissions. *Nature Energy*, 1–6. <https://doi.org/10.1038/s41560-021-00900-y>
- Nießen, D., Beierlein, C., Rammstedt, B., & Lechner, C. M. (2020). An English-language adaptation of the Interpersonal Trust Short Scale (KUSIV3). *Measurement Instruments for the Social Sciences*, 2(1), 10. <https://doi.org/10.1186/s42409-020-00016-1>
- Nordensvard, J., & Ketola, M. (2021). Populism as an act of storytelling: Analyzing the climate change narratives of Donald Trump and Greta Thunberg as populist truth-tellers. *Environmental Politics*, 0(0), 1–22. <https://doi.org/10.1080/09644016.2021.1996818>
- Norman, G. (2010). Likert scales, levels of measurement and the “laws” of statistics. *Advances in Health Sciences Education*, 15(5), 625–632. <https://doi.org/10.1007/s10459-010-9222-y>
- Northouse. (2015). *Leadership: Theory and practice* (7th edition). Sage.
- Northouse, P. G. (2021). *Leadership: Theory and Practice* (9th edition). Sage.
- Nyborg, K., Anderies, J. M., Dannenberg, A., Lindahl, T., Schill, C., Schlüter, M., Adger, W. N., Arrow, K. J., Barrett, S., Carpenter, S., Chapin, F. S., Crépin, A.-S., Daily, G., Ehrlich, P., Folke, C., Jager, W., Kautsky, N., Levin, S. A., Madsen, O. J., ... Zeeuw, A. de. (2016). Social norms as solutions. *Science*, 354(6308), 42–43. <https://doi.org/10.1126/science.aaf8317>
- Odou, P., & Schill, M. (2020). How anticipated emotions shape behavioral intentions to fight climate change. *Journal of Business Research*, 121, 243–253. <https://doi.org/10.1016/j.jbusres.2020.08.047>
- Offermann, L. R., & Coats, M. R. (2018). Implicit theories of leadership: Stability and change over two decades. *The Leadership Quarterly*, 29(4), 513–522. <https://doi.org/10.1016/j.leaqua.2017.12.003>
- Olmedo, A., Milner-Gulland, E. J., Challender, D. W. S., Cugnière, L., Dao, H. T. T., Nguyen, L. B., Nuno, A., Potier, E., Ribadeneira, M., Thomas-Walters, L., Wan, A. K. Y., Wang, Y., & Verissimo, D. (2020). A scoping review of celebrity endorsement in environmental campaigns and evidence for its effectiveness. *Conservation Science and Practice*, 2(10), e261. <https://doi.org/10.1111/csp2.261>
- Oswald, Y., Owen, A., & Steinberger, J. K. (2020). Large inequality in international and intranational energy footprints between income groups and across consumption categories. *Nature Energy*, 5(3), 231–239. <https://doi.org/10.1038/s41560-020-0579-8>
- Otto, I. M., Donges, J. F., Cremades, R., Bhowmik, A., Hewitt, R. J., Lucht, W., Rockström, J., Allerberger, F., McCaffrey, M., Doe, S. S. P., Lenferna, A., Morán, N., van Vuuren, D. P., & Schellnhuber, H. J. (2020). Social tipping dynamics for stabilizing Earth’s climate by 2050. *Proceedings of the National Academy of Sciences*, 201900577. <https://doi.org/10.1073/pnas.1900577117>
- Otto, I. M., Kim, K. M., Dubrovsky, N., & Lucht, W. (2019). Shift the focus from the super-poor to the super-rich. *Nature Climate Change*, 9(2), 82–84. <https://doi.org/10.1038/s41558-019-0402-3>
- Otto, I. M., Wiedermann, M., Cremades, R., Donges, J. F., Auer, C., & Lucht, W. (2020). Human agency in the Anthropocene. *Ecological Economics*, 167, 106463. <https://doi.org/10.1016/j.ecolecon.2019.106463>

- Palan, S., & Schitter, C. (2018). Prolific.ac—A subject pool for online experiments. *Journal of Behavioral and Experimental Finance*, *17*, 22–27. <https://doi.org/10.1016/j.jbef.2017.12.004>
- Palm, R., Bolsen, T., & Kingsland, J. T. (2020). ‘Don’t Tell Me What to Do’: Resistance to Climate Change Messages Suggesting Behavior Changes. *Weather, Climate, and Society*, 1–29. <https://doi.org/10.1175/WCAS-D-19-0141.1>
- Parkhill, K., Demski, C., Butler, C., Spence, A., & Pidgeon, N. (2013). *Transforming the UK Energy System: Public Values, Attitudes and Acceptability Synthesis Report*. UKERC. [https://orca.cardiff.ac.uk/49200/1/SYNTHESIS%20FINAL%20\(SP\).pdf](https://orca.cardiff.ac.uk/49200/1/SYNTHESIS%20FINAL%20(SP).pdf)
- Parra Vargas, E., Philip, J., Carrasco-Ribelles, L. A., Alice Chicchi Giglioli, I., Valenza, G., Marín-Morales, J., & Alcañiz Raya, M. (2023). The neurophysiological basis of leadership: A machine learning approach. *Management Decision*, ahead-of-print(ahead-of-print). <https://doi.org/10.1108/MD-02-2022-0208>
- Peattie, S., & Peattie, K. (2011). Social Marketing for a Sustainable Environment. In *The SAGE Handbook of Social Marketing* (pp. 343–358). SAGE Publications Ltd. <https://doi.org/10.4135/9781446201008.n24>
- Peeples, L. (2020). Face masks: What the data say. *Nature*, *586*(7828), Article 7828. <https://doi.org/10.1038/d41586-020-02801-8>
- Pelton, L. H. (1974). *The psychology of nonviolence*. Pergamon.
- Peradotto, J. J. (1984). Myth and Other Languages: A Paedagogic Exercise, with a Preface on Interpretative Theory in the Undergraduate Classroom. *The Classical World*, *77*(4), 209. <https://doi.org/10.2307/4349569>
- Perry, J. L. (2010). *The Jossey-Bass Reader on Nonprofit and Public Leadership*. 689.
- Perugini, M., Gallucci, M., & Costantini, G. (2018). A Practical Primer To Power Analysis for Simple Experimental Designs. *International Review of Social Psychology*, *31*(1), Article 1. <https://doi.org/10.5334/irsp.181>
- Peterson, A. (2010). Ordinary and Extraordinary Sacrifices: Religion, Everyday Life, and Environmental Practice. In *The Environmental Politics of Sacrifice*. The MIT Press.
- Pidgeon, N. (2012). Public understanding of, and attitudes to, climate change: UK and international perspectives and policy. *Climate Policy*, *12*(sup01), S85–S106. <https://doi.org/10.1080/14693062.2012.702982>
- Piketty, T. (2015). Carbon and inequality: From Kyoto to Paris. *Trends in the Global Inequality of Carbon Emissions (1998-2013) and Prospects for an Equitable Adaptation Fund*. Paris School of Economics. <http://www.ledevoir.com/documents/pdf/chancelpiketty2015.pdf>
- Pleasant, A., & Barclay, P. (2018). Why Hate the Good Guy? Antisocial Punishment of High Cooperators Is Greater When People Compete To Be Chosen. *Psychological Science*, *29*(6), 868–876. <https://doi.org/10.1177/0956797617752642>
- Plourde, A. M. (2009). Prestige Goods and the Formation of Political Hierarchy—A costly signaling model. In S. Shennan (Ed.), *Pattern and Process in Cultural Evolution*. University of California Press.
- Podsakoff, P. M., & Podsakoff, N. P. (2019). Experimental designs in management and leadership research: Strengths, limitations, and recommendations for improving publishability. *The Leadership Quarterly*, *30*(1), 11–33. <https://doi.org/10.1016/j.leaqua.2018.11.002>

- Pomerantz, A. (1986). Extreme case formulations: A way of legitimizing claims. *Human Studies*, 9(2–3), 219–229. <https://doi.org/10.1007/BF00148128>
- Poortinga, W., & Pidgeon, N. F. (2003). Exploring the Dimensionality of Trust in Risk Regulation. *Risk Analysis*, 23(5), 961–972. <https://doi.org/10.1111/1539-6924.00373>
- Poortinga, W., Whitmarsh, L., Steg, L., Böhm, G., & Fisher, S. (2019). Climate change perceptions and their individual-level determinants: A cross-European analysis. *Global Environmental Change*, 55, 25–35. <https://doi.org/10.1016/j.gloenvcha.2019.01.007>
- Pörtner, H.-O., Roberts, D. C., Tignor, M. M. B., Poloczanska, E. S., Mintenbeck, K., Alegría, A., Craig, M., Langsdorf, S., Löschke, S., Möller, V., Okem, A., & Rama, B. (Eds.). (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*.
- Pullen, A., & Vachhani, S. (2013). The materiality of leadership. *Leadership*, 9(3), 315–319. <https://doi.org/10.1177/1742715013486038>
- Quilter-Pinner, H., Statham, R., Jennings, W., & Valgarðsson, V. (2021). *Trust Issues—Dealing with Distrust in Politics* (p. 38). Institute for Public Policy Research (IPPR). <https://www.ippr.org/research/publications/trust-issues>
- Rabinovich, A., Morton, T. A., Postmes, T., & Verplanken, B. (2012). Collective self and individual choice: The effects of inter-group comparative context on environmental values and behaviour. *British Journal of Social Psychology*, 51(4), 551–569. <https://doi.org/10.1111/j.2044-8309.2011.02022.x>
- Rajan, S. C. (2010). Parental sacrifice as atonement for future climate change. In *The Environmental Politics of Sacrifice* (pp. 165–183). The MIT Press.
- Raworth, K. (2018). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (1st edition). Random House Business.
- Rayner, T., & Minns, A. (2015). *The challenge of communicating unwelcome climate messages*. The Tyndall Centre.
- Richardson, J. T. E. (2011). Eta squared and partial eta squared as measures of effect size in educational research. *Educational Research Review*, 6(2), 135–147. <https://doi.org/10.1016/j.edurev.2010.12.001>
- Rickards, L., Wiseman, J., & Kashima, Y. (2014). Barriers to effective climate change mitigation: The case of senior government and business decision makers: Barriers to effective mitigation actions on climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 5(6), 753–773. <https://doi.org/10.1002/wcc.305>
- Rinscheid, A., Pianta, S., & Weber, E. U. (2021). What shapes public support for climate change mitigation policies? The role of descriptive social norms and elite cues. *Behavioural Public Policy*, 5(4), 503–527. <https://doi.org/10.1017/bpp.2020.43>
- Rogers, W. S., & Willig, C. (2017). Sage Handbook of Qualitative Research Introduction. In C. Willig & W. S. Rogers, *The SAGE Handbook of Qualitative Research in Psychology* (pp. 1–14). SAGE Publications Ltd. <https://doi.org/10.4135/9781526405555.n1>
- Rogin, J. (2018). *Opinion | Finland's prime minister: 'Climate change is a real thing'*. Washington Post. <https://www.washingtonpost.com/opinions/2018/12/11/finlands-prime-minister-climate-change-is-real-thing/>

- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not So Different After All: A Cross-Discipline View Of Trust. *Academy of Management Review*, 23(3), 393–404. <https://doi.org/10.5465/amr.1998.926617>
- Sabherwal, A., Ballew, M. T., Linden, S. van der, Gustafson, A., Goldberg, M. H., Maibach, E. W., Kotcher, J. E., Swim, J. K., Rosenthal, S. A., & Leiserowitz, A. (2021). The Greta Thunberg Effect: Familiarity with Greta Thunberg predicts intentions to engage in climate activism in the United States. *Journal of Applied Social Psychology*, n/a(n/a). <https://doi.org/10.1111/jasp.12737>
- Sabur, R. (2019, July 29). Climate activist Greta Thunberg will use eco-friendly yacht to sail to New York for UN summit. *The Telegraph*. <https://www.telegraph.co.uk/news/2019/07/29/swedish-activist-greta-thunberg-set-sail-new-york-un-climate/>
- Salkind, N. J. (2010). Order effects. In N. J. Salkind (Ed.), *Encyclopedia of Research Design*. <https://doi.org/10.4135/9781412961288>
- Schuldt, J. P. (2017). Brief exposure to Pope Francis heightens moral beliefs about climate change. *Climatic Change*, 11. <https://doi.org/10.1007/s10584-016-1893-9>
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science*, 18(5), 429–434.
- Schumm, W. R., Pratt, K. K., Hartenstein, J. L., Jenkins, B. A., & Johnson, G. A. (2013). Determining Statistical Significance (Alpha) and Reporting Statistical Trends: Controversies, Issues, and Facts. *Comprehensive Psychology*, 2, 03.CP.2.10. <https://doi.org/10.2466/03.CP.2.10>
- Schwartz, D., & Loewenstein, G. (2017). The Chill of the Moment: Emotions and Proenvironmental Behavior. *Journal of Public Policy & Marketing*, 36(2), 255–268. <https://doi.org/10.1509/jppm.16.132>
- Shamir, B. (2007). From Passive Recipients to Active Co-producers—Followers' Roles in the Leadership Process. In *Follower Centered Perspectives on Leadership: A Tribute to the Memory of James R. Meindl*. IAP.
- Shell. (2022). *Cutting emissions from aviation*. Shell Global. <https://www.shell.com/energy-and-innovation/the-energy-future/decarbonising-aviation.html>
- Shove, E. (2010). Beyond the ABC: Climate Change Policy and Theories of Social Change. *Environment and Planning A*, 42(6), 1273–1285. <https://doi.org/10.1068/a42282>
- Shove, E. (2012). *The dynamics of social practice: Everyday life and how it changes*. SAGE.
- Shove, E., Watson, M., & Spurling, N. (2015). Conceptualizing connections: Energy demand, infrastructures and social practices. *European Journal of Social Theory*, 18(3), 274–287. <https://doi.org/10.1177/1368431015579964>
- Siegrist, M., Cvetkovich, G., & Roth, C. (2000). Salient Value Similarity, Social Trust, and Risk/Benefit Perception. *Risk Analysis*, 20(3), 353–362. <https://doi.org/10.1111/0272-4332.203034>
- Sinclair, A. (2005). Body Possibilities in Leadership. *Leadership*, 1(4), 387–406. <https://doi.org/10.1177/1742715005057231>
- Sinha, U. K. (2010). Climate Change and Foreign Policy: The UK Case. *Strategic Analysis*, 34(3), 397–408. <https://doi.org/10.1080/09700161003659095>

- Skatova, A., Spence, A., Leygue, C., & Ferguson, E. (2017). Guilty repair sustains cooperation, angry retaliation destroys it. *Scientific Reports*, 7(1). <https://doi.org/10.1038/srep46709>
- Smith, S. R., Christie, I., & Willis, R. (2020). Social tipping intervention strategies for rapid decarbonization need to consider how change happens. *Proceedings of the National Academy of Sciences*, 202002331. <https://doi.org/10.1073/pnas.2002331117>
- Sohlberg, J. (2017). The Effect of Elite Polarization: A Comparative Perspective on How Party Elites Influence Attitudes and Behavior on Climate Change in the European Union. *Sustainability*, 9(1), Article 1. <https://doi.org/10.3390/su9010039>
- Soron, D. (2019). Practice does not make perfect: Sustainable consumption, practice theory, and the question of power. In *Power and politics in sustainable consumption research and practice*. Routledge.
- Sparkman, G., & Attari, S. Z. (2020). Credibility, communication, and climate change: How lifestyle inconsistency and do-gooder derogation impact decarbonization advocacy. *Energy Research & Social Science*, 59, 101290. <https://doi.org/10.1016/j.erss.2019.101290>
- Spector, B. (2016). Carlyle, Freud, and the Great Man Theory more fully considered. *Leadership*, 12(2), 250–260. <https://doi.org/10.1177/1742715015571392>
- Spector, B. (2019). Moral leadership? Be careful what you wish for. *Leadership*, 15(1), 123–131. <https://doi.org/10.1177/1742715017736659>
- Spence, A., Goulden, M., Leygue, C., Banks, N., Bedwell, B., Jewell, M., Yang, R., & Ferguson, E. (2018). Digital energy visualizations in the workplace: The e-Genie tool. *Building Research & Information*, 46(3), 272–283. <https://doi.org/10.1080/09613218.2018.1409569>
- Spence, A., Poortinga, W., Butler, C., & Pidgeon, N. F. (2011). Perceptions of climate change and willingness to save energy related to flood experience. *Nature Climate Change*, 1(1), Article 1. <https://doi.org/10.1038/nclimate1059>
- Stadelmann-Steffen, I., Eder, C., Harring, N., Spilker, G., & Katsanidou, A. (2021). A framework for social tipping in climate change mitigation: What we can learn about social tipping dynamics from the chlorofluorocarbons phase-out. *Energy Research & Social Science*, 82, 102307. <https://doi.org/10.1016/j.erss.2021.102307>
- Steenjtes, K., Kurz, T., Barreto, M., & Morton, T. A. (2017). The norms associated with climate change: Understanding social norms through acts of interpersonal activism. *Global Environmental Change*, 43, 116–125. <https://doi.org/10.1016/j.gloenvcha.2017.01.008>
- Steenjtes, K., Pidgeon, N. F., Poortinga, W., Corner, A. J., Arnold, A., Böhm, G., Mays, C., Poumadère, M., Ruddat, M., Scheer, D., & others. (2017). European Perceptions of Climate Change (EPCC): Topline findings of a survey conducted in four European countries in 2016. *EPCC*. <http://orca.cf.ac.uk/98660/7/EPCC.pdf>
- Steffens, N. K., Munt, K. A., van Knippenberg, D., Platow, M. J., & Haslam, S. A. (2020). Advancing the social identity theory of leadership: A meta-analytic review of leader group prototypicality. *Organizational Psychology Review*, 2041386620962569. <https://doi.org/10.1177/2041386620962569>
- Steg, L., Bolderdijk, J. W., Keizer, K., & Perlaviciute, G. (2014). An Integrated Framework for Encouraging Pro-environmental Behaviour: The role of values, situational factors and goals. *Journal of Environmental Psychology*, 38, 104–115. <https://doi.org/10.1016/j.jenvp.2014.01.002>

- Stewart, D. W., & Shamdasani, P. N. (2014). *Focus Groups: Theory and Practice* (Third edition). SAGE.
- Stoddard, I., Anderson, K., Capstick, S., Carton, W., Depledge, J., Facer, K., Gough, C., Hache, F., Hoolohan, C., Hultman, M., Hällström, N., Kartha, S., Klinsky, S., Kuchler, M., Lövbrand, E., Nasiritousi, N., Newell, P., Peters, G. P., Sokona, Y., ... Williams, M. (2021). Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve? *Annual Review of Environment and Resources*, *46*(1), 653–689. <https://doi.org/10.1146/annurev-environ-012220-011104>
- Stodgill, R. (1948). Personal factors associated with leadership: A survey of the literature. *The Journal of Psychology*.
- Stouten, J., van Dijke, M., Mayer, D. M., De Cremer, D., & Euwema, M. C. (2013). Can a leader be seen as too ethical? The curvilinear effects of ethical leadership. *The Leadership Quarterly*, *24*(5), 680–695. <https://doi.org/10.1016/j.leaqua.2013.05.002>
- Sussman, R., Greeno, M., Gifford, R., & Scannell, L. (2013). The Effectiveness of Models and Prompts on Waste Diversion: A Field Experiment on Composting by Cafeteria Patrons. *Journal of Applied Social Psychology*, *43*(1), 24–34. <https://doi.org/10.1111/j.1559-1816.2012.00978.x>
- Sweetman, J., & Whitmarsh, L. E. (2016). Climate Justice: High-Status Ingroup Social Models Increase Pro-Environmental Action Through Making Actions Seem More Moral. *Topics in Cognitive Science*, *8*(1), 196–221. <https://doi.org/10.1111/tops.12178>
- Swim, J. K., & Bloodhart, B. (2013). Admonishment and Praise: Interpersonal Mechanisms for Promoting Proenvironmental Behavior. *Ecopsychology*, *5*(1), 24–35. <https://doi.org/10.1089/eco.2012.0065>
- Tankard, M. E., & Paluck, E. L. (2016). Norm Perception as a Vehicle for Social Change: Vehicle for Social Change. *Social Issues and Policy Review*, *10*(1), 181–211. <https://doi.org/10.1111/sipr.12022>
- Tansey, M., & Kindsvatter, A. (2020). Moral Foundations Theory and Its Implications for Counseling. *Counseling and Values*, *65*(1), 95–107. <https://doi.org/10.1002/cvj.12124>
- Thaler, R. H., & Sunstein, C. R. (2021). *Nudge: The Final Edition*. Yale University Press.
- Thompson, S., Michaelson, J., Abdallah, S., Johnson, V., Morris, D., Riley, K., & Simms, A. (2011). *'Moments of change' as opportunities for influencing behaviour*. Defra. <https://orca.cardiff.ac.uk/id/eprint/43453/1/MomentsofChangeEV0506FinalReportNov2011%282%29.pdf>
- Thunberg, G. (2019). 'Our house is on fire': Greta Thunberg, 16, urges leaders to act on climate. *The Guardian*. <http://www.theguardian.com/environment/2019/jan/25/our-house-is-on-fire-greta-thunberg16-urges-leaders-to-act-on-climate>
- Tomkins, L. (2020). Where is Boris Johnson? When and why it matters that leaders show up in a crisis. *Leadership*, *16*(3), 331–342. <https://doi.org/10.1177/1742715020919657>
- Tomkins, L., Hartley, J., & Bristow, A. (2020). Asymmetries of leadership: Agency, response and reason. *Leadership*, *16*(1), 87–106. <https://doi.org/10.1177/1742715019885768>
- Tur, B., Harstad, J., & Antonakis, J. (2021). Effect of charismatic signaling in social media settings: Evidence from TED and Twitter. *The Leadership Quarterly*, 101476. <https://doi.org/10.1016/j.leaqua.2020.101476>
- Turpin, H., Andersen, M., & Lanman, J. A. (2019). CREDs, CRUDs, and Catholic scandals: Experimentally examining the effects of religious paragon behavior on co-religionist

- belief. *Religion, Brain & Behavior*, 9(2), 143–155.
<https://doi.org/10.1080/2153599X.2018.1439087>
- Uhl, I., Klackl, J., Hansen, N., & Jonas, E. (2018). Undesirable effects of threatening climate change information: A cross-cultural study. *Group Processes & Intergroup Relations*, 21(3), 513–529. <https://doi.org/10.1177/1368430217735577>
- UK Climate Assembly. (2020). *The Path to Net Zero*. House of Commons.
<https://www.climateassembly.uk/recommendations/www.climateassembly.uk/report/>
- UK Govt. (2021). *Net Zero Strategy: Build Back Greener*. UK Government.
<https://www.gov.uk/government/publications/net-zero-strategy>
- UNFCCC. (2015). *Paris Agreement*. United Nations.
https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- Upbeat leadership: A recipe for – or against – “successful” leadership studies. (2020). *The Leadership Quarterly*, 31(6), 101439. <https://doi.org/10.1016/j.leaqua.2020.101439>
- Van Boven, L., & Sherman, D. K. (2021). Elite influence on public attitudes about climate policy. *Current Opinion in Behavioral Sciences*, 42, 83–88.
<https://doi.org/10.1016/j.cobeha.2021.03.023>
- van Knippenberg, B., & van Knippenberg, D. (2005). Leader Self-Sacrifice and Leadership Effectiveness: The Moderating Role of Leader Prototypicality. *Journal of Applied Psychology*, 90(1), 25–37. <https://doi.org/10.1037/0021-9010.90.1.25>
- van Knippenberg, D. (2011). Embodying who we are: Leader group prototypicality and leadership effectiveness. *The Leadership Quarterly*, 22(6), 1078–1091.
<https://doi.org/10.1016/j.leaqua.2011.09.004>
- Van Vugt, M. (2006). Evolutionary Origins of Leadership and Followership. *Personality and Social Psychology Review*, 10(4), 354–371.
https://doi.org/10.1207/s15327957pspr1004_5
- Van Zant, A. B., & Moore, D. A. (2015). Leaders’ Use of Moral Justifications Increases Policy Support. *Psychological Science*, 26(6), 934–943.
<https://doi.org/10.1177/0956797615572909>
- Vanhulst, J., & Beling, A. E. (2014). Buen vivir: Emergent discourse within or beyond sustainable development? *Ecological Economics*, 101, 54–63.
<https://doi.org/10.1016/j.ecolecon.2014.02.017>
- Vesely, S., Masson, T., Chokrai, P., Becker, A. M., Fritsche, I., Klöckner, C. A., Tiberio, L., Carrus, G., & Panno, A. (2021). Climate change action as a project of identity: Eight meta-analyses. *Global Environmental Change*, 70, 102322.
<https://doi.org/10.1016/j.gloenvcha.2021.102322>
- Walls, J., Pidgeon, N., Weyman, A., & Horlick-Jones, T. (2004). Critical trust: Understanding lay perceptions of health and safety risk regulation. *Health, Risk & Society*, 6(2), 133–150. <https://doi.org/10.1080/1369857042000219788>
- Wang, J., & Wu, L. (2016). The impact of emotions on the intention of sustainable consumption choices: Evidence from a big city in an emerging country. *Journal of Cleaner Production*, 126, 325–336. <https://doi.org/10.1016/j.jclepro.2016.03.119>
- Wang, S., & van den Berg, B. (2021). Neuroscience and climate change: How brain recordings can help us understand human responses to climate change. *Current Opinion in Psychology*, 42, 126–132. <https://doi.org/10.1016/j.copsy.2021.06.023>

- Wapner, P. (2010). Sacrifice in an Age of Comfort. In M. Maniates & J. M. Meyer (Eds.), *The Environmental Politics of Sacrifice* (pp. 33–57). The MIT Press.
<https://doi.org/10.7551/mitpress/9780262014366.003.0023>
- Waquant, L. (1992). Toward a social praxeology: The structure and logic of Bourdieu's sociology. In *An invitation to reflexive sociology*. University of Chicago Press.
- Watt, N. (2007). *Carry on flying, says Blair—Science will save the planet | Business | The Guardian*. <https://www.theguardian.com/business/2007/jan/09/theairlineindustry.greenpolitics>
- Western, S. (2014). Autonomist leadership in leaderless movements: Anarchists leading the way. *Ephemera*, 14, 673–698.
- Western, S. (2019). *Leadership: A Critical Text* (Third edition). SAGE Publications Ltd.
- Westlake, S. (2017). *A Counter-Narrative to Carbon Supremacy: Do Leaders Who Give Up Flying Because of Climate Change Influence the Attitudes and Behaviour of Others?* Social Science Research Network. <https://papers.ssrn.com/abstract=3283157>
- Westlake, S. (2021). *How world leaders' high-carbon travel choices could delay climate action*. The Conversation. <http://theconversation.com/how-world-leaders-high-carbon-travel-choices-could-delay-climate-action-162784>
- Westlake, S. (2022, March 14). *Behavioural realism* [Tweet]. Twitter.
<https://twitter.com/steviedubyu/status/1503343385117179907>
- White, K., Habib, R., & Hardisty, D. J. (2019). How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework. *Journal of Marketing*, 83(3), 22–49. <https://doi.org/10.1177/0022242919825649>
- Whitmarsh, L., Capstick, S., Moore, I., Köhler, J., & Le Quéré, C. (2020). Use of aviation by climate change researchers: Structural influences, personal attitudes, and information provision. *Global Environmental Change*, 65, 102184.
<https://doi.org/10.1016/j.gloenvcha.2020.102184>
- Whitmarsh, L., & Corner, A. (2017). Tools for a new climate conversation: A mixed-methods study of language for public engagement across the political spectrum. *Global Environmental Change*, 42, 122–135. <https://doi.org/10.1016/j.gloenvcha.2016.12.008>
- Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology*, 30(3), 305–314.
<https://doi.org/10.1016/j.jenvp.2010.01.003>
- Whitmarsh, L., Poortinga, W., & Capstick, S. (2021). Behaviour change to address climate change. *Current Opinion in Psychology*, 42, 76–81.
<https://doi.org/10.1016/j.copsyc.2021.04.002>
- Whitmarsh, L., Seyfang, G., & O'Neill, S. (2011). Public engagement with carbon and climate change: To what extent is the public 'carbon capable'? *Global Environmental Change*, 21(1), 56–65. <https://doi.org/10.1016/j.gloenvcha.2010.07.011>
- Whitmarsh, L., Steentjes, K., Poortinga, W., Beaver, K., Gray, E., Skinner, G., & Thompson, S. (2021). *UK Public Support for Net Zero Policies. CAST Briefing Paper 9*.
<https://cast.ac.uk/wp-content/uploads/2021/10/CAST-Briefing-09.pdf>
- Williams, J. (2010). Bikes, Sticks, Carrots. In M. Maniates & J. M. Meyer (Eds.), *The Environmental Politics of Sacrifice* (p. 0). The MIT Press.
<https://doi.org/10.7551/mitpress/9780262014366.003.0100>

- Williams, R., Raffo, D. M., Randy Clark, W., & Clark, L. A. (2022). A systematic review of leader credibility: Its murky framework needs clarity. *Management Review Quarterly*. <https://doi.org/10.1007/s11301-022-00285-6>
- Willis, R. (2017). Taming the Climate? Corpus analysis of politicians' speech on climate change. *Environmental Politics*, 26(2), 212–231. <https://doi.org/10.1080/09644016.2016.1274504>
- Willis, R. (2018a). Building the political mandate for climate action. *Green Alliance*, 20.
- Willis, R. (2018b). Constructing a 'Representative Claim' for Action on Climate Change: Evidence from Interviews with Politicians. *Political Studies*, 66(4), 940–958. <https://doi.org/10.1177/0032321717753723>
- Willis, R. (2018c). How Members of Parliament understand and respond to climate change. *The Sociological Review*, 66(3), 475–491. <https://doi.org/10.1177/0038026117731658>
- Willis, R. (2020). *Too Hot to Handle? The Democratic Challenge of Climate Change*. Bristol University Press. <https://bristoluniversitypress.co.uk/too-hot-to-handle>
- Willis, R. (2022). Real people or 'economic processing units'? The limited understanding of people's roles in energy and climate governance. *Energy Research & Social Science*, 93, 102810. <https://doi.org/10.1016/j.erss.2022.102810>
- Wolsko, C., Ariceaga, H., & Seiden, J. (2016). Red, white, and blue enough to be green: Effects of moral framing on climate change attitudes and conservation behaviors. *Journal of Experimental Social Psychology*, 65, 7–19. <https://doi.org/10.1016/j.jesp.2016.02.005>
- Wynes, S., & Nicholas, K. A. (2017a). The climate mitigation gap: Education and government recommendations miss the most effective individual actions. *Environmental Research Letters*, 12(7), 074024. <https://doi.org/10.1088/1748-9326/aa7541>
- Wynes, S., & Nicholas, K. A. (2017b). The climate mitigation gap: Education and government recommendations miss the most effective individual actions. *Environmental Research Letters*, 12(7), 074024. <https://doi.org/10.1088/1748-9326/aa7541>
- Yang, F., Senewiratne, S., Newman, A., Sendjaya, S., & Chen, Z. (2021). Leader self-sacrifice: A systematic review of two decades of research and an agenda for future research. *Applied Psychology*, n/a(n/a). <https://doi.org/10.1111/apps.12407>
- YouGov. (2019). *Who are "the elite" in Britain?* | YouGov. <https://yougov.co.uk/topics/politics/articles-reports/2019/11/01/who-are-elite-britain>
- Zane, D. M., Irwin, J. R., & Reczek, R. W. (2016). Do less ethical consumers denigrate more ethical consumers? The effect of willful ignorance on judgments of others. *Journal of Consumer Psychology*, 26(3), 337–349. <https://doi.org/10.1016/j.jcps.2015.10.002>

Appendix A Focus groups

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A.1 Recruitment flyers for Focus Groups

A.1.1 Cardiff Groups



Focus Group
PARTICIPANTS NEEDED

Leadership and the Environment

Would you like to take part in a Focus Group discussion on this interesting topic?


No prior knowledge is required. Just turn up and talk!

Payment: £30 for a 2-hour Focus Group

Location: Tower Building, 70 Park Place, CF10 3AT, Cardiff (5-min walk from Cathays station). Free parking available.

Time: Wednesday 21 August, 6pm-8pm (arrive by 5.45pm)

Call or text Steve on 07793 143093 if you are interested or would like more information. Email: WestlakeST@cardiff.ac.uk

Focus Group
PARTICIPANTS NEEDED

Leadership and the Environment

Would you like to take part in a Focus Group discussion on this interesting topic?


No prior knowledge is required. Just turn up and talk!

Payment: £30 for a 2-hour Focus Group


Location: Tower Building, 70 Park Place, CF10 3AT, Cardiff (5-min walk from Cathays station). Free parking available.

Time: Wednesday 31 July, 6pm-8pm (arrive by 5.45pm)

Call or text Steve on 07793 143093 if you are interested or would like more information. Email: WestlakeST@cardiff.ac.uk



A.1.2 London Groups



Call for participants to take part in a Focus Group discussion on...

Leadership and the Environment

Would you like to contribute to research on this essential topic?

No prior knowledge is required – we are not looking for experts. All opinions are valued. Guided discussion with 6-8 other people.

Payment for taking part: £35 for a 2½-hour Focus Group

Where? The Space Centre, Kings Cross, London, WC1H 9NT

When? Tue 24 Sept, 6pm-8.15pm or Wed 25 Sept, 6pm-8.15pm

If you are interested or would like more information, please call or text Steve on 07793 143093 or email: WestlakeST@cardiff.ac.uk





Photo: Joshua Earle



Call for participants to take part in a Focus Group discussion on...

Leadership and the Environment

Would you like to contribute to research on this essential topic?

No prior knowledge is required – we are not looking for experts. All opinions are valued. Guided discussion with 6-8 other people.

Payment for taking part: £35 for a 2½-hour Focus Group

Where? The Space Centre, Kings Cross, London, WC1H 9NT

When? Tue 24 Sept, 6pm-8.15pm or Wed 25 Sept, 6pm-8.15pm

If you are interested or would like more information, please call or text Steve on 07793 143093 or email: WestlakeST@cardiff.ac.uk




Photo: Andrew Ly



Call for participants to take part in a Focus Group discussion on...

Leadership and the Environment

Would you like to contribute to research on this essential topic?

No prior knowledge is required – we are not looking for experts. All opinions are valued. Guided discussion with 6-8 other people.

Payment for taking part: £35 for a 2¼-hour Focus Group

Where? The Space Centre, Kings Cross, London, WC1H 9NT

When? Tue 24 Sept, 6pm-8.15pm or Wed 25 Sept, 6pm-8.15pm

If you are interested or would like more information, please call or text Steve on 07793 143093 or email: WestlakeST@cardiff.ac.uk



Photo: NOAA



Call for participants to take part in a Focus Group discussion on...

Leadership and the Environment

Would you like to contribute to research on this essential topic?

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When? Tue 24 Sept, 6pm-8.15pm or Wed 25 Sept, 6pm-8.15pm

If you are interested or would like more information, please call or text Steve on 07793 143093 or email: WestlakeST@cardiff.ac.uk



Photo: Eberhard Grossgasteiger

A.2 Information Sheet for Participants



Focus Group Research: “Leadership and the Environment”

Information Sheet for Participants

Information on the Research Project

The focus group is being undertaken as part of a research project for a PhD in the **School of Psychology at Cardiff University**. The lead researcher is Steve Westlake, who is supervised by Dr. Christina Demski and Professor Nick Pidgeon. Contact details are on the next page.

The research is investigating public attitudes towards leadership in relation to the environment.

What will your participation involve?

You will be asked to discuss your views on a number of issues in relation to the research topic in a group setting with around 6-8 other people. No prior knowledge of the subject is required or expected. The session will last for 2¼ hours with a short break in the middle. You will be asked to complete a short questionnaire at the end.

If at any point you change your mind about taking part in the research you can withdraw at any time by contacting us using the details provided below, or speaking with a member of the research team.

Anonymity and Confidentiality

Everything you say in the group and all of your personal information will remain confidential in accordance with British Psychological Society (BPS) 'Ethical principles for conducting research on human participants'. Your name will be changed to an 'alias' when the focus group discussion is transcribed (written up). In addition, the aliases will be used by the researchers in day-to-day discussions about the research. **In all related publications, quotes from the focus group will be made anonymous.** Only generic terms (e.g., gender, age, location) and the alias will be used to describe individual participants. The discussions in the focus group will be recorded using audio equipment. The recording will only be used to enable accurate transcription.

Who will have access to the information?

The focus group discussion will be transcribed by the lead researcher (Steve Westlake). The recording and transcript will only be accessed by the lead researcher and supervisors (Dr Demski, Prof Pidgeon), and with the permission of the research team, by other relevant researchers only. You may ask for access to the data (transcript and recording) or request that your data be destroyed at any time up until 2024, when the recording will be destroyed. Until then the data will be stored according to GDPR guidelines (see **Privacy Notice** below).

How will the data be used?

The data will be used in academic research and will be used to produce reports, presentations, conference papers, academic publications, and media articles related to the research. The data and/or subsequent publications may also be used for teaching purposes.

Honorarium

You will receive an honorarium of £35 to thank you for taking part in the research.

Who is funding the research?

The Research is wholly funded by the School of Psychology at Cardiff University.

The research team

Researcher:

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Tel: 029 2087 4567

If you have any concerns or complaints about this research, you can also contact: Secretary of the Ethics Committee, School of Psychology, Cardiff University, Tower Building, Park Place, Cardiff, CF10 3AT; Tel: 029 2087 0360; Email: psychethics@cardiff.ac.uk

Privacy Notice

All information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by the researcher, Steve Westlake. The lawful basis for the processing of the data you provide is consent.

The information on the consent form that you sign will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Steve Westlake, Dr Christina Demski and Prof Nick Pidgeon will have access to this information. After one month the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

A.3 Consent Form



School of Psychology, Cardiff University

“Leadership and the Environment”

Consent Form

I understand that my participation in this project will involve taking part in a 2¼ -hour focus group which will include a short questionnaire at the end. I understand and consent to the following conditions for the focus group:

- the focus group will involve discussion in a group setting, with input from a facilitator.
- I will receive a payment of £35 for taking part in the research.
- my participation in this study is entirely voluntary and I can withdraw from the study at any time without giving a reason and without loss of payment.
- the session will be recorded with audio equipment for transcription purposes only.
- I can withdraw my data from the study, up until the point the data is anonymised, by contacting the researcher.
- I am free to ask questions at any time, and I am free to discuss any concerns with the researcher (Steve Westlake) or the supervisors (Dr Christina Demski and Professor Nick Pidgeon). Contact details are on the next page.
- the information provided by me will be held **confidentially**, such that only Steve Westlake, Dr Demski and Prof Pidgeon can trace this information back to me individually.
- **my real name will not be used** in any subsequent reports or publications, and any quotations will be attributed to an alias using only generic identifying features (e.g., age, gender, location).
- anonymised data obtained in the focus group may be used in discussion with other researchers, in any ensuing presentations, reports, publications, websites, broadcasts, and in teaching.

- I can ask for the information I provide to be deleted/destroyed at any time (notwithstanding that some material may have already been used in publications/conferences) and I can have access to the information at any time up until 2024 when all original data will be destroyed.
- I understand that my personal data will be processed in accordance with GDPR regulations (see **Privacy Notice** on the next page).
- I have been provided with sufficient information on the project to give **informed consent** to take part in the focus group.

I, _____(NAME), consent to participate in the study conducted by Steve Westlake from the School of Psychology, Cardiff University under the supervision of Dr. Christina Demski and Prof. Nick Pidgeon.

Signed: _____

Date: _____

Privacy Notice

All information provided by participants will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by the researcher, Steve Westlake. The lawful basis for the processing of the data you provide is consent.

The information on this consent form will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years. The research information you provide will be used for the purposes of research only and will be stored securely. Only Steve Westlake, Dr Christina Demski and Prof Nick Pidgeon will have access to this information. After one month the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

The research team

Researcher:

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A.4 Debriefing notes



Focus Group debriefing notes

Research title: **Leading by example and climate change**

Thank you for participating in this study. The study is being carried out by researchers in the School of Psychology at Cardiff University. It aims to investigate what influence people in leadership positions who adopt “strong” pro-environmental behaviours because of climate change could have on other people. The research is exploring new kinds of leadership that might form part of a societal shift to more sustainable lifestyles to help tackle climate change.

The conversations that took place in this focus group may be used in a final report for publication in academic journals. However, **all participants will remain anonymous** and it will not be possible to identify you from the reports. In addition, the data from the focus groups will remain confidential, and your personal details will not be used for anything apart from analysis of the data. The data will be stored according to GDPR guidelines (see Privacy Notice below).

If you have any questions or require more information now or in the future, you can contact the researcher or their supervisor at the details below.

Researcher:

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If you have any concerns or complaints about this research, you can also contact: Secretary of the Ethics Committee, School of Psychology, Cardiff University, Tower Building, Park Place, Cardiff, CF10 3AT; Tel: 029 2087 0360; Email: psychethics@cardiff.ac.uk

Who is funding the research?

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The research information you provide will be used for the purposes of research only and will be stored securely. Only Steve Westlake, Dr Christina Demski and Prof Nick Pidgeon will have access to this information. After one month the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

A.5 Cue Material

The cue material content was described in Chapter 4. Below is how the material was presented to the participants, each on a piece of A4 paper.

A.5.1 Vignette 1

Member of UK Parliament (MP) says:

"Climate change is a serious problem, and in April the UK Parliament declared a Climate Emergency.

So I am going to stop flying – except for real emergencies. Sometimes it might be a challenge, but I think it is necessary.

I am also trying to reduce my overall carbon footprint in other ways."

A.5.2 Vignette 2

Director of a big company says:

"Climate change is a serious problem.

Our business is trying to be more sustainable, and personally I am adopting a plant-based diet because of the environmental impact of meat production. I like meat so it may not be easy, but I think it's necessary.

I am also trying to reduce my overall carbon footprint in other ways."

A.5.3 Vignette 3

Celebrity says:
(eg. TV presenter, actor, musician, sportsperson)

"Climate change is a serious problem.

My partner and I have thought about having a second child, but we are choosing not to because of the environment. It is a big decision, but we are happy it is the right thing to do.

We are trying to reduce our carbon footprint in other ways too."

A.5.4 Vignette 4

Local community leader says:

"Climate change is a serious problem.

Because of this, I am giving up my car and will use public transport as much as possible. The car is really useful, but this feels like the right decision.

I am trying to reduce my overall carbon footprint in other ways too."

A.5.5 Media example 1

Deputy PM squirms as he admits flying to Manchester to discuss climate change

David Lidington took a government helicopter to the northern city



David Lidington looked embarrassed about travelling by helicopter


David Lidington was left squirming after he was challenged on taking a helicopter on a visit to discuss climate change.

The de facto Deputy PM was visiting central Manchester, to discuss the Northern Powerhouse and reducing carbon emissions.

Source: Mirror (Bartlett, 2019; Photo: Crown Prosecution Service)

A.5.6 Media example 2

Climate activist Greta Thunberg will use eco-friendly yacht to sail to New York for UN summit



The Swedish teenager's social media-savvy brand of eco-activism has inspired tens of thousands of students

Greta Thunberg, the Swedish teenage climate activist who prompted a global movement, will embark on a two-week journey from the UK to the US on a high-tech racing yacht next month in order to attend a UN climate summit without resorting to plane travel.

Source: The Telegraph (Sabur, 2019; Photo: AP)

A.5.7 Media example 3 (2 stories)

Prince Harry says he is only having two children "maximum" for the sake of the planet



Prince Harry has said he plans to have two children at the most, as he revealed his growing concerns for the future of the Earth.

Source: CNN (Guy, 2019)

BirthStrikers: meet the women who refuse to have children until climate change ends

A movement of women have decided not to procreate in response to the coming 'climate breakdown and civilisation collapse'. Will their protest be a catalyst for change?



BirthStriker, founder of the BirthStrike movement with Alice Brown. Photograph: Linda Nyland/The Guardian

Source: Guardian (Hunt, 2019; Photo: Linda Nyland, Guardian)

A.5.8 Media example 4



Source: The Ecologist (Glover, 2019)

A.6 Survey at end of focus groups

This short questionnaire covers some of the topics we have discussed. It will take only a few minutes.

Name _____

What do you think about the idea of the politician (MP) saying they will stop flying because of climate change? (please tick one box)

- Strongly approve Mildly approve No opinion Mildly against Strongly against

How likely is it that a politician would do this, in your opinion?

- Very unlikely Quite unlikely 50/50 Quite likely Very likely

If they did this, how much do you think it might influence your own behaviour?

- Not at all Maybe a little Quite a lot A great deal

What do you think about the idea of the business leader saying they will give up meat because of climate change?

- Strongly approve Mildly approve No opinion Mildly against Strongly against

In your opinion, how likely is it that a business leader would do this?

- Very unlikely Quite unlikely 50/50 Quite likely Very likely

If they did this, how much do you think this might influence your own behaviour?

- Not at all Maybe a little Quite a lot A great deal

What do you think about the idea of the celebrity saying they will have only one child because of climate change?

- Strongly approve Mildly approve No opinion Mildly against Strongly against

In your opinion, how likely is it that a celebrity would do this?

- Very unlikely Quite unlikely 50/50 Quite likely Very likely

If they did this, how much do you think this might influence your own behaviour, or the behaviour of people you know?

- Not at all Maybe a little Quite a lot A great deal

What do you think about the idea of the local community leader saying they will give up their car because of climate change?

Strongly approve Mildly approve No opinion Mildly against Strongly against

In your opinion, how likely is it that a community leader would do this?

- Very unlikely Quite unlikely 50/50 Quite likely Very likely

If they did this, how much do you think this might influence your own behaviour?

- Not at all Maybe a little Quite a lot A great deal

To tackle climate change, how important or not is it that people in the public eye change their behaviour?

- Not at all important Moderately important Very important

To tackle climate change, how important or not is it that people in general change their behaviour?

- Not at all important Moderately important Very important

Which of these choices best describes your level of concern about human-caused climate change?

- Very concerned Moderately concerned A little bit concerned Not at all concerned I don't think humans are causing climate change

Was there anything else you wanted to say about the issues raised in the discussion or this questionnaire?

----- (continue on back page if required)

Please state your age -----

18. Please indicate which income bracket you fall into

- £0 - 15,000 per year £45,001 - £60,000 per year
 £15,001 - £30,000 per year £60,001 - £80,000 per year
 £30,001 - £45,000 per year £80,000+

Please state your occupation -----

20. Please state your nationality -----

21. Please indicate your gender

- Female

Male

N/A

That's it. Thank you!

Q15 Continued (as required)

A.7 Detailed summary of focus groups

This section provides an overview of the focus group discussions a whole, moving step-by-step through each piece of cue material.

A.7.1 Discussion on “What is Leadership?”

The focus groups began with a general discussion about leadership. The moderator introduced this as follows: “Ok, to start we'll just have a discussion about leadership in general and what you think leadership is, and what experiences you might have had of leadership, not necessarily relating to environmental, just leadership in general.” This discussion lasted for about 10 minutes, and the results are summarised below. Throughout the focus groups, the moderator let the discussion flow with very little intervention. The scope of the discussions therefore covered any aspects and examples of leadership that occurred to the participants. These included instances of leadership at work, but also discussions about political leadership, leadership in sports teams and the hierarchical nature of leadership in schools.

A.7.2 Direction of travel, vision, movement

The groups identified the role of leaders in providing a vision, a direction of travel, and convincing others to follow. The following extract touches on several of the themes that were mentioned within the focus groups. Many of these are familiar from the previous chapters on leadership theory.

“I think the [leadership] role can be very difficult, in that the buck stops with you, and you have to make the final decisions and you have to carry people along and often do things that are unpopular, but on the other hand you've got to be able to... bring the people along, give them the vision, and I think that's not easy, and it's a difficult job and, it's not easy also that the people who are attracted to the job don't always have those qualities. I think it's quite rare you've got someone who has... charisma and those social skills... the people skills.” (Female, FG4)

The idea of responsibility and decision-making is highlighted in the above extract, along with providing a vision and getting group buy-in for that vision. The need to “*carry people along*” suggests a supporting role, and the participant also notes that “*it’s a difficult job*” and that won’t necessarily result in popularity. Charisma and “social skills” are mentioned as desirable, if not always present, highlighting the relational nature of leadership and the need to work with followers. The role of leaders to provide inspiration, vision and direction of travel was a recurring theme in the discussions, with one participant describing the physical position of the leader at “*the point of the arrow*” (Male, FG4), and another saying good leadership keeps followers focused on a “*horizon view*” (Male, FG1) and guiding followers towards a destination. As such, physical position and movement are presented as central to leadership.

A.7.3 Natural basis for leadership, and hierarchy

Some participants put forward the view that leadership is “natural” with some people instinctively taking the lead (“*born leaders*”) and others naturally following, and being willing to do so. Aspects of charisma and confidence were highlighted as common characteristics, reflecting the literature on leadership traits (Northouse, 2015), along with the “natural” hierarchy involved in leadership that can be seen for example on a ship, with “*a captain at the top*”.

“I think it’s natural for some people to trail blaze and for other people to follow.” (Other: “yeah”). (Male, FG1)

“I think it’s a talent too, (Others: “mmm” [agreement]) Not everyone is cut out to be a leader. I remember when I was young I joined a youth group and there was a natural leader there and everyone flocked to him because he was just born to be a leader.” (Male, FG3)

“I agree with the personality thing actually. Now you’ve said it some people are just naturally... (Others: yeah [agreement]) cut out for it.” (Female, FG3)

“As human beings I think we need a structure and a hierarchy of some kind, because not everyone I don’t think is a natural leader. Some people do need to be led. I think it is important that you have a type of leader, whatever way that might be.” (Female, FG1)

These extracts reveal that participants have a reflexive understanding of the theory presented in Chapter 2 that suggests leadership is “natural” in the sense that humans have evolved to form leadership-followership relationships, and that leadership emerges spontaneously in groups without formal structures (Fritsche et al., 2018; Henrich, 2015).

“I think that's the irony or the difficulty of being a politician isn't it because people will criticise you if you appear to be undecided about something, and they'll also criticise you if you don't listen, so it's like, they're always going on about U-turns, but then surely that's an example of, “ok, so we've listened, people didn't like this idea so we're not going to do it”. (Male, FG3)

In the extract above we see a reflexive appreciation that leaders are in a difficult position, they are liable to criticism and “*they can't win*”. It is useful to consider this perspective as the focus group discussions are presented, especially bearing in mind the sometimes strong criticisms levelled at the leaders by the focus group participants. Often the initial criticism of leaders softened somewhat as participants reflected and discussed the cue materials.

A.7.4 Leading by example

At no point were participants informed that the subject of the research was leading by example, and yet leading by example was raised spontaneously in all four focus groups as being an important part of leadership, as the following extracts reveal.

“You've got to lead by example, and when I guess that doesn't happen, then it [leadership] sort of falls down, actions speak louder than words, [because] you can, tell me whatever I want to hear.” (Male, FG2)

The phrase “*actions speak louder than words*” provides a direct reference to the communicative quality of actions from leaders – by way of actions “speaking”. The quote above touches on the idea that words can be used to deceive (“*you can tell me whatever I want to hear*”), whereas deception is much harder in relation to actions. This relates directly to the theory of Credibility Enhancing Displays (CREDS), explored in Chapter 1, where leader behaviour communicates the leader’s beliefs in a way that is far less likely to be deceptive (Henrich, 2009).

“I play sport, and someone you look to as a leader and someone who can tell you what to do is someone... actions speak louder than words, so

instead of them telling you what to do, they'll lead by example.” (Male, FG2).

“I agree with that because I have a team leader who thought she was higher than she was... She did work hard at times, but at other times she'd be like ‘Well, I'm not doing that job because I've done that job for years’ [that's] not leading by example, you're just shouting orders at someone.” (Female, FG2)

In these quotes the participants linked the legitimacy and authority of leaders directly to leading by example. The same idea of legitimacy was also framed from the opposite standpoint: an absence of leading by example was associated with the negative idea of “*shouting orders*” instead. This idea will be revisited further below when discussing “preaching” in relation to the pro-environmental action of the leader.

In this very brief overview of the initial discussion in each focus group we see that participants' perspectives on leadership reflected quite closely many the concepts in the leadership literature examined in the previous Chapter 2. The functions of leadership cited by participants included: providing a direction of travel, a vision, securing group cooperation, motivating followers and making decisions. They discussed the natural basis for leadership and followership, leader charisma, the love/hate relationship between leaders and followers, and the importance of leading by example (Gill, 2011; Northouse, 2015; Western, 2019).

A.8 Discussion of Leader statements - 1st half of focus groups

Following the general discussion on leadership summarised above, the bulk of the focus groups were structured into eight sections lasting approximately ten minutes each. Each section was used to discuss a fictitious statement from a leader or a real story from the media. There follows a brief summary of the discussions for each 10-minute section. This summary helps to create an overall picture of how themes emerged, recurred and varied. This will be followed by an in-depth analysis of specific themes emerging from the focus groups.

Prior to the summary, it is relevant to note how the participants had likely been primed to consider leadership. They had been recruited to discuss “Leadership and the Environment”, as explained in Chapter 4. This phrase appeared on recruitment fliers and subsequent email confirmations prior to the groups being conducted. Furthermore, the opening 10 minutes of the focus group was spent on a “discussion about leadership”. In this way participants are very likely to have been “primed” to consider the subsequent fictitious leader statements and

media stories through the lens of leadership in relationship to the environment. Although the moderator used non-leading phrases such as “what is your response to this?” when initiating discussions about the cue material, because of the title of the of the focus group and initial discussion about leadership, participants may have assessed each piece of cue material with questions in mind such as “how is this person showing leadership?”, “will this work as a form of leadership?” and “do I like this leader?”. In this way, the responses may involve an appraisal of the leader’s effectiveness in the context of environmental issues, rather than being simply a response to the particular statement about a leader’s personal action.

A.8.1 Vignette 1

Member of UK Parliament (MP) says: "Climate change is a serious problem, and in April the UK Parliament declared a Climate Emergency. So I am going to stop flying – except for real emergencies. Sometimes it might be a challenge, but I think it is necessary. I am also trying to reduce my overall carbon footprint in other ways."

There were positive responses to the idea of an MP taking personal action by stopping flying because it signified a genuine commitment to the cause of climate change and reflects an alignment of values with action. Participants said this was a form of “leading by example” and could result in other people following the example set by the MP. However, this positive appraisal was very often countered by the view that taking personal action is not enough for an MP. The MP should use their power and wider influence to make societal changes – for instance introducing policies that will have a much wider effect to combat climate change. In this sense the focus groups converged towards a general feeling of dissatisfaction of the statement from the MP as being weak and insufficient, and not representing the leadership that people would expect to see. Overall, a very simple summary of the discussions is: “The MP deserves some credit for taking personal action, if they actually do it, and it might lead some people to consider their own behaviour, but this statement is not nearly enough”.

There was also uncertainty expressed about the relevance of not flying as a personal behaviour. During the discussions, participants were trying to make sense of the statement and of the action: What is the MP trying to do? Is it a good thing? Can they be trusted? What does it mean for me? What does it mean for society? Many participants expressed uncertainty and sometimes conflicting viewpoints.

A.8.2 Vignette 2

Director of a big company says: "Climate change is a serious problem. Our business is trying to be more sustainable, and personally I am adopting a plant-based diet because of

the environmental impact of meat production. I like meat so it may not be easy, but I think it's necessary. I am also trying to reduce my overall carbon footprint in other ways."

Some participants identified positively with the idea of giving up meat as they had done this themselves, or gone some way towards it. Again, however, a common reaction was that the statement was insufficient in the context of the director's position of influence and power. The potential to have a wider influence on their company was cited, and participants wanted more detail on what the company was doing to be more sustainable. The desire for more detail and speculation about the context of each statement was a common talking point in the vignettes. The language used in the statement was again identified as being weak, although it was noted that the Director's commitment to the action of adopting a plant-based diet was deemed stronger than the MP's, who was said to have a get-out clause by stating they would not fly "except in emergencies". As with the MP's statement, lack of trust and suspicion of motives was a consistent theme of the discussions. The relevance of a plant-based diet was questioned, as was the point of focusing on a single action. The leadership example set by the director was also not deemed to be sufficiently inspirational or relatable.

A.8.3 Vignette 3

Celebrity says: (e.g. TV presenter, actor, musician, sportsperson) "Climate change is a serious problem. My partner and I have thought about having a second child, but we are choosing not to because of the environment. It is a big decision, but we are happy it is the right thing to do. We are trying to reduce our carbon footprint in other ways too."

Some participants reacted quite strongly to this vignette. One said the statement was "*preachy*" and inappropriate, particularly coming from a celebrity, who was perceived to be telling people how to live their lives, which was not viewed as being their role. Other participants speculated on the negative environmental impact of the rest of the celebrity's behaviour and lifestyle, for instance "*if they're taking their private jet around*", which would undermine their choice to reduce family size. However, participants acknowledged the powerful influence of celebrities, both in their potential to raise awareness and to set a behavioural example that might be followed. Like the MP and the company director, the celebrity's position of power and influence was compared with their statement in the vignette, with the conclusion that "*they could do more*". The relevance of family size to the issue of climate change, and the sensitivity of the topic, was discussed in detail, including the "naturalness" of having two children to replace two parents, the need to have children because of an ageing population, and the perceived problems of increasing world population. The subject of family size was deemed important, but the statement from the

celebrity was often viewed negatively: *"It's a complex issue, I can't see this going down well"*. Prince Harry and Meghan Markle were cited as real people who had raised the same issue. The reaction to this vignette was often emotional and there were contrasting views expressed by the same person. The celebrity making a change in their life was seen by some as more authentic because they were viewed as less likely to be doing it for ulterior motives, although they might be doing it for attention.

A.8.4 Vignette 4

Local community leader says: "Climate change is a serious problem. Because of this, I am giving up my car and will use public transport as much as possible. The car is really useful, but this feels like the right decision. I am trying to reduce my overall carbon footprint in other ways too."

This statement was greeted generally much more positively than the previous three. One participant's immediate reaction of *"I feel warmer towards this one"* sums up the overall response within the groups. There were many reasons given for this. Participants said they felt closer to the idea of a Local Community Leader, although interestingly few actual examples were given by participants of specific local community leaders they had in mind. The action of the leader giving up their car was seen as more reasonable, manageable and relatable. The language of the statement was deemed to be stronger and more inspirational. Ideas of change from the bottom up rather than the top down were cited as a reason to be positive about the vignette, and there was universally more trust expressed in the Local Community Leader. A more detailed discussion revealed that the practicality of giving up a car was actually highly dependent on circumstances, but the appraisal of the Local Community Leader did not suffer under this scrutiny, in contrast to the MP, company director and celebrity. The relative lack of perceived power of the Local Community Leader was explicitly stated as being a reason for the positive view of their statement. Their influence over others was also described as being likely to be greater. It was mentioned that the statement from the Local Community Leader might not be viewed favourably by the motor industry or by those who have bought electric cars, highlighting the conflicting constituents some leaders represent.

Context and possible ordering effects

It is important to consider a few other contextual factors in relation to the positive reaction to Vignette 4. The Local Community Leader's statement followed three statements that had tended to prompt more negative appraisals overall from participants. They had raised some uncomfortable discussion topics, particularly Vignette 3 about having fewer children, which

directly preceded this one. Vignette 4 had also been flagged up in advance by the moderator as the last one in the first half of the focus group meeting. Both of these factors may have contributed to a desire among participants to be more positive about the statement, which may have had a self-reinforcing positive effect in the discussions. Because it came last, Vignette 4 was also assessed in comparison with the previous vignettes, whereas the first statement from the MP obviously could not be compared with anything else, and immediately followed a discussion about leadership. This ordering effect may imply that if the vignettes had been presented in a different order, the reactions may have been somewhat different. In this exploratory phase of the research, this possible ordering effect is not deemed to be problematic as no definitive conclusions are drawn, but future research could alter the order if this was deemed useful.

A.9 Discussion of media stories – 2nd half of focus groups

A.9.1 Media example 1 – Deputy PM takes helicopter to climate event

Deputy PM squirms as he admits flying to Manchester to discuss climate change

David Lidington took a government helicopter to the northern city



David Lidington looked embarrassed about travelling by helicopter

David Lidington was left squirming after he was challenged on taking a helicopter on a visit to discuss climate change.

The de facto Deputy PM was visiting central Manchester, to discuss the Northern Powerhouse and reducing carbon emissions.

The reaction to this story was mostly negative and often ridiculing. It was seen as a clear example of hypocrisy and the opposite of leading by example. The Deputy PM's action was also said to undermine the efforts of ordinary people to reduce their own carbon footprints. Participants said it justified the lack of trust expressed in leaders. There was some satisfaction that the politician had been caught out in this way. As well

as these quite harsh reactions, consideration was given to the possible reasons for the leader's choice to take the helicopter, and it was discussed whether a senior politician's busy schedules justified air travel. But because the journey could easily be done by train, this was not deemed a valid reason. There were differing views expressed about whether it was made worse by the fact that he was attending a climate event: some participants thought it was, while others said it didn't matter and politicians should always travel in the most climate-friendly way regardless of the purpose or destination. The symbolism of the action in this context was discussed, with a typical view that the helicopter flight looked bad and the leader had showed poor judgement. There was also discussion about the media's role in portraying politicians in compromising positions such as this one. The expression on the Deputy PM's face was interpreted as revealing a truth about the politician's feelings about being caught out, while at the same time it was understood that the image will have been picked by the media outlet specifically for this purpose. The story confirmed participants' previous

comments about politicians “*living in their own world*” and perceptions of their self-interested motivation for being in politics. In terms of identity, the leader was discussed almost exclusively as being in an out-group.

A.9.2 Media example 2 – Greta Thunberg takes low-carbon yacht to UN conference



There was a lot of positive reaction to this story and explicit support for Greta Thunberg, but also some less positive reactions and scepticism. It should be noted that the span of time over which the focus groups were scheduled meant that one took place prior to Thunberg’s actual trip across the Atlantic (14-28 August), one took place during the trip, and the final two groups happened about a month afterwards, meaning the awareness levels of Thunberg and

her trip were higher in the later groups where participants were likely to have been more exposed to information and the context of the trip. The action of sailing rather than flying was viewed by participants as being a form of leading by example and using her high-profile position to send a signal through her action. Conversely, the choice of a high-tech racing yacht was viewed somewhat negatively by some as being exclusive and not something that ordinary people could do due to time and accessibility. Taking a cargo ship would have been a better example according to some. The personal response to Thunberg herself varied from the positive (“*I’m a huge fan... she has that kind of authenticity*”) to negative (“*she’s too political*”). This appeared to be an example of leaders easily falling into hero or villain categories.

A.9.3 Media example 3 – Prince Harry and Meghan Markle, and BirthStrikers

Prince Harry says he is only having two children "maximum" for the sake of the planet



See Prince Harry speak about his new role as a father (12/11)
 Prince Harry has said he plans to have two children at the most, as he reveals it is becoming an issue to the future of the couple.

BirthStrikers: meet the women who refuse to have children until climate change ends

A movement of women have decided not to procreate in response to the coming climate breakdown and civilisation collapse. Will their protest be a catalyst for change?



BirthStrikers, founder of the BirthStrikers movement (10/11) Alice Brown Photograph: Linda hybrid The Guardian

The discussions around these two media stories revisited some of the reactions to Statement 3 in the first half (the celebrity choosing to have only one child). Ideas of being preached at and judged were mentioned, and that “*everything is being tinged with guilt*” – even having children. (This defensive reaction may also be related to the relatively late stage of the focus group session where there has been a constant focus on personal actions.) Consideration of world population and an ageing demographic were discussed as reasons that the topic of family size was a valid one. A female participant suggested that Prince Harry would be presented in the media as a hero, whereas the BirthStriker would likely be presented

as “*an angry feminist*”, highlighting how gender is a fundamental consideration with this

topic. Harry and Meghan’s other lifestyle choices – for instance taking private jets – were said to potentially undermine this decision to limit family size for the sake of the environment. The BirthStriker was often appraised quite negatively by participants. The decision to have no children was deemed to be her choice, but it was viewed as “extreme”, and some said it would not be effective in getting other people on board. The woman’s appearance was also commented on (“*she looks miserable*”), while participants highlighted that the media presentation was an important factor in this. The perceived message of the BirthStriker’s action led to some uncomfortable discussions about its wider implications (“*so we’re all going to die out?*”). Both media stories were deemed to be “stunty”, but it was accepted that they are raising the issue for discussion. One participant said that the two examples pointed to a “middle way” that wasn’t as “extreme” as the BirthStriker. Again the motivations of those involved were heavily scrutinised, with doubt expressed that the BirthStriker actually wanted children and so wasn’t making an pro-environmental sacrifice, or likewise that Harry and Meghan didn’t want a larger family than two children anyway.

A.9.4 Media example 4 – World Leaders have moral obligation to go vegan

World leaders 'have moral obligation to go vegan'



Are those in positions of power doing enough to protect our planet, and should they be encouraging everyone to do so?

Many of our world leaders have remained almost silent about the UN warning that we have just 12 years to halt a climate catastrophe. That's why the Billioin Dollar Vegan campaign offered \$2m to charity if Pope Francis chooses to eat only plant-based foods during Lent, and encourages Catholics around the world to do the same.

This example saw discussions around the effectiveness of going vegan, and whether it is a suitable campaign objective. Details about food miles for plant-based foods were mentioned. Expense was also mentioned as an explanation of how the issue of a plant-based diet is “complicated”. The Pope was identified as being very influential, although no one in the groups said that they personally would be

influenced by him (because they weren’t Catholic). The effect of leaders taking such action was deemed to be important – “*if they did this it would be hugely influential*”. The moderator prompted this discussion with the question: “Do world leaders have an obligation to set an example?” Some participants said “yes” explicitly, world leaders should make “sacrifices” as this would add to their credibility on the issue. There were also comments saying that the behavioural example they set should be achievable for ordinary people (e.g. giving up something for Lent rather than permanently).

Appendix B MP interviews

This appendix relates to the contents of Chapter 5 – MP Interviews

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B.1 Recruitment email to MPs



Dear <MP's first name>,

Leading by example and climate change

Request for 30-minute interview for PhD research project

I am conducting PhD research at Cardiff University (School of Psychology) into the role that leading by example might play in tackling climate change. I am writing to ask whether you, as a high-profile political leader, would be willing to take part in a fully confidential interview for this research, lasting for around 30 minutes, either by phone or face-to-face?

The interview would explore your views on the plausibility and potential effects of leaders who adopt high-impact pro-environmental behaviours, such as significantly reducing flying, going 'car-free', or adopting a meat-free diet. For instance, how and to what extent might such behaviours influence others to follow suit (or not), and how might these behaviours fit with, or work against, a leader's responsibilities and the real-life demands of the role?

As well as interviews with leaders in politics, business and entertainment, I am conducting focus groups with members of the public to investigate whether there is an 'appetite' for such visible leadership in the context of the climate emergency, and what effects this might have in terms of emulation by others and changes to the discourse around climate change and personal action.

Outputs from the research

The research will be used to produce academic papers, presentations, and reports on the topic of leading by example and climate change. There is a growing appreciation of the

importance of the social aspects of protecting the environment, exemplified by Prince Harry's recent statement about having a maximum of two children because of environmental concerns, and the varied reactions to this statement. Accordingly, I would expect this new avenue of research to have a high impact and make a valuable contribution to leadership theory in the context of climate change.

The research is being conducted under the supervision of Dr Christina Demski and Professor Nick Pidgeon, and is entirely funded by Cardiff University. There is some more information about the research below, including details on anonymity and confidentiality – both of which would be strictly respected.

If you would like any further information or perhaps an initial discussion prior to agreeing to an interview, do please let me know. I look forward to hearing whether the interview might be something you would consider. Very many thanks.

Yours sincerely,

Steve Westlake
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Cardiff University
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Further Information – Leading by example and climate change

Information on the Research Project

Interviews with leaders are being undertaken as part of a research project for a PhD in the School of Psychology at Cardiff University. The lead investigator is Steve Westlake, who is supervised by Dr. Christina Demski and Prof. Nick Pidgeon.

The research is investigating the potential role for leading by example when it comes to pro-environmental behaviour. Particularly, it is looking at the potential for leaders to adopt high-impact pro-environmental behaviour, and whether such behaviour may have a wider influence on others.

As well as interviews with leaders, focus groups are being conducted with members of the public to explore their views on leadership relating to the environment, and whether an appetite exists for such behaviour from leaders.

What will your Participation involve?

You will be asked about your views on the plausibility and potential impacts of leaders adopting high-impact pro-environmental behaviours, such as significantly reducing flying, going 'car-free', or adopting a meat-free diet. For instance, how might these behaviours fit in, or not, with a leader's responsibilities and the practicalities of the role? If you change your mind about taking part in the research you can withdraw at any time by contacting us using the details provided below, or speaking with a member of the research team.

Anonymity and Confidentiality

All data will remain confidential in accordance with British Psychological Society (BPS) 'Ethical principles for conducting research on human participants'. The level of anonymity and confidentiality you require will be agreed explicitly in advance. As required, your name

will be changed to an 'alias' when the interview is transcribed, and any information that could identify you will be removed. In addition, the aliases will be used by the researchers in day-to-day discussions about the research. In all related publications, quotes from the interviews will be attributed to pseudonyms as required. If you agree, the interview will be recorded using an audio recorder. This recording will be kept completely confidential and will be used for transcription purposes only.

Who will have access to the information?

The interview will be transcribed from the audio recording by the lead researcher, Steve Westlake. The recording and transcript will only be seen by the lead researcher and supervisors (Dr. Demski, Prof Pidgeon). You may ask to see the data or request that it be destroyed at any time up until 2024, when all the original data will be destroyed. The data will be stored according to GDPR guidelines (see Privacy Notice below).

How will the data be used?

The data will be used in academic research and will be used to produce reports, presentations, conference papers, and academic publications. The data and/or subsequent publications may also be used for teaching purposes.

Who is funding the research?

The Research is wholly funded by the School of Psychology at Cardiff University.

The research team

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If you have any concerns or complaints about this research, you can also contact: Secretary of the Ethics Committee, School of Psychology, Cardiff University, Tower Building, Park Place, Cardiff, CF10 3AT; Tel: 029 2087 0360; Email: psychethics@cardiff.ac.uk

Privacy Notice:

The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Steve Westlake. The lawful basis for the processing of the data you provide is consent.

The information on a consent form will be held securely and separately from the research information. Only the researcher will have access to this form and it will be destroyed after 7 years.

The research information you provide will be used for the purposes of research only and will be stored securely. Only Steve Westlake, Dr Christina Demski and Prof Nick Pidgeon will have

access to this information. After one month the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

B.2 Interview schedule

This interview schedule formed the basis of the questions to the MPs and indicates the subjects that were covered during the interviews, although the wording was not followed exactly in all cases, and some improvised supplementary questions were used at times. When the interviewee was pressed for time, the initial questions were skipped or combined in order to focus on specific questions about leading by example and pro-environmental behaviour.

I began the interview by thanking the interviewee, and giving them an outline of the research, and confirming that their answers would be presented anonymously.

B.2.1 Questions

- Could you please talk a little bit about leadership and what that means to you – your role as a leader, and perhaps also your experiences of leadership from others?
- Do you see leadership positions as involving the modelling of behaviour and leading by example? In other words, do you see yourself as a role model in the position you occupy, and in what way?
- How practical, realistic or desirable do you feel it is for you as an MP to be a role model? Is it problematic or complicated in any way?
- Do you have any sense that people follow your example generally? Is it possible to give an example?
- There has been quite a lot of talk recently about the role of personal choices when it comes to climate change and the environment, for example choices around flying, eating less meat, car driving, recycling. What are your thoughts on this?
- What are your views on the relevance of such personal behaviour choices when compared to systemic changes, for instance changes to energy generation, infrastructure and service provision?
- How possible or desirable would it be for you to publicly adopt what might be termed “strong” pro-environmental behaviour – for instance flying less, eating less meat, using a car less? Would you or could you do this and what might be the effect?
- What reaction might this generate – either positive or negative – for instance from the media/industry/colleagues/public?
- For instance, some people have signed a Flight Free 2020 pledge. Is this something that might be possible for an MP to do, and what might be the reaction?

- Would you perhaps be cautious about adopting behaviours that fall outside what is considered desirable and normal in society? Or would this be a relatively easy thing to do?
- Do you see a place for symbolic/performative behaviour in leadership – not necessarily related to the environment? (ie. Behaviour that communicates in some way)
- Was there anything else you wanted to say on this subject?

B.3 Brief summary of MP interviews

The brief summary below highlights some main themes from the interviews, as highlighted in bold.

Most of the MPs expressed a normative position that they should in general set an example through their behaviour, but they are **very cautious** about overt leading by example with high-impact low-carbon behaviour and adopting symbolic behaviour, for **fear of negative reactions** in the media and from constituents. Such terms as “virtue signalling” were used, and MPs were sensitive to the need for behavioural **consistency over time** rather than publicity stunts. An overall message was that **behaviour/action with a communicative purpose is risky** because it can be interpreted as “gesture politics” and can be misrepresented by the media or political rivals. Many of the MPs did already act pro-environmentally, but most said **they didn’t shout about it**, or words to that effect. Some said they did think it was important to be seen to be acting pro-environmentally because it **gave their pro-environmental arguments more credibility** and **provided protection against accusations of hypocrisy**. Some said that, while some constituents might approve of MP’s high-impact low-carbon behaviour, others might not approve, for instance business interests such as the car or aviation industries that might suffer from reduced demand for their services. In terms of leadership, most MPs framed leadership as **taking people with you** and **not getting too far ahead of where the public is**. They emphasised that leadership is about **persuasion** rather than dictation, and that MPs are **representatives** of their constituents. Indeed constituencies and constituents were often mentioned by MPs as underpinning their approach and actions. MPs used interesting language and rhetoric when discussing high-impact low-carbon behaviour and this sometimes involved an “**extreme case formulation**” (see Pomerantz 1986) that characterised personal action on climate change as involving absolutes of abstinence (“never” getting in a car/plane) or individual perfection or purity (“Trappist monks”). This language, which is commonly used by critics of environmental causes, was used even by MPs who were clearly very pro-environmental and

committed to advancing action on climate change. A **social justice framing** (Lamb et al., 2020) was also used as a reason to avoid the overt modelling of high-impact low-carbon behaviour. This was expressed as not wishing to penalise or alienate those who cannot afford new low-carbon technology choices or families who fly for an annual holiday. Some MPs said their privileged positions and relatively high incomes, while giving them more behavioural options than many members of the public, meant that conspicuous leading by example was unwise as it could appear elitist. The **practicalities and restrictions** involved in personal behaviour choices were widely mentioned by MPs, for example the need for MPs that live a long way from London to fly regularly to and from their constituencies. Such practicalities and logistical restrictions were said to be applicable to the public and constituents too.

Two MPs were sceptical of climate action in general, and one MP said climate change was not caused by human activities. The two sceptical MPs passionately criticised behavioural **hypocrisy** among climate advocates at all levels including MPs, NGOs, celebrities, and Extinction Rebellion activists (e.g. Emma Thompson). Interestingly, they were in favour of leading by example because it would reduce such hypocrisy, although they also took the view that such personal action was pointless when considering the bigger picture of global emissions.

Overall, the “taming” of climate change, as described above, was apparent in the interviews with MPs. There was little sense of crisis or emergency, or reference to an urgent need to bring about significant changes to people’s lifestyles (check). This may be related to MP’s broad representative remit and hyper-sensitivity to being portrayed as advocating seemingly unpopular changes to constituents’ lives. There were few references to the large differences between individuals’ environmental impacts, and how this relates to issues of justice and fairness. Similarly, the issues of social justice and fairness expressed by MPs focused almost entirely on protecting the less wealthy end of the spectrum, rather than addressing the wealthy whose lifestyles contribute much more to climate change. This unipolar focus appears to validate the increasingly common calls to “Shift the focus from the super-poor to the super-rich” (Otto et al., 2019) because of the very large disparity between individual emissions with and between nations (Akenji et al., 2021; Gössling, 2019a; Newell et al., 2021; Oswald et al., 2020; Piketty, 2015).

There follows a more detailed analysis of the MP’s responses in the interviews. This is presented using extensive quotes to allow the reader to form a rich understanding of how MPs spoke about the topics in question. Initially the MPs’ general views on leadership and

leading by example will be explored, followed by an exploration of how this relates to climate change and high-impact low-carbon behaviour as a form of leading by example.

B.4 MPs' views on leadership

The MPs were asked for their views on leadership in general and what it means to them, and their perspective on leading by example in principle. It should be noted that the interviews were arranged with an explicit topic specified as “Leading by example and climate change”, and in addition MPs were informed that the interview would cover ideas of individuals adopting high-impact low-carbon behaviour. They MPs were therefore likely to be viewing leadership through this lens.

The following extract encompasses several themes of leadership that were raised by many of the MPs. I have highlighted these in bold.

*“The leadership that I want to see, or want to be, is someone who **communicates** a strong **sense of direction**... I think a leader is someone who **takes people with them**, who **listens** and **responds** and **isn't afraid to take criticism** or change their view if presented with strong evidence. I think it's really important that a leader **models good behaviour**, so others will look to you, to show what good behaviours look like, and that can be in the workplace or in other settings. I think **consistency** is important, **not saying one thing and doing another**” (MP, emphasis added)*

This characterisation of leadership as involving communication, direction, cooperation, resilience, modelling, and consistency coincides clearly with many of the theories laid out in Chapter 2. A common framing expressed in the MP interviews was that leaders take people on a journey, emphasising the physical position of where people are now, and where they are going. One MP said leaders “*forge a direction forward*” (MP), hinting at the effort and constructive approach required of leaders. Communicating a vision was also said to be crucial for successful leadership:

“I think the best leaders are the ones who have a vision ... the ones that know where they're going to go and they know where they want to take people.” (MP)

The idea of creating a collective mission was emphasised in relation to political leadership:

“In politics leadership is about the doing and about taking people with you, not dragging [them] kicking and screaming, but taking them with you on this process” (MP).

“Leadership to me is about being inspirational. It's about getting the best out of people who are in your team and it's about setting an example for others to follow, in a nutshell.” (MP4)

Here we can see the emphasis on personal influence rather than coercive power (“not dragging kicking and screaming”). However, another MP suggested that enforcement is key to effective political leadership on issues of public safety and the environment, along with passion and the use of evidence:

“My idea of leadership is... if you're going to do something that's going to make a difference you've always got to have the passion... I used to say it's easy, what you do is you get great laws, and they must be based on excellent research, not kneejerk, not what you feel, it's what the research suggests actually saves lives ... then delivered and rigorously enforced.”
(MP)

The balance between a leader’s vision and the need to persuade and motivate followers was also emphasised by MPs. Simply having a strongly held conviction is not enough:

“Leadership would imply taking people in a certain direction but in order to do that you have to motivate people to want to go in that direction and persuade them that that is the correct think to do, and I think sometimes people run away with the idea that they can go off in a certain direction and assume that everyone will automatically follow and then be surprised when they don't.” (MP).

Persuasion was mentioned by several MPs as a crucial feature of leadership. This MP identified a tension between the need to listen to people and the urge to convince them about a particular way forward:

“Leadership is about staking out positions and persuading people. It's listening and persuasion. Depending on the style of leader some do more listening, others do more persuading but that's essentially the tension that's at the heart of any leadership.” (MP)

These ideas of listening and persuading were extended by one MP who suggested that challenging followers' perspectives was an important part of leadership:

“Leadership is sometimes and many times responding to things that you're told. I would say that leadership's more than that. Leadership is also about leading people in a way that would challenge them and perhaps enable them to look at things in a different way than perhaps they would in the past.” (MP)

Communication, clarity and trust were also highlighted as important factors in leadership:

“I feel that leadership is about clarity ... clarity of communication. So you need to let people know exactly why you're doing something and what you're doing.” (MP)

“It's built on trust really and relationships and clarity” (MP).

Achieving unity was also said to be an important leadership function:

“Leadership is about also bringing people together and uniting them” (MP)

The natural foundations of leadership were identified by one MP, raising the idea of natural leaders:

“I think the best leaders are those who are natural, they don't have to try too hard, but they are passionate about whatever they want to do, and you know they're involved, they're in it rather than above it.” (MP)

This last quote revisits the physical position of the leader with the phrase *“they're in it rather than above it”*. This resonates with the concept of embodied leadership explored in Chapter 2, where the physical involvement and position of the leader is central to the meanings that followers take from leaders' actions.

B.5 Number of quotes used from each MP

To protect the anonymity of the MPs, their quotes are not attributed to individually labelled MPs (e.g. MP1, MP2 etc) because this might make it easier to identify individual MPs from several of their quotes. In view of this, to give an idea of the spread of the contributions from the MPs, here I summarise how many quotes have been used from the MPs in Chapter 5 and Appendix B. The following data reveals that a reasonable spread of quotes has been used.

The total number of quotes used is 81. Mean quotes used per MP: 4.3; Median: 4; Mode: 3; Max quotes used: 9; Min quotes used: 1.

Number of quotes used from MP	Number of MPs
1	2
2	2
3	5
4	2
5	2
6	3
7	1
8	1
9	1
Total	19

Appendix C Survey experiment

This appendix relates to the contents of Chapter 6 – Survey experiment.

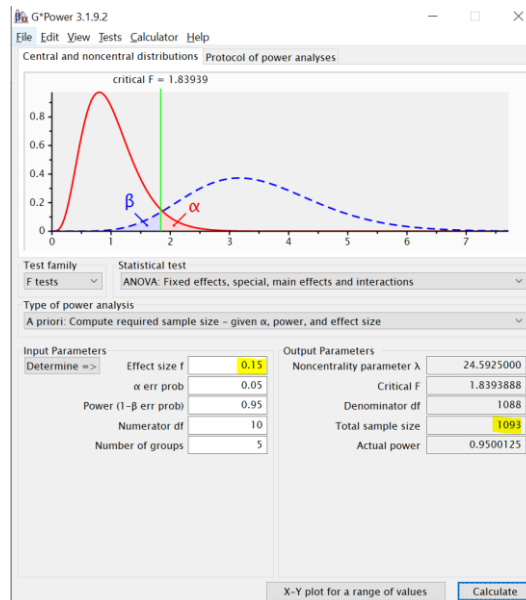
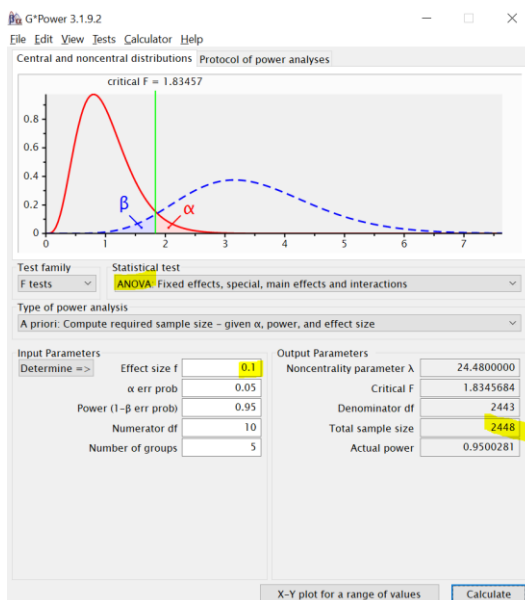
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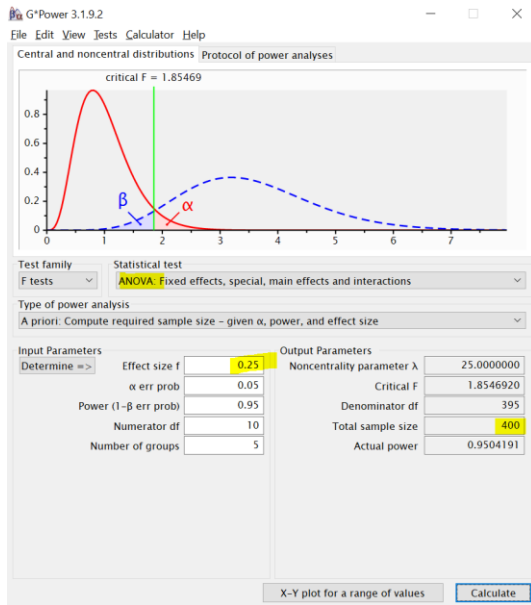
C.1 Sample size

The sample size was chosen with reference to previous experimental studies in a similar field which allocated participants to conditions as follows: 265 per condition, and 290 per condition (Attari et al., 2016); 303 per condition (Attari et al., 2019); 337 per condition (Sparkman & Attari, 2020); 522 per condition (Whitmarsh & Corner, 2017). For the current study, the statistics power calculator G-Power suggested a sample size per condition of 260 should be sufficient to provide a good chance of detecting significance for the small-medium effect sizes expected (see next section). This equates to a total sample size of 1,300 participants as there are five experimental conditions in study (260 x 5 conditions = 1,300 participants). A sample size of $n=1,300$ was chosen, therefore.

C.1.1 G-Power calculations for sample size

G-Power calculations for ANOVA analysis indicated the following sample sizes: Small effect size f 0.1 – Total sample size 2448; Medium/small effect size f 0.15 – Total sample size 1093; Medium effect size f 0.25 – Total sample size 400. With limited funds for PhD, the central sample size (~1100) was chosen as sufficient to allow for medium/small effect sizes to be detected. In fact 1300 was deemed affordable and this corresponds with previous studies allowing ~260 per experimental group.





C.2 Survey

The complete survey is included below. In the right-hand column under “NOTES” is some explanation of the design and the measures used. This explanation is also included in more detail in Chapter 6. The five experimental conditions are named “A”-“E” in this Appendix, which is consistent with the OSF registration. This differs from the numerical condition names used in Chapter 6 (i.e. 1-5), but makes no difference to the design of the survey itself.

<p>Welcome to the survey. Please read this information before taking part</p> <ul style="list-style-type: none">• Completing the survey is voluntary and you can withdraw at any time.• The survey will take about 10 minutes to complete.• You must be 18 or over to take part.• You will be asked to read some text about environmental issues and then give your opinions about what you have read.• The survey is completely anonymous and your computer’s IP tackle will not be recorded. <p>Payment for taking part</p> <ul style="list-style-type: none">• Once your completed survey is approved you will receive £1.25. This will be paid automatically through your Prolific account. <p>At the bottom-right of each page is an arrow button. Click on the arrow each time you are ready to move to the next page.</p> <p>(Page break)</p> <p>Who is conducting the research?</p> <ul style="list-style-type: none">• It is being conducted by Steve Westlake, a PhD researcher at Cardiff University. If you have any questions about the research, please email westlakest@cardiff.ac.uk• Results from the survey may be published in academic journals, presentations, and media articles.• <p>Privacy Notice</p> <ul style="list-style-type: none">• The information collected will be held in compliance with GDPR regulations. <p>By choosing "I consent" below you acknowledge that:</p> <p>Your participation is voluntary and you may stop at any time, for any reason</p> <ul style="list-style-type: none">• Your answers will be completely anonymous• You are 18 years of age or older• <p>(Page break)</p> <p>It is important that you pay attention during in the survey. Please answer as honestly as you can – we are interested in your honest thoughts and opinions. There are no trick questions and no right or wrong answers, but there are some questions that will check you are paying attention. Before you start, please turn off other devices/email/music so that you can focus on this survey. Thank you!</p>	<p>NOTES</p> <p>All respondents see these introductory sections</p>
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Please enter your **Prolific ID** in the box below (if it does not appear already)...

(Start of Block: Intro text)

On the next screen you will be presented with something to read.

Please take your time and read it carefully.

Afterwards you will be asked for your opinions about what you have read.

(End of Block: Intro text)

(Page Break)

EXPERIMENTAL CONDITIONS

(Condition A)

(Start of Block: Condition – Leaderless)

Imagine you are watching a report about climate change and what should be done about it.

The report says climate change is a big threat to humanity, and this means greenhouse gas emissions need to come down fast. To achieve this, the report says new technologies will be needed, along with strong international agreements. Significant lifestyles changes will also be necessary, the report says.

The lifestyle changes that are mentioned include not flying as much for holidays and instead travelling by train whenever possible. The report talks about eating less meat, and people making their homes more energy efficient with insulation and new heating systems. It will also make a big difference if people change to electric cars, use improved public transport, and walk and cycle more, the report says.

Together, these lifestyle changes will usually halve a person’s “carbon footprint”. This will really help to tackle climate change, the report says.

Although some of the lifestyle changes may seem inconvenient and more expensive at first, the report says costs will come down and there will also be benefits, like cleaner air, less wasted energy, and healthier living.

Next you will be asked some questions about what was said in the report

(End of Block: Condition – Leaderless)

(Condition B)

(Start of Block: Condition – Politician Acting)

In all conditions, the second paragraph includes non-behaviour-related interventions to tackle climate change to avoid the impression that personal behaviour change is the only solution.

Imagine you are watching an interview with a politician that you might consider voting for.

The interviewer says to the politician, "Let's talk about climate change. What do you think should be done about it?"

The politician says climate change is a big threat to humanity, and this means greenhouse gas emissions need to come down fast. To achieve this, the politician says new technologies will be needed, along with strong international agreements. The politician says significant lifestyle changes will also be necessary.

The interviewer asks, "What specific lifestyle changes will be required?"

The politician says it will mean not flying as much for holidays and instead travelling by train whenever possible. The politician talks about eating less meat, and people making their homes more energy efficient with insulation and new heating systems. It will also make a big difference if people change to electric cars, use improved public transport, and walk and cycle more, the politician says.

Together, these lifestyle changes will usually halve a person's "carbon footprint". This will really help to tackle climate change, the politician says.

"But aren't some of these lifestyle changes inconvenient and more expensive?" the interviewer asks.

The politician says this may be true at first, but costs will come down, and there will also be benefits like cleaner air, less wasted energy, and healthier living.

The interviewer asks the politician if they have made any of these lifestyle changes.

The politician says yes. For the last two years they have not flown for holidays, they are eating less meat, and they've made their home more energy efficient. They have also swapped to an electric car and use public transport more often, as well as walking and cycling when they can.

The politician says not everybody will be able to do the same as them, but they think it is important that leaders "walk the talk" if they expect others to make changes when the time is right for them.

Next you will be asked some questions about what was said in the interview

(End of Block: Experimental condition – Politician Acting)

Blue highlighted text shows where the manipulations differ in conditions B-E. Text was **not** highlighted blue in the actual survey.

(Condition C)
(Start of Block: Condition – Politician Not Acting)

Imagine you are watching an interview with a politician that you might consider voting for.

The interviewer says to the politician, "Let's talk about climate change. What do you think should be done about it?"

The politician says climate change is a big threat to humanity, and this means greenhouse gas emissions need to come down fast. To achieve this, the politician says new technologies will be needed, along with strong international agreements. The politician says significant lifestyle changes will also be necessary.

The interviewer asks, "What specific lifestyle changes will be required?"

The politician says it will mean not flying as much for holidays and instead travelling by train whenever possible. The politician talks about eating less meat, and people making their homes more energy efficient with insulation and new heating systems. It will also make a big difference if people change to electric cars, use improved public transport, and walk and cycle more, the politician says.

Together, these lifestyle changes will usually halve a person's "carbon footprint". This will really help to tackle climate change, the politician says.

"But aren't some of these lifestyle changes inconvenient and more expensive?" the interviewer asks.

The politician says this may be true at first, but costs will come down, and there will also be benefits like cleaner air, less wasted energy, and healthier living.

The interviewer asks the politician if they have made any of these lifestyle changes.

The politician says no, not yet, but they expect people will make changes when the time is right for them.

Next you will be asked some questions about what was said in the interview.

(End of Block: Condition – Politician Not Acting)

(Condition D)
(Start of Block: Condition – Celebrity Acting)

Imagine you are watching an interview with a celebrity that you like or admire. For example this could be a TV presenter, a musician, a sportsperson, or maybe an actor.

The interviewer says to the celebrity, "Let's talk about climate change. What do you think should be done about it?"

The celebrity says climate change is a big threat to humanity, and this means greenhouse gas emissions need to come down fast. To achieve this, the celebrity says new technologies will be needed, along with strong international agreements. The celebrity says significant lifestyle changes will also be necessary.

The interviewer asks, "What specific lifestyle changes will be required?"

The celebrity says it will mean not flying as much for holidays and instead travelling by train whenever possible. The celebrity talks about eating less meat, and people making their homes more energy efficient with insulation and new heating systems. It will also make a big difference if people change to electric cars, use improved public transport, and walk and cycle more, the celebrity says.

Together, these lifestyle changes will usually halve a person's "carbon footprint". This will really help to tackle climate change, the celebrity says.

"But aren't some of these lifestyle changes inconvenient and more expensive?" the interviewer asks.

The celebrity says this may be true at first, but costs will come down, and there will also be benefits like cleaner air, less wasted energy, and healthier living.

The interviewer asks the celebrity if they have made any of these lifestyle changes.

The celebrity says yes. For the last two years they have not flown for holidays, they are eating less meat, and they've made their home more energy efficient. They have also swapped to an electric car and use public transport more often, as well as walking and cycling when they can.

The celebrity says not everybody will be able to do the same as them, but they think it is important that people in the public eye "walk the talk" if they expect others to make changes when the time is right for them.

Next you will be asked some questions about what was said in the interview.

(End of Block: Experimental condition – Celebrity Acting)

(Condition E)

(Start of Block: Condition – Celebrity Not Acting)

Imagine you are watching an interview with a celebrity that you like or admire. For example this could be a TV presenter, a musician, a sports person, or maybe an actor.

The interviewer says to the celebrity, "Let's talk about climate change. What do you think should be done about it?"

The celebrity says climate change is a big threat to humanity, and this means greenhouse gas emissions need to come down fast. To achieve this, the celebrity says new technologies will be needed, along with strong international agreements. The celebrity says significant lifestyle changes will also be necessary.

The interviewer asks, "What specific lifestyle changes will be required?"

The celebrity says it will mean not flying as much for holidays and instead travelling by train whenever possible. The celebrity talks about eating less meat, and people making their homes more energy efficient with insulation and new heating systems. It will also make a big difference if people change to electric cars, use improved public transport, and walk and cycle more, the celebrity says.

Together, these lifestyle changes will usually halve a person's "carbon footprint". This will really help to tackle climate change, the celebrity says.

"But aren't some of these lifestyle changes inconvenient and more expensive?" the interviewer asks.

The celebrity says this may be true at first, but costs will come down, and there will also be benefits like cleaner air, less wasted energy, and healthier living.

The interviewer asks the celebrity if they have made any of these lifestyle changes.

The celebrity says no, not yet, but they expect people will make changes when the time is right for them.

Next you will be asked some questions about what was said in the interview

(Scale: Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree) **(Note: This 7-point scale is used for all agree/disagree questions in the survey)**

(Presented in Randomised order:)

- The politician cares about climate change
- The politician believes climate change is a serious issue
- The politician is willing to make personal sacrifices because of climate change
- The politician is knowledgeable about climate change
- The politician understands what needs to be done to tackle climate change
- The politician is personally committed to tackling climate change
- The politician is exaggerating the problem of climate change (R)

- The politician gives climate change too much priority (R)

(End of Block: About the Politician (SOBs))

(Start of Block: Willingness To Act – personal)

In the interview, the politician said several things are necessary to reduce greenhouse gas emissions and tackle climate change. These included: new technologies, strong international agreements, and significant lifestyle changes. (Click the arrow to continue)

(Page Break)

When answering the next questions we would like you to assume that new technologies and strong international agreements to tackle climate change **are** being developed successfully.

Regarding your own behaviour, how much do you agree or disagree with the following statements?

(Presented in Randomised order:)

- I would be willing to make significant changes to my lifestyle to help tackle climate change
- I would be willing to fly less to help tackle climate change
- I would be willing to eat less meat to help tackle climate change
- I would be willing to change to an electric car to help tackle climate change
- I would be willing to use public transport more often to help tackle climate change

described in the next paragraph. Second, by asking respondents to consider their attitudes towards the leader, these attitudes will be primed and made salient prior to the next bank of questions, which concern the respondents' Willingness To Act.

As well as **second-order beliefs**, some potential **reactance** measures are also included here, as marked with (R). Other reactance items appear below. The "(R)" itself was not included in the survey.

Prior to the Willingness To Act survey questions, this section of text repeats the items the leader said would be necessary to tackle climate change. This repetition is designed to avoid the "systems change vs individual change" dichotomy seen in other research, and that was identified as a problem in the focus groups. In other words, by repeating the systemic changes that are happening (agreements, technology), respondents are reminded that behaviour change is not being presented as the only solution.

<p>- I would be willing to make my home more energy efficient to help tackle climate change</p> <p>- I would be willing to make some sacrifices to help tackle climate change</p> <p>- Attention check - please select “Somewhat disagree” for this answer</p> <p>(End of Block: Willingness to act – personal)</p> <p>(Start of Block: Willingness To Act – others)</p> <p>The next questions are about other people.</p> <p>Again assuming that new technologies and strong international agreements are being developed successfully, what lifestyle changes do you think others would be willing to make to help tackle climate change?</p> <p>I think other people would be willing to...</p> <p>(7-point Disagree-Agree scale as usual) (Presented in Randomised order:)</p> <ul style="list-style-type: none"> - ...make significant changes to their lifestyles to help tackle climate change - ...fly less to help tackle climate change - ...eat less meat to help tackle climate change - ...change to an electric car to help tackle climate change - ...travel more by public transport to help tackle climate change - ...make their homes more energy efficient to help tackle climate change - ...make some sacrifices to help tackle climate change <p>attention check - please select Somewhat disagree for this one</p> <p>(End of Block: Willingness To Act – others)</p> <p>(Start of Block: Warmth and competence) (Block not used in Leaderless condition)</p> <p>Next we are interested in your impressions and feelings towards the politician.</p> <p>How much do you agree or disagree with the following statements?</p> <p>(7-point Disagree-Agree scale as usual) (Presented in Randomised order:)</p> <ul style="list-style-type: none"> - The politician is warm and friendly - The politician is competent and capable - The politician is trustworthy - The politician is honest - The politician makes moral and ethical decisions - The politician shares similar values to mine - The politician is inspirational 	<p>This section explores whether respondents think other people are willing to make changes. This forms part of the concept of “Climate Morale”. Similar to Tax Morale, if people believe others are willing to act on climate change, they may be more willing to do so themselves. The leader acting (or not) may influence this belief.</p> <p>This section explores further attitudes towards the leader: Warmth and friendliness; Competence (and capability); Trustworthiness, honesty, morality. These are established measures of interpersonal judgement, including of leaders. Related, are trustworthiness, honesty and morality are measured. Morality is also measured below</p>
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<p>(End of Block: Warmth and competence Politician)</p> <p>(Start of Block: About the Politician 2 – Effectiveness) (Block not used in Leaderless condition)</p> <p>Considering what you read about the interview, what is your gut feeling about each of the following statements? You don't have to know for sure, just choose the answer you think is most likely.</p> <p>(Scale: Definitely not, Probably not, Might or might not, Probably yes, Definitely yes)</p> <p>(Presented in Randomised order:)</p> <ul style="list-style-type: none"> - The politician works hard on climate change issues - The politician puts climate change ahead of other issues - Other people take notice of the politician's views on climate change - The politician is good at persuading other people that climate change is an important issue - The politician gets involved in local and national climate change campaigns - The politician uses their influential position to help tackle climate change - The politician supports new laws that tackle climate change <p>(End of Block: About the Politician 2 – Effectiveness)</p> <p>(Start of Block: Reactance)</p> <p>We'd like to know how you felt when you read about the interview with the politician. Did you feel that...</p> <p>(7-point Disagree-Agree scale as usual) (Presented in Randomised order:)</p> <ul style="list-style-type: none"> - the politician was preaching at you - the politician was trying to tell people what to do - the politician was trying to manipulate your feelings <p>(End of Block: Reactance Politician)</p> <p>(Start of Block: Final questions on leader) (Block not used in Leaderless condition)</p> <p>At the beginning of the survey you were asked to: "Imagine you are watching an interview with a politician that you might consider voting for".</p> <p>After reading about the interview with the politician, would you be more likely or less likely to vote for them?</p> <ul style="list-style-type: none"> - Much less likely - A bit less likely - About the same 	<p>in relation to climate change. (see e.g. Laustsen and Bor (2017); Fiske (2018))</p> <p>These questions under the umbrella of "Effectiveness" delve further into perceptions of the leader's commitment and leadership credentials on climate change.</p> <p>Commitment to climate leadership is measured via: works hard, prioritises, works locally, uses their influence, supports new laws. Leadership credentials measured via: others take notice, good at persuading others about CC. (These two are specifically about climate leadership and credibility.)</p> <p>This section explores potential negative reactance to the leader (see e.g. Whitmarsh and Corner 2017), and whether this is affected by whether the leader is taking personal action or not.</p> <p>This question explores whether the action/no action conditions influence the intention to vote for the politician, or the approval of the celebrity.</p>
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<p>- A bit more likely - Much more likely</p> <p>(For the celebrity this question is adapted to ask whether respondents like or admire the celebrity more or less)</p> <p>After reading about the interview with the celebrity, do you like and admire them more, or less?</p> <ul style="list-style-type: none"> - Much less - A bit less - About the same - A bit more - Much more <p>Q What was the gender of the politician you brought to mind?</p> <ul style="list-style-type: none"> - Female - Male - Non binary - I did not have a particular gender in mind <p>(End of Block: Final questions Politician)</p> <p>(Start of Block: Concern, Risk Perception, Policy Support)</p> <p>The next few questions are about your views about climate change.</p> <p>Q How concerned, if at all, are you about climate change? (Scale: Not at all concerned, A little concerned, Quite concerned, Very concerned)</p> <p>Q How serious a threat, if at all, is climate change to each of the following? (Scale: Not at all serious threat, Not very serious threat, Fairly serious threat, Very serious threat, Extremely serious threat, Don't know)</p> <ul style="list-style-type: none"> - You and your family - The country as a whole - People in developing countries - Wildlife and ecosystems - This is an attention check - please choose "Not very serious threat" for this answer <p>Q How much do you support or oppose the following actions to tackle climate change: (Scale: Strongly oppose, Tend to oppose, Neither support not oppose, Tend to support, Strongly support)</p> <ul style="list-style-type: none"> - Government investment in new technologies - Strong international agreements that rapidly reduce greenhouse gas emissions <p>(End of Block: Concern, Risk Perception, Policy Support)</p> <p>(Start of Block: Climate morale)</p>	<p>This question explores whether one gender was favoured in the imaginary leaders, and will allow analysis of whether gender influenced respondents' perceptions of the leader.</p>
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<p>This question is about how you view the future.</p> <p>How confident or doubtful are you that...</p> <p>(Scale: Extremely doubtful, Doubtful, Somewhat doubtful, Neither doubtful nor confident, Somewhat confident, Confident, Extremely confident)</p> <p>(Presented in Randomised order:)</p> <ul style="list-style-type: none"> - climate change will be kept within safe limits? - politicians will take the necessary steps to tackle climate change? - business leaders will take the necessary steps to tackle climate change? - celebrities will take the necessary steps to tackle climate change? <p>(End of Block: Climate morale)</p> <p>(Start of Block: Morality)</p> <p>We'd like to know more about your personal feelings on climate change. Please indicate how much you agree or disagree with the following statements.</p> <p>(Presented in Randomised order:)</p> <ul style="list-style-type: none"> - Climate change is a moral and ethical issue - I have some personal responsibility for contributing to the causes of climate change - I have some personal responsibility for helping to tackle climate change - What I do personally can make a difference to tackling climate change <p>(End of Block: Morality)</p> <p>(Start of Block: Leadership lifestyle changes and order)</p> <p>In relation to climate change and personal lifestyles, how much do you agree or disagree with the following statements?</p> <p>(Presented in Randomised order:)</p> <ul style="list-style-type: none"> - Politicians, business leaders and celebrities should set an example by making lifestyle changes first - The personal behaviour of politicians, business leaders and celebrities is not relevant to climate change - Everyone should make lifestyle changes at about the same time to tackle climate change - People with the biggest carbon footprints should make the biggest lifestyle changes to tackle climate change - If politicians, business leaders and celebrities went first, I would be more willing to change my lifestyle to tackle climate change - If I knew that most other people were changing their lifestyles because of climate change, I would be more willing to change mine too 	<p>These questions explore Climate Morale. They measure respondents' confidence that climate change will be successfully tackled, and their confidence that leaders will take the necessary steps. These may be influenced by the leaders' personal action or inaction.</p> <p>These questions measure whether the experimental conditions influence perceptions of climate change as a moral issue, and whether respondents feel responsible for it. See Markowitz (2012); Schuldt (2017)</p> <p>These questions explore normative ideas of who if anyone should be leading on climate change. They also explore directly whether respondents believe the action of others would influence their own behaviour.</p>
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<p>(End of Block: Normative and social norms)</p> <p>(Start of Block: Politics, Generalised Trust, Environmental identity)</p> <p>So that we can compare people's answers, we now have some questions about you</p> <p>(The next questions are in Randomised order)</p> <p>In politics people sometimes talk of “left” and “right”. Using the scale below, where would you place yourself on the political spectrum?</p> <p>(11-point scale: Far left (1), Centre (6), Far right (11))</p> <p>- I place myself here...</p> <p>Thinking about people in general, how much do you agree or disagree with these statements? ease read the following statements and indicate how much you agree or disagree</p> <ul style="list-style-type: none"> - I am convinced that most people have good intentions - You can't rely on anyone these days - In general, people can be trusted <p>Thinking about your attitudes towards the environment, how much do you agree or disagree with the following statements?</p> <p>(Presented in Randomised order:)</p> <ul style="list-style-type: none"> - Being environmentally-friendly is an important part of who I am - I would be slightly embarrassed to be seen as having an environmentally friendly lifestyle - I think of myself as someone who is very concerned about environmental issues <p>(End of Block: Ideology and Generalized Trust)</p> <p>(Start of Block: Demographics)</p> <p>Q What is your age? (text entry).....</p> <p>Q Which, if any, is the highest educational or professional qualification you have obtained?</p> <ul style="list-style-type: none"> - GCSE (or equivalent) (1) - Vocational Qualifications (NVQ1+2) (2) - A-level or equivalent (NVQ3) (3) - Bachelors Degree or equivalent (NVQ4) (4) - Masters Degree (5) - PhD (6) - Other (7) 	<p>These questions measure variables of political orientation, generalised trust, and environmental identity. Political orientation and environmental identity have been shown to influence Willingness To Act on climate change. Generalised Trust may influence the degree to which leaders are trusted and thus the influence of the leader in terms of Willingness To Act. See Macias (2015) – generalized trust (aka interpersonal trust) predicts willingness to sacrifice for the environment. The 3 items are the short Interpersonal Trust scale from Nießen et al. (2020). Political scale is from Whitmarsh and Corner (2017), Environmental identity adapted from Whitmarsh and O'Neill (2010) & Capstick et al. (2015).</p>
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<p>- No formal qualifications (8) - Still studying (9)</p> <p>Q Which income bracket do you fall into? - £0 – £14,999 per year (1) - £15,000 – £29,999 per year (7) - £30,000 – £44,999 per year (8) - £45,000 – £59,999 per year (9) - £60,000 – £79,999 per year (10) - £80,000+ per year (11)</p> <p>Q Please indicate your gender identity (optional answer) - Female (2) - Male (1) - Other (please state below if you wish) (3) (text entry).....</p> <p>Q We would be interested in knowing what issues you think this survey was investigating. There are no right and wrong answers to this (optional answer) (text entry).....</p> <p>End of Block: Demographics</p> <p>(Debrief)</p> <p>Thank you for completing the survey!</p> <p>IMPORTANT: Please click the arrow at the bottom-right of the page to return to Prolific and record your survey response.</p> <p>Your response will be approved and your payment made in Prolific.</p> <p>The purpose of the survey is to explore how the behaviour of leaders and celebrities might influence the attitudes and behaviour of others in relation to climate change. Specifically it is exploring ideas of leading by example.</p> <p>(some details redacted to retain anonymity in future peer-review process)...</p>	<p>This question will be used to determine the extent to which respondents perceived the intention of the survey</p>
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C.3 Ordering of survey questions and priming effects

The blocks of survey questions were presented in the following order, with those marked X omitted from the Leaderless condition because the questions applied to Leader conditions.

- Manipulation checks
- Second-order beliefs (X)
- Willingness To Act (personal)
- Others' Willingness To Act
- Warmth and competence (X)
- Effectiveness (X)
- Reactance
- Approval and gender of leader (X)
- Concern, Risk Perception, Policy Support
- Climate morale
- Morality
- Normative and social norms
- Political orientation, Generalised Trust, Environmental Identity
- Demographics (Age, education, income, gender), subject of survey

The survey was designed taking into consideration that the order of questions and answers can affect how respondents complete the survey (Salkind, 2010). Answers within each block of questions were randomised where relevant using the Qualtrics randomiser to reduce the effects of question ordering effects.

The vignettes were followed by manipulation checks, which served two purposes. First, to check that the participant had read and absorbed the important information from the vignette, especially the manipulation of the leader acting or not acting. Second, to reiterate the information in the vignette about the multiple ways climate change can be tackled through new technology, international agreements and behaviour change. The purpose of this reiteration was to emphasise to respondents that they need not consider behaviour change as an alternative to systems changes, but rather that both will be required. This rather simple dichotomy has been witnessed in previous survey research (e.g. Palm et al., 2020).

In the conditions featuring leaders (B-E), the manipulation checks were followed by questions probing Second-order beliefs. This ordering was chosen so that respondents would reflect on the leaders' actions and their feelings towards the leader prior to being asked about their own Willingness To Act. The Willingness To Act block began with a paragraph reminding respondents of the multiple measures to tackle climate change. Again this was done to reiterate that climate change is not expected to be solved only via individual behaviour change, but that other measures are essential too. This issue was raised in the

focus groups and MP interviews, so it was deemed worth clearly emphasising in the survey design. This block was followed by the Others' Willingness To Act block.

In the Leaders conditions there followed two more blocks of questions about the leader: Warmth and Competence, and Effectiveness. After this was the Reactance block, such that respondents were once again primed with recent considerations of the leader's attributes. The remaining questions specifically about the leader concerned whether respondents' approval for the leader had increased or decreased, and what gender the leaders was. Again, the priming effect was deemed useful for the question about approval.

The final blocks of questions are about Climate Concern, Risk Perception and Policy Support, Climate Morale, Climate change as a moral issue, Normative ideas of who should act first on climate change, and then respondents' politics, Generalised Trust, and Environmental Identity, followed by Demographics to finish.

C.4 Missing data treatments

Respondents were prompted, but not forced, to reply to each survey question. Despite being able to skip questions, there was very little missing data. Where there was missing data it was treated as follows. Three respondents did not report their gender. The missing gender items were replaced with the "prefer not to say" option. Two respondents did not state their age. These were allocated to the mode age bracket that corresponded with their stated income, because income generally correlates with age. One respondent did not report their position on the political spectrum. The missing politics bracket datum was therefore replaced with "Left" based on the respondent's education level (=PhD) and income (=£33-44), both of which have a mode politics bracket of Left. One respondent did not select their Education level. This entry was assigned to the "Bachelor's Degree" category, based on the mode education for their income (£15-29k) and their politics (Centre). One respondent's missing Personal Income field was replaced with "Prefer not to say".

In addition, the questions asking about respondents' climate concern and risk perception included a "don't know" option, which resulted in 47 respondents having missing data for one or more of the five questions in this cluster of questions, which contributed to the "Concern Risk" scale. The participants who chose the "don't know" options for this question followed no apparent trend or pattern in terms of demographics or politics. To avoid losing all the data for these respondents, the missing data were replaced with the mean values for all respondents for each question. While this method of replacing data with the mean can introduce bias (Donders et al., 2006), the relatively low number of missing cases and the

small difference this makes to the standard error for the Climate Concern measure (0.2449 vs 0.2382) made this an acceptable approach.

C.5 Manipulation checks and deleted responses

The survey featured two manipulation check questions to detect whether respondents had paid attention to the experimental vignettes and absorbed the necessary information. The questions came immediately after the vignettes (see survey design above).

C.5.1 Manipulation check 1

The text of the manipulation check was as follows:

The report/politician/celebrity said several things are necessary to tackle climate change. Please choose the answer that includes ALL of the things that were mentioned.

1. Changing the way the land is used
2. New technologies, strong international agreements, and people changing their lifestyles in various ways
3. People changing their lifestyles in various ways
4. Recycling

The correct answer is option 2, and Table C.1 shows that most people selected the correct answer. However, a sizable number of respondents (23%) chose option 3, “People changing their lifestyles in various ways”, rather than all the other measures that were mentioned at the start of the vignettes (option 2). This may have occurred because the bulk of the vignette focussed on lifestyle changes, thus making lifestyle changes most salient for respondents. Inspection of the data revealed that the respondents who chose 3 instead of 2 had answered the rest of the survey in a way that indicated that they were engaging with it and paying attention, for instance they passed the Attention Check questions (see Attention Check section below), so it was decided that anyone who answered with option 2 or 3 would be

Table C.1 Manipulation check 1 results

Answer	Condition					Total
	A Leaderless	B Politician Acting	C Politician Not Acting	D Celebrity Acting	E Celebrity Not Acting	
1	0	0	1	0	0	1
2	204	196	202	195	198	995
3	56	65	57	61	61	300
4	1	1	1	0	0	3
Total	261	262	261	256	259	1299

included in the analysis. The 1 respondent that chose option 1 was excluded (highlighted in the table), and those who answered 1 or 4 in the Leaderless condition were excluded (1 participant – highlighted in the table).

C.5.2 Manipulation check 2

This manipulation check tested whether respondents had paid attention to the personal action the leaders had taken. The text of the manipulation check was as follows:

What lifestyle changes has the politician (celebrity) made to reduce their own "carbon footprint"?

1. The politician (celebrity) has not made any of the lifestyle changes yet
2. The politician (celebrity) has changed to an electric car but nothing else
3. The politician (celebrity) has stopped flying for holidays, reduced their meat consumption, made their home more energy efficient, and changed to an electric car
4. The politician (celebrity) has reduced their meat consumption but nothing else

The correct answer for those in the Leader Acting conditions was 3, and the correct answer for those in the Leader Not Acting conditions was 1. Respondents in the Leaderless condition were not shown this question. Table C.2 below shows the results of manipulation check 2 with the incorrect answers highlighted. 31 respondents failed this manipulation check, which also included one of the respondents that failed manipulation check 1. In total therefore, 32 responses were deleted for failing the manipulation checks, leaving a total of 1267 valid responses to the survey.

Table C.2 Manipulation check 2 results

Answer	Condition					Total
	A Leaderless	B Politician Acting	C Politician Not Acting	D Celebrity Acting	E Celebrity Not Acting	
0	261	0	0	0	0	261
1	0	5	244	1	252	502
2	0	1	1	0	0	2
3	0	256	15	255	7	533
4	0	0	1	0	0	1
Total	261	262	261	256	259	1299

C.6 Attention Check Questions

The three attention check questions consisted of wording such as: “Attention check - please select ‘Somewhat disagree’ for this answer”, with the same Likert scale used to test agreement with the live questions. If respondents failed on two out of three of the attention check questions they were to be excluded. However, on viewing the data some flexibility was introduced to this exclusion criterion because it appeared likely that some respondents had accidentally chosen the wrong answer to these questions while trying to answer correctly, rather than randomly picking any answer without paying attention to the question, which is what the attention check questions were trying to detect. For instance, 11 of the 15 people who failed two out of three Attention Check questions chose “Strongly disagree” instead of the correct answer “Somewhat disagree”, which suggests they may have mistaken “Strongly” for “Somewhat” when selecting their answer on the Likert scale. Similarly, 14 out of 15 people who failed two out of three Attention Check questions chose “Not at all serious threat” instead of the correct answer “Not very serious threat”, which again features wording that looks quite similar and may indicate that they misread which option to choose, rather than picking randomly. In addition, the fact that a 7-point Likert scale was used makes it unlikely that so many respondents would fail the test by choosing the same wrong answer. Supporting this idea, the other Attention Check question had a correct answer of “Agree” which doesn’t not look very similar to any other item on the scale, and most of those who failed two out three Attention Check questions answered this question correctly. With these caveats in place only one respondent failed the attention checks, and this response was deleted.

C.7 DV Scales: Factor Analysis and Reliability tests

Factor analysis and item reliability analysis were carried out in SPSS for the dependent variables, as outlined below. The following acceptability criteria were applied as laid out by Field (2018): **Multicollinearity**: Determinant > 0.00001 indicates a sufficient lack of multicollinearity; **Sample size**: Kaiser-Meyer-Olkin (KMO) statistics >0.5 indicate a large enough sample; **Correlation between factors**: a significant Bartlett’s test statistic indicates ($p < 0.05$) sufficient correlation between factors (although with a large sample lack of significance is unlikely). **Scale reliability**: Cronbach’s Alpha > 0.7 is deemed to be acceptable in terms of scale reliability.

C.7.1 Second-order beliefs (SOB) scale

As a result of the factor analysis, three scales were created from the **second-order beliefs** survey measures. These scales were: Cares/Believes; Knowledgeable; and Exaggerates. The

first scale, Cares/Believes, combined four survey items: *Cares*, *Believes*, *Will Sacrifice*, and is *Personally Committed*, which measured various ways in which the leader was perceived to care about climate change. (The exact wording of the survey items can be found in the survey section in this Appendix, and in Chapter 6.) The second scale measured the leaders' perceived knowledge about climate change using two items: *Is Knowledgeable* and

Table C.3 Factor analysis criteria for scale creation

Scale	Range of correlations for items	Determinant	Single component?	KMO	Bartlett's	Cronbach α
Willingness To Act	.264-.786	.048	Y	.883	p<.001	.854
Cares/Believes	.598-.797	.029	Y	.786	p<.001	.911
Knowledgeable	.721	.480	Y	.500	p<.001	.838
Exaggerates	.704	.504	Y	.500	p<.001	.826
Others' Willingness To Act	.275-.622	.099	Y	.861	p<.001	.833
Warmth/ Competence	.575-.790	.004	Y	.930	p<.001	.934
Effectiveness	.291-.657	.55	Y	.888	p<.001	.865
Reactance	.611-.763	.228	Y	.713	p<.001	.862
Climate Morale	.261-.574	.255	Y	.758	p<.001	.789
Moral Salience/ Responsibility	.569-.827	.071	Y	.831	p<.001	.896
Pro- Environmental Identity	.345-.817	.287	Y	.583	p<.001	.768
Support Climate Action	.723	.477	Y	.500	p<.001	.835
Concern Risk	.522-.759	.035	Y	.849	p<.001	.906
Appetite for Leadership	.279-.584	.420	Y	.667	p<.001	.720
Generalised Trust	.572-.714	.289	Y	.708	p<.001	.831
Total Influence	.198-.717	.051	Y	.878	p<.001	.858

Understands What to Do. The third scale, Exaggerates, measured the extent to which respondents thought the leader was exaggerating climate change or taking it too seriously. The two survey items within Exaggerates were initially intended to form part of the Reactance scale, as described in the OSF registration elsewhere in this appendix. However, the factor analysis revealed that this produced two components, and so the items were considered separately to the Reactance scale.

C.7.2 Climate Morale scale

It was intended to create one scale for Climate Morale that included Other's Willing to Act, as described in the OSF registration elsewhere in this appendix. However, the factor analysis revealed low correlation and multiple components, so a separate scale for Others' Willingness to was created.

C.7.3 Total Influence scale

This scale is designed to include all of the DVs relating to a leader's **influence**, as opposed to respondents' **attitudes towards the leader**. Individually, several of the influence DVs are not significant (i.e. Moral Salience/Agency, Climate Morale, Support for Climate Action, Concern Risk) but they all tend towards the same direction – such that Leading by Example appears to have a positive effect. By combining them, this effect can be explored. The items form a reliable scale, minus Climate Morale, which appears to be a different component.

C.8 Assumptions for statistical tests

C.8.1 ANOVA assumptions

Two-way ANOVA tests were carried out with IVs of Leader Type and Leader Acting/Not Acting. ANOVA tests have a number of assumptions (Laerd, 2022). These will be dealt with in turn next.

Assumption 1. **Dependent variables should be continuous**, i.e. they should be interval or ratio variables. While Likert scales are not, strictly speaking, continuous because the difference between each interval on the scale cannot be claimed to be equal, this is not considered a serious assumption violation for ANOVA as long as the results of the test are interpreted with this in mind. The test on the numbers themselves is valid. (Norman, 2010).

Assumption 2. **The two independent variables should consist of two categorical, independent groups**. This assumption is met with Leader Type consisting of Politician or Celebrity groups, and Leader Action consisting of Leader Acting or Leader Not Acting groups.

Assumption 3. **Observations should be independent.** This assumption is met with the between subjects experiment design such that respondents in each group are distinct from each other and answer the survey independently.

Assumption 4. **There should be no significant outliers.** This assumption is met because a 7-point or 5-point Likert scale largely precludes outliers, in that every choice on the scale expresses a valid opinion of the respondent. An inspection of the data using frequency histograms confirmed and absence of outliers.

Assumption 5. **The dependent variable should be approximately normally distributed.** This assumption is not met in that there is some non-normality in several of the DVs which are often skewed towards one end of the scale, producing a ceiling effect. This assumption violation is acceptable because ANOVA is quite robust to non-normality provided the populations are roughly the same shape, which is the case with this data (Howell, 2013; Norman, 2010).

Assumption 6. **There needs to be homogeneity of variances for each combination of the groups of the two independent variables.** Using a Levene's test for homogeneity of variances in SPSS, this assumption was met for the variables: Willingness To Act; Others' Willingness To Act; Pro-Environmental Identity; Appetite for Leadership; Support Climate Action; Concern Risk; Moral Salience/Responsibility; Climate Morale;

However, the assumption was not met for the variables: Cares/Believes; Knowledgeable; Effectiveness; Warmth/Competence; Reactance; Increased Approval. The assumption failures occurred in with variables where there were large differences in means and effect sizes. For some of the variables, the non-homogeneity of variance is likely to have been attributable to ceiling effects in the Likert scale where most answers were towards the high end of the scale, thus reducing the possible variance for one group but not another. As the effects were large and highly significant for the variables with non-homogenous variances, the assumption violation is not deemed problematic in terms of interpreting the significance of the results, because the experimental conditions clearly led to substantial differences in the DVs. However, to ensure robustness, a Welch test was also carried out for these variables, confirming the significant differences between the Leader Acting and Leader Not Acting conditions. The results were as follows: Cares/Believes $F(1, 1007)=1306.4, p<.001$; Knowledgeable $F(1, 1007)=76.8, p<.001$; Effectiveness $F(1, 1007)=343.7, p<.001$; Warmth/Competence $F(1, 1007)=311.1, p<.001$; Reactance $F(1, 1007)=75.6, p<.001$; Increased Approval $F(1, 1007)= 344.7, p<.001$.

C.8.2 MANOVA assumptions

Assumptions 1-5 are the same as for ANOVA, above, and are met, or in the case of 5, the violation is acceptable. The Shapiro-Wilk test of normality has a significance of $p < .001$ for each DV indicating a failure of the normality test. With regard to outliers, a Mahalanobis Distance (MD) calculation resulted in 21 responses with high MDs that fell outside the threshold for 8 DVs (i.e. $MD < 26$). On inspecting the most extreme of these outliers, however, they were deemed to be genuine responses that represented unusual but plausible combinations of attitudes and responses to the leaders, so they were not excluded from the analysis (Leys et al., 2018).

Assumption 6: **Adequate sample size**, with more cases in each group than the number of dependent variables being analysed. This assumption is met, with a minimum of 256 cases in each group used in the MANOVA test.

Assumption 7. There is a **linear relationship between each pair of dependent variables for all combinations of groups of your two independent variables**. This can be tested using scatter plots. Several of the combinations appeared to **fail** this assumption, with pattern tending towards a square rather than an ellipse on the scatter plot.

Assumption 8. **There is homogeneity of variance-covariance matrices**. This is tested using Box's M test. This produced a non-significant result (.682) indicating that this assumption is met.

Assumption 9. **There is no multicollinearity**. This is tested by checking the correlations between the DVs. Correlations should be moderately correlated, with values between 0.2 and 0.8. This assumption is largely met, except for **Climate Morale**, which correlates at a low level with: Willingness To Act (-.054), Reactance (0.061), Moral Salience/Responsibility (0.059), Pro-Environmental Identity (-0.041), Support Climate Action (-.144), Concern Risk (-.098). In addition, **Others' Willingness To Act** has low correlations with Reactance (-.118) and Support Climate Action (.128).. The correlations are shown in

Due to the failure of assumption 7, the partial failure of Assumption 9, and the non-normality of some of the data, a **non-parametric Kruskal-Wallis test** was conducted, along with Mann-Whitney pairwise tests. These test results reported below support the results from the MANOVA. The results confirmed a significant difference between Leaderless, Leader Acting and Leader Not Acting groups for Willingness To Act $H(2)=16.068$, $p < .001$; Reactance $H(2)=104.70$, $p < .001$; Pro-Environmental Identity $H(2)=9.046$, $p = .011$. In addition, using this test, Support Climate Action was also significantly different between the groups $H(2)=5.976$,

Table C.4 Correlations for DVs in MANOVA analysis

Correlation Spearman's rho (n=1267)	Others Willingness To Act	Reactance	Moral Salience/ Responsibility	Climate Morale	Pro-Environmental Identity	Support Climate Action	Concern Risk
Willingness To Act	.294** 0.000	-.372** 0.000	.623** 0.000	-0.054 0.055	.632** 0.000	.507** 0.000	.621** 0.000
Others Willingn. To Act		-.118** 0.000	.279** 0.000	.320** 0.000	.209** 0.000	.128** 0.000	.200** 0.000
Reactance	-.118** 0.000		-.296** 0.000	.061* 0.029	-.240** 0.000	-.267** 0.000	-.314** 0.000
Moral Salience/ Responsibility	.279** 0.000	-.296** 0.000		.059* 0.037	.616** 0.000	.517** 0.000	.654** 0.000
Climate Morale	.320** 0.000	.061* 0.029	.059* 0.037		-0.041 0.144	-.144** 0.000	-.098** 0.000
Pro-Environ Identity	.209** 0.000	-.240** 0.000	.616** 0.000	-0.041 0.144		.466** 0.000	.628** 0.000
Support Climate Action	.128** 0.000	-.267** 0.000	.517** 0.000	-.144** 0.000	.466** 0.000		.577** 0.000
Concern Risk	.200** 0.000	-.314** 0.000	.654** 0.000	-.098** 0.000	.628** 0.000	.577** 0.000	

** . Correlation is significant at the <0.001 level (2-tailed).
 * . Correlation is significant at the 0.05 level (2-tailed).

p=.05. Mann-Whitney pairwise comparisons show a significant difference (at the p=.05 level) between the Leader Acting and the Leader Not Acting conditions for Willingness To Act (U=111373, z=-3.331, p<.001); Reactance (U=87,633, z=-8.495, p<.001); and Support Climate Action (U=118140, z=-1.974, p=.048). However, adopting a more conservative p value of .01 means Support Climate Action is not significantly different. Comparing the Leaderless and Leader Acting conditions there were no significant differences at the p=.05 level. Comparing the Leaderless and Leader Not Acting conditions showed a significant difference between Willingness To Act (U=54691, z=-3.436, p<.001); Reactance (U=39760, z=-8.688, p<.001), Pro-Environmental Identity (U=56330, z=-2.868, p=.004), Support Climate Action (U=58836, z=-2.102, p=.035). Adopting a more conservative p value of .01 means Support Climate Action is not significantly different. These results provide basic support for the results of the MANOVA reported in chapter 6.

C.9 Ed Miliband interview: political leader challenged to lead by example

The interview described here features many of the themes explored in the survey experiment in Chapter 6. There follows a description of the interview and a transcript of the relevant section, followed by a detailed discussion of its relevance to the research in this thesis. A video of the interview can be found at this link:

<https://www.youtube.com/watch?v=XIc2uExjj0o>. The relevant section starts at 7m10s into video.

On 25 March 2021 UK politician **Ed Miliband** appeared in several television and radio interviews promoting the Labour party's push to encourage the take-up of electric vehicles that will help the UK meet its climate targets. His interview on ITV (one of the UK's main terrestrial TV channels) followed a familiar line of questioning about environmental issues that affect public behaviour. After listening to Miliband's passionate proposals for "an electric car revolution", which included criticism of the government for not taking enough action to drive uptake, the interview proceeded as follows:

C.9.1 Full transcript of relevant section of Miliband interview

Interviewer 1: Electric cars is what you are trying to persuade us all to get enthusiastic about.

Miliband: Sure

Interviewer 1: There's an issue isn't there? On price – they're pretty pricey.

Miliband: Definitely.

Interviewer: People are worried about how far they can drive without running out of juice.

Miliband: Definitely.

Interviewer: And er there is an issue with you know how long it takes to charge. Electric cars are not going to be taken up until they are made extremely accessible to everybody.

Miliband: You're completely right

Suzannah, you're completely right. And look, we've got massive change coming in

this country. The Government has said, and we actually agree with them on this, that we won't be able to buy new petrol and diesel cars from 2030. And what I'm saying today is we need an electric car revolution but it's got to benefit consumers, and it's got to benefit the manufacturers, and not just the richest. And at the moment the Government's announced the ban, the 2030 ban, but it's not stepping up and taking the bold action necessary to make this fair. Now what does that, what does that mean, what are we calling for? Interest free loans, long-term interest free loans for consumers so that we can expand access, not just for the richest. A scrappage scheme so that people can trade in their old cars for electric cars, and crucially, and this is a global race, help for our manufacturers to build the giga factories, the battery factories, that are absolutely essential if we are going to tackle our car industry.



You know, I believe that the climate transition can create a better country, but it's only going to happen with bold government action. We're not seeing it at the moment. Government needs to step up.

Interviewer: I presume you've got one? [an electric car]

Miliband: I haven't yet, it's a work in progress.

Interviewer 1: What?!

Interviewer 2: What?!

Interviewer 1: Practise what you preach!

Miliband: It's a work in progress. We were actually on our way to buying one before lockdown. It is going to happen I promise you. I have bought an electric bike, but it's on its way [the car].

Interviewer: So hang on, you're pushing for everyone to have an electric car and you don't have one yourself?

Miliband: I'm pushing to make it accessible. Look I'm pushing to make it accessible.

Interviewer: It's not even accessible to you.

Interviewer 2: But you haven't even experienced one yourself. You'd like to think if you're going to tell us all to get an electric car, encourage the nation to embrace electric cars, you would have trialled it out for some time and can tell us whether it's any good or not.

Miliband: Well I've definitely been in an electric car, and look, it's the way we've got to go. It's the way we've got to go for climate reasons. This is the point. This change is coming. This change can benefit our country. I want to be part of that change. Look maybe...

Interviewer 1: But not yet.

Miliband: Like other consumers, like other consumers there are barriers and we've got to break down those barriers.

Interviewer 1: Leading by example... have you managed to persuade your leader Kier Starmer to have an electric car?

Miliband: I don't know, I don't know which vehicle he drives. You'll have to ask him.

Interviewer 1: Have you persuaded anyone to get one?

Miliband: Well look I think, I think lots of people are getting them but we've got to make them accessible. This absolutely makes the point.

Interviewer 1: [Laughs] OK all right. Ed Miliband thanks very much indeed. Good to talk to you this morning.

Miliband: Thank you.

END OF INTERVIEW

C.9.2 Analysis of Miliband interview

It could be said that Miliband's position is perfectly reasonable. There are many barriers to choosing an electric car that need to be overcome to ensure mass uptake by the public (price, range, charging speed and opportunities, novelty). In fact the interviewer had raised several of these points at the start of the interview and Miliband had agreed wholeheartedly. However, the interviewers homed in on issues related to leading by example, touching on some of the themes identified in the main thesis chapters. First, the interviewers take issue with the idea that Miliband is "pushing for everyone" to have an electric car when he does not already have one himself. This appears to be misrepresenting Miliband's position because he hadn't said that everyone should get an electric car *right now*, but rather that "change is coming" and "it's the way we've got to go for climate reasons" and "I'm pushing to make it accessible." But the implication of the interviewers' line of questioning is that Miliband should personally be **leading the way** with his own behaviour and consumer choices to give **credibility** to his argument. A second criticism is that Miliband has not tested in advance what he expects others to do: "You'd like to think... you would have trialed it out for some time and can tell us whether it's any good or not". Here we see the expectation that **leaders go first** in order to ensure that the way forward is viable, thus protecting followers from risks and mistakes. This has clear synergies with leader self-sacrifice and the idea of leaders acting first – being at the front. Next the interviewers move to another role of leadership: **persuasion**. They ask Miliband if he has persuaded his party leader to get an electric car, and when Miliband deflects that question the interviewer asks whether he has persuaded *anyone* to get one. Miliband again avoids answering the question about persuasion directly and instead says that lots of people are getting electric cars already, but they need to be more accessible. An implication here is that people will make choices when the time is right for them and leadership or some people going first is not a requirement for change.

Overall, the interview gives the impression that getting an electric car is not something Miliband or his party leader have prioritised to date, but it is something people will choose to do when the time is right for them and barriers have been removed. This can be viewed as an example of a leader talking about future societal solutions to climate change, but not embodying those changes in the present. The interviewers' angle of enquiry assumes a different perspective on leadership: that if a leader is advocating for something that has societal implications and will require behaviour change (buying electric cars) then the leader should model that behaviour in advance of everyone else.

This interview could be viewed as simplistic “gotcha” journalism that should be ignored, or as an important area for leaders to consider, bearing in mind the recurrent nature of such questioning in the media. The interview was amplified by other media outlets. For example the Press Association ran a headline: “*Miliband: I want to spearhead electric car revolution... but I do not own one*” (Daly & Jones, 2021), and the Mail Online went with: “*'Practise what you preach!': Awkward moment Ed Miliband declares Britain needs an 'electric car revolution'... before he's forced to admit he DOESN'T own one*” (Gant, 2021). The full transcript of this part of the interview and a link to the video can be found in Appendix C.

The Miliband interview took place after the survey experiment was designed, but it matches quite closely the format of the experimental conditions, which is why it has been included here to set the scene for what follows.

C.9.3 Newspaper story based on Miliband interview (Mail Online)

The following story appeared on the Mail Online news website shortly after the interview took place (Gant, 2021):

HEADLINE: 'Practise what you preach!': Awkward moment Ed Miliband declares Britain needs an 'electric car revolution'... before he's forced to admit he DOESN'T own one

- **Ed Miliband attacked the government's plan for a 2030 ban on non-electric cars**
- **The Labour MP said it was 'not taking the bold action necessary to make this fair'**
- **He said it needs to be for consumers and manufacturers and 'not just the richest'**
- **He was left red faced when host Susanna Reid asked: 'I presume you've got one'**
- **He admitted he has not got one and claimed that plans were a 'work in progress'**

By [JAMES GANT FOR MAILONLINE](#)

PUBLISHED: 09:05, 25 March 2021 | **UPDATED:** 09:36, 25 March 2021

Ed Miliband launched a passionate plea for an 'electric car revolution across the country' - before admitting he does not have one himself.

The shadow business secretary attacked the PM's plan for a 2030 ban on polluting vehicles, saying it was 'not taking the bold action necessary to make this fair'.

He said it needs to benefit consumers and manufacturers and 'not just the richest' as he appeared on [Good Morning Britain](#).

But the former Secretary of State for Energy and Climate Change was left red faced when host Susanna Reid asked: 'I presume you've got one.'

He admitted he has not and claimed it was a 'work in progress' as he tried to laugh off shouts of 'practise what you preach' from the journalist.

The MP for Doncaster North was on the show to unveil his party's plans for an electric car 'revolution' to give a boost to the industry and create jobs across the UK.

He will make a speech on Thursday afternoon outlining the plans to create new jobs and make owning a zero emission vehicle an 'option for all.'

Ed Miliband backs electric cars before admitting he doesn't own one



The shadow business secretary attacked the PM's plan for a 2030 ban on polluting vehicles, saying it was 'not taking the bold action necessary to make this fair'

But it is set to be overshadowed by his performance on GMB, where he said: 'What I'm saying today is: we need an electric car revolution.'

'But it's got to benefit consumers and its got to benefit manufacturers and not just the richest.'

'At the moment the government's announced the ban - the 2030 ban - but it's not stepping up and taking the bold action necessary to make this fair.

'No what does that mean, what're we calling for? Interest-free loans, long-term interest-free loans for consumers so we can expand access not just for the richest.'

He continued: 'A scrappage scheme so people can trade in their old cars for electric cars.

'And crucially, and this is a global race, help for our manufacturers to build the gigafactories, the battery factories that are absolutely essential if we're going to tackle our car industry.

'I believe that the climate transition can create a better country but it's only going to happen with bold government action. We're not seeing it at the moment, government needs to step up.'

Ms Reid asked: 'I presume you've got one.' But Mr Miliband said: 'I haven't yet it's a work in progress.'

Ms Reid and co-host Adil Ray were astonished and said: 'What? Practise what you preach.'

The MP laughed before replying: 'It's a work in progress... We were actually on our way to buying one before lockdown.'

He added: 'It is going to happen I promise you. I have bought an electric bike but it's on its way.'

Ms Reid said: 'So hang on. You're pushing for everyone to have an electric car and you don't have one yourself.'

Mr Miliband said: 'We're pushing to make it accessible...' But Mr Ray jumped in saying: 'But you haven't even experienced one yourself.'

'You'd like to think if you're going to tell us all to get an electric car... you would have trialed it out for some time and can tell us whether it's any good or not.'

The MP laughed before replying: 'It's a work in progress... We were actually on our way to buying one before lockdown'

Mr Miliband hit back: 'Well I've definitely been in an electric car and look it's the way we've got to go.'

'It's the way we've got to go for climate reasons. This is the point. This change is coming, this change can benefit our country, I want to be part of that change.'

He added: 'Like other consumers there are barriers and we've got to break down those barriers.'

In a speech in London on Thursday, Mr Miliband will call for part-financing the creation of three new gigafactories by 2025.

END of Mail Online story.

C.10 OSF Pre-registration: Survey experiment

In order to document and maintain the integrity of the survey experiment, the survey design and hypotheses were registered in advance on the Open Science Framework (OSF). This took place on 31 March 2021, after the design of the experiment and prior to implementation. The survey was put live on 2 April 2021, and closed on 6 April 2021. A complete dataset of survey responses was uploaded to OSF on 8 April 2021. An update to the OSF registration was made on 18 June 2021 to correct an omission in the original registration. This did not affect the design of the survey and is detailed below.

At the point of OSF registration, the experimental control condition was referred to as “Disembodied”, which is the term used throughout the OSF registration below. However, this term was changed to “Leaderless” for the thesis write-up, including in Chapter 6, to aid clarity and to avoid confusion with the concept of “Embodied leadership”. This change was made because the sense of “Disembodied” in the survey experiment is *not* the opposite of “Embodied” as used throughout the thesis.

OSF Registration

Research subject: The effects of leading by example with strong pro-environmental behaviour

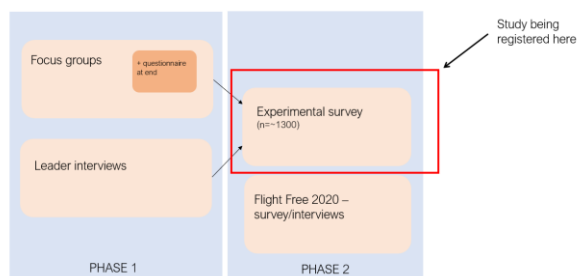
This Experimental Survey forms part of the second phase of a research project. It builds on focus groups and interviews with UK MPs.

This pre-registering is taking place **after** a pilot of the survey (n=179) with psychology students and **prior to** the distribution of the survey to a UK-representative sample (target n=1300), recruited via the Prolific service. The design of survey and the hypotheses **have not changed** after the pilot phase.

Background to the study

The research is exploring the efficacy of leading by example in the form of leaders adopting climate-friendly behaviours and lifestyles. It aims to answer the question: if leaders take personal action on climate change, will others follow suit? The definition of leaders is deliberately broad, including politicians, business leaders, celebrities, and other “influencers” who have a platform to exert social influence. “Leadership is a process whereby an individual influences a group of individuals to achieve a common goal,” according to Northouse (2015).

Research plan



The focus groups conducted as part of this research have revealed that a leader taking personal action to reduce their own climate impact has the potential to be a powerful form of communication. Members of the public generally approve of such action from leaders, while also scrutinising the action, and searching for its meaning and the motivations underlying it. Using the findings from the focus groups, it is hypothesised that leaders taking personal action to reduce their own climate impact could result in an increased willingness for others to follow suit. The extent of this effect, and the potential processes underlying it, will be explored in the experimental survey.

The experimental survey will investigate the effect of leaders who make lifestyle changes that significantly reduce their carbon footprints. Specifically, it will tackle two primary research questions: (1) does **leader lifestyle change** increase survey respondents’ reported willingness to take similar action when compared to a leader who does not change their lifestyle? (2) does **leader lifestyle change** increase survey respondents’ reported willingness to take similar action when compared to “**disembodied**” **information** about the need for lifestyle change to tackle climate change? Further to research questions (1) and (2), the survey will explore several potential ways in which leaders lifestyle change **communicates meaning** to survey respondents, which may influence the extent to which respondents report willingness to take similar action. The lifestyle changes in question are reducing flying, reducing meat consumption, improving home efficiency, downsizing to a

small electric car. When taken together, these actions will reduce a person's carbon footprint considerably (Wynes & Nicholas, 2017b).

The reason for research question 1 is fairly obvious: does leading by example have an influence on others' willingness to act, or is it irrelevant in this context? The reason for research question 2 is as follows: current discourse and research on climate-related lifestyle change is usually framed quite impersonally, along the lines of "consumers will have to change their lifestyles in various significant ways at some point in the future". This framing can be viewed as "disembodied" in the sense that it does not involve specific examples of action undertaken by actual people. As such, this framing implicitly presents consumers as being a uniform group whose lifestyle changes can be considered and discussed in a general, impersonal way. The framing also presents consumers as equal to each other in terms of consumption and agency, overlooking the large disparities between individual carbon footprints and large variations in potential social influence. To explore the relevance of this, a disembodied framing will form the basis of one condition in the experiment, which will be compared to the other conditions featuring specific reference to leaders making lifestyle changes, or not making lifestyle changes. Thus to answer research question 2, the experimental survey is designed to compare an embodied call for lifestyle change, with a disembodied one.

Five experimental conditions (A-E) are proposed, with a between-subjects design. The conditions are:

- A. **Disembodied information** explaining that lifestyle change is a necessary part of climate mitigation. This will be presented to respondents by asking them to imagine they are watching a report on climate change, for instance on TV or on via the internet.

The next four conditions will be presented to respondents by asking them to imagine they are watching an interview with either a politician they would consider voting for, or a celebrity they like or admire:

- B. Politician explaining that lifestyle change is a necessary part of climate mitigation, **having changed their own lifestyle;**
- C. Politician explaining that lifestyle change is a necessary part of climate mitigation, **having not changed their own lifestyle;**
- D. Celebrity explaining that lifestyle change is a necessary part of climate mitigation, **having changed their own lifestyle;**
- E. Celebrity explaining that lifestyle change is a necessary part of climate mitigation, **having not changed their own lifestyle;**

Research question 1 (does **leader lifestyle change** increase survey respondents' willingness to take similar action when compared to a leader who does not change their

behaviour?) will be tested by comparing respondents' willingness-to-act (WTA) responses in conditions B-E.

Research question 2 (does **leader lifestyle change** increase survey respondents' willingness to take similar action when compared to '**disembodied**' information about the need for lifestyle change to tackle climate change?) will be tested by comparing respondents' willingness-to-act (WTA) responses in conditions B-E with those in condition A.

Hypotheses to be tested

Hypothesis 1: Leader lifestyle change increases respondents' willingness to act, compared to disembodied statements about the need for lifestyle change.

Hypothesis 2: Leader lifestyle change increases respondents' willingness to act, compared to leaders who **do not** make lifestyle changes.

The following hypotheses explore the processes through which Hypothesis 1 and 2 may take effect. The hypotheses are based on the previous focus group research and the existing literature on pro-environmental behaviours and social influence. As the leadership influence processes in Hypotheses 1-12 have not been researched previously, some of the hypotheses are quite speculative and effect sizes not expected to be large. The size of the survey sample has been chosen accordingly. The terms in bold type will be explained in the subsequent section.

Hypothesis 3: Leader lifestyle change influences respondents' **Second-order Beliefs** about the leader

Hypothesis 4: Leader lifestyle change increases respondents' perception of leader **Effectiveness**

Hypothesis 5: Leader lifestyle change increases respondents' perception of leader **Warmth and competence**

Hypothesis 6: Leader lifestyle change increases respondents' **Climate morale**

Hypothesis 7: Leader lifestyle change increases respondents' perception of the **Moral salience of climate change**

Hypothesis 8: Leader lifestyle change increases respondents' **Pro-environmental identity**

Hypothesis 9: Leader lifestyle change increases respondents' **Reactance** to the leader (Reactance can be inferred from SOBs)

Hypothesis 10: Leader lifestyle change **Reduces the effect of respondents' political orientation** on their willingness to act

Hypothesis 11: Leader lifestyle change increases respondents' **Support for climate action**

Hypothesis 12: Leader lifestyle change increases respondents' **Climate concern & Risk Perception**

Sample size

The effect sizes in the Experimental Survey are expected to be quite small due to the novel and exploratory nature of the research. Previous studies in a similar area have used sample sizes per experimental condition of:

- 265 per condition, and 290 per condition (Attari et al., 2016)
- 303 per condition (Attari et al., 2019)
- 337 per condition (Sparkman & Attari, 2020)

For the current study, the statistics power calculator G-Power suggests a sample size per condition of 260 should be sufficient to provide a good chance of detecting significance for the low effect sizes expected. This equates to a total sample size of 1,300 participants as there are five experimental conditions in study (260 x 5 conditions = 1,300 participants). A sample size of $n=1,300$ is chosen, therefore. The Prolific platform will be used to obtain a UK representative sample.

Planned methods of analysis

The analyses below have been chosen based on related studies by Attari et al. (2016); Whitmarsh and Corner (2017); Sparkman and Attari (2020).

- **ANOVA/T-Tests** comparing responses in each condition for: overall Willingness To Act (WTA); Second-Order Beliefs; Effectiveness; Warmth and competence; Climate morale; Moral salience of climate change; Pro-environmental identity; Reactance; Support for climate action.
- **MANOVA** analyses of responses to different experimental conditions, including political orientation and pro-environmental identity* as independent variables (IVs). (*The use, or not, of pro-environmental identity as an IV will depend on the extent to which pro-environmental identity varies across conditions as a dependent variable (see hypothesis 8). If it does vary to a considerable extent then it will not be used as an IV.)

Additional post-hoc analyses may be carried out after inspection of the data. Appropriate adjustments will be made and reported, taking into account the relatively large number of exploratory hypotheses (12) and any post-hoc analyses.

Theories and measures underpinning hypotheses (highly summarised)

Hypotheses 1 & 2

Behaviour is symbolic and is a form of communication. The processes involved in this communication will be expanded on below.

Hypothesis 3: Leader lifestyle change influences respondents' **Second-order Beliefs** about the leader.

Those in positions of authority and/or prestige, such as leaders, can communicate their genuine beliefs by way of behaviour that acts as a “credibility enhancing display” (Henrich, 2015; Kraft-Todd et al., 2018). These behavioural displays from leaders can influence what observers believe the leader believes – known as “**second-order beliefs**”. For instance, an observer may think: “if the leader is taking that action, they *must* believe it is the right thing to do”. Questions in the experimental survey will explore these second-order beliefs, asking respondents to what extent they think the leader **believes** climate change is a serious issue, to what extent the leader **cares** about climate change, how **knowledgeable** they are on the issue, and how **committed** they are (see full survey design below).

Hypothesis 4: Leader lifestyle change increases respondents' perception of leader **Effectiveness**

Leader **Effectiveness** in this context will be measured using questions about the leader's ability to persuade others and how much others listen to the leader on the subject of climate change.

Hypothesis 5: Leader lifestyle change increases respondents' perception of leader **Warmth and competence**

Warmth and competence are established measures of interpersonal judgement, including of leaders (e.g. Laustsen and Bor 2017; Fiske 2018). Related measures are included for the perceived trustworthiness, honesty and morality of the leader. Perceptions of leader competence are important for reciprocal behaviour from followers (Choi & Mai-Dalton 1998 and maybe others.)

Hypothesis 6: Leader lifestyle change increases respondents' **Climate morale**

Climate morale is a novel concept designed to encompass the following factors: personal confidence that climate change can be tackled; personal confidence that others will also take necessary action; and personal confidence that leaders and governments will take necessary action. The term climate morale is an adaptation of the established idea of “tax morale”: the phenomenon where a widely held belief that most people pay their taxes has the effect of increasing overall compliance with tax paying, and vice versa (Luttmer & Singhal, 2014). Hypothesis 6 therefore explores the idea that leader lifestyle change will increase others’ confidence that climate change will be tackled (leading on to an increased Willingness To Act).

Hypothesis 7: Leader lifestyle change increases respondents’ perception of the Moral salience of climate change

Moral salience is relevant because it may have a positive or negative effect on respondents’ willingness to act. In addition it is relevant here because the morality of carbon-intensive behaviour is typically omitted in climate discourse, which could be considered a factor in the “taming” climate change (see e.g. Willis 2017). However, the focus groups revealed that a leaders’ actions raise the issues of morality of actions. Participants asked themselves (and the group), “What does this leader action mean for the way I behave?”. Directly tackling ideas of morality, one focus group respondent said, “I feel judged” in reference to the celebrity that said they were only having one child. This highlights how the explicit actions of a person, or described actions, can be perceived as involving a moral judgment of somebody else. Previous research has explored this moral dimension to another’s behaviour in relation to climate change. Sparkman and Attari (2020) found evidence of “do-gooder derogation” if an advocate of personal action to reduce their carbon footprint was seen to be going too far, ie. taking reductions too far and implicitly criticizing those who do less. Such do-gooder derogation is explained as a way for people to reduce uncomfortable feelings when one perceives one’s actions are implicitly criticized by someone who is seen to be taking “morally superior” action. This seems like a plausible reaction in the current research to a leader who exhibits the four strong pro-environmental behaviours explored in this experimental survey. See Hypothesis 9.

However, perceptions of morality may work in a different way too. The leader’s actions may raise the moral salience of climate change, and increase willingness to act. This effect may be supported by the fact that the leader in the vignettes is not explicitly calling for others to act as well, in contrast to Sparkman and

Attari's research referenced in the previous paragraph. Instead the leaders in this experimental survey are leaving any call to action as implicit rather than explicit. The "moral salience" of climate change has been shown to increase upon exposure to images of Pope Francis (Schuldt, 2017). In this study, respondents who were exposed to an image of Pope Francis, who is well known to have expressed strong views on the need to tackle climate change, and who as a religious leader has a position of moral authority (for Christians at least), were more likely to say climate change is a moral issue than those who had not been exposed to such images. This reveals that someone in a leadership role can increase the moral salience of climate change.

Hypothesis 8: Leader lifestyle change increases respondents' Pro-environmental identity

By exemplifying embodied lifestyle changes, such changes become more tangible, as opposed to being theoretical and disembodied. Therefore, in the context of people holding and navigating multiple identities at once, it is hypothesised that leader lifestyle change will increase respondents' reported pro-environmental identity. This relates to ideas of the personalisation of climate change, as opposed to presenting it as a technical, economic problem. (See Willis)

Hypothesis 9: Leader lifestyle change increases respondents' Reactance

This hypothesis goes in the other direction, suggesting that willingness to act will decrease due to perceptions of being told what to do by the leaders, resulting in reactance (see Whitmarsh and Corner 2017; Sparkman and Attari 2020)

Hypothesis 10: Leader lifestyle change Reduces the effect of respondents' political orientation on their willingness to act

Returning to the subject of morality, George Lakoff argues that the most fundamental principle of politically conservative morality is self-regulation and personal discipline. Lakoff says this is because the conservative worldview often involves a binary understanding of good vs evil, and overcoming evil requires strong self-regulation and discipline. Therefore, these two aspects of behavioural self control are highly valued by those on the political right (Lakoff, 1995). In the context of the current PhD research, the leaders' choice to take personal responsibility and exercise self-regulation by way of changing their lifestyle may appeal to this right-leaning conception of behaviour and morality. This may make such self-regulatory action

attractive to those on the political right, who on aggregate tend to be more sceptical about climate change and/or the societal and governmental actions required to tackle climate change. Hypothesis 10 therefore proposes that in-group leaders taking personal responsibility for their actions may appeal to those on the political right, thus reducing the commonly encountered difference between left/right respondents' attitudes on climate change. The hypothesis gains some support from the interviews with MPs that were conducted for this PhD research project, in which two conservative MPs who expressed climate sceptic positions vehemently decried the "hypocrisy" of climate advocates whose behaviour, in their opinion, was not consistent with the position of climate advocacy.

Right-leaning respondents may experience an internal conflict, however. Aversion to the restrictions to liberty that personal self-regulation implies in the context of climate change may overpower any attraction to that self-regulatory behaviour. (See also Nielsen and Hofmann (2021))

Hypothesis 11: Leader lifestyle change increases respondents' Policy support

Similar to Hypothesis 8, the embodiment and personalisation of climate change as manifested by leader lifestyle change may increase support of coordinated climate policy.

Hypothesis 12: Leader lifestyle change increases respondents' Climate concern & Risk Perception

Similar to Hypothesis 8 and 11, the embodiment and personalisation of climate change as manifested by leader lifestyle change may increase respondents climate concern and risk perception.

Gender may play a role. Male leaders are less likely to engage in self-sacrifice than women in professional leadership setting (public and private sector organisations) (Arnold & Loughlin, 2010)

Independent variables (IVs)

The five experimental conditions (A-E) outlined below in the survey design section, will be used as IVs. In addition, Political orientation, Generalised trust, and Environmental identity will be measured in the survey and used as IVs.

Dependent variables (DVs)

The following dependent variables will be measured in the survey, corresponding to the hypotheses. In the Disembodied condition (A) some of the DVs will not be measured, as indicated.

Second-order beliefs (SOB) What do people believe about what the leader believes? (**Not measured** in Disembodied condition). The respondents' levels of agreement/disagreement with the following items will be measured.

1. The politician/celebrity cares about climate change
2. The politician/celebrity believes climate change is a serious issue
3. The politician/celebrity is willing to make personal sacrifices because of climate change
4. The politician/celebrity is knowledgeable about climate change
5. The politician/celebrity understands what needs to be done to tackle climate change
6. The politician/celebrity is personally committed to tackling climate change
7. The politician/celebrity is exaggerating the problem of climate change (R)
8. The politician/celebrity gives climate change too much priority (R)

Scales/Indices: Items 1-6 will be combined into an overall SOB scale. Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data. Items 7-8 will be combined with other Reactance (R) measures below.

Willingness To Act – personal To what extent are respondents willing to reduce flying, drive electric cars, improve home efficiency, reduce meat consumption, use public transport, make sacrifices to tackle climate change? The respondents' levels of agreement/disagreement with the following items will be measured.

1. I would be willing to make significant changes to my lifestyle to help tackle climate change
2. I would be willing to fly less to help tackle climate change
3. I would be willing to eat less meat to help tackle climate change
4. I would be willing to change to an electric car to help tackle climate change
5. I would be willing to use public transport more often to help tackle climate change
6. I would be willing to make my home more energy efficient to help tackle climate change
7. I would be willing to make some sacrifices to help tackle climate change

Scales/Indices: Items 1-7 will be combined into an overall WTA scale. Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data.

Others' Willingness To Act – (OWTA) To what extent do respondents believe other people are willing to reduce flying, drive electric cars, improve home efficiency, reduce meat consumption, use public transport, make sacrifices to tackle climate change? The respondents' levels of agreement/disagreement with the following items will be measured.

I think **other people** would be willing to..

1. ...make significant changes to their lifestyles to help tackle climate change
2. ...fly less to help tackle climate change
3. ...eat less meat to help tackle climate change
4. ...change to an electric car to help tackle climate change
5. ...travel more by public transport to help tackle climate change
6. ...make their homes more energy efficient to help tackle climate change
7. ...make some sacrifices to help tackle climate change

Scales/Indices: Items 1-7 will be combined into an overall WTAO scale. Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. The scale will also be combined with Climate Moral scale (see below) to create an Overall Climate Morale scale. Individual items may also be analysed/compared after viewing the data.

Warmth and competence How warm, friendly, competent, capable, trustworthy, honest, moral and ethical do respondents think the leader is? (**Not measured** in Disembodied condition). The respondents' levels of agreement/disagreement with the following items will be measured.

1. The politician is warm and friendly
2. The politician is competent and capable
3. The politician is trustworthy
4. The politician is honest
5. The politician probably makes moral and ethical decisions
6. The politician shares similar values to mine
7. The politician is inspirational

Scales/Indices: Items 1-7 will be combined into an overall Warmth and Competence scale. Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data.

Effectiveness In terms of climate change, to what extent do respondents think the leader is hard working, committed, prioritises climate change, is persuasive of the importance of climate change, is influential? (**Not measured** in Disembodied condition) The respondents' levels of agreement/disagreement with the following items will be measured.

1. The politician works hard on climate change issues

2. The politician puts climate change ahead of other issues
3. Other people take notice of the politician's views on climate change
4. The politician is good at persuading other people that climate change is an important issue
5. The politician gets involved in local and national climate change campaigns
6. The politician uses their influential position to help tackle climate change
7. The politician supports new laws that tackle climate change

Scales/Indices: Items 1-7 will be combined into an overall Effectiveness scale.

Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data.

Reactance Do respondents feel like they are being manipulated or told what to do by the leader or report? The respondents' levels of agreement/disagreement with the following items will be measured.

1. the politician was preaching at you
2. the politician was trying to tell people what to do
3. the politician was trying to manipulate your feelings

Scales/Indices: Items 1-3 will be combined into an overall Reactance scale.

Confirmatory factor analysis will be carried out on this scale. The scale will be combined with the other Reactance measures in the SOB section above – marked (R) to create an Overall Reactance scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data.

Climate morale How confident are respondents that climate change will be tackled successfully and that leaders will take the necessary action? The respondents' levels of doubtfulness/confidence in the following items will be measured.

1. climate change will be kept within safe limits?
2. politicians will take the necessary steps to tackle climate change?
3. business leaders will take the necessary steps to tackle climate change?
4. celebrities will take the necessary steps to tackle climate change?

Scales/Indices: Items 1-4 will be combined into a Climate Morale scale. Confirmatory factor analysis will be carried out on this scale. The scale may be combined with the Others' Willingness To Act (OWTA) measures in the SOB section above – marked (R) – to create an Overall Climate Morale scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data.

Moral salience of climate change To what extent do respondents feel that climate change is a moral and ethical issue? The respondents' levels of agreement/disagreement with the following items will be measured.

1. Climate change is a moral and ethical issue
2. I have some personal responsibility for contributing to the causes of climate change
3. I have some personal responsibility for helping to tackle climate change
4. What I do personally can make a difference to tackling climate change

Scales/Indices: Items 1-4 will be combined into a Moral Salience scale. Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis. Individual items may also be analysed/compared after viewing the data.

Approval of leader. To what extent do respondents change their inclination to vote for the politician, or their favorable feelings towards the celebrity, depending on the assigned condition? (Conditions B&C begin with the sentence: "Imagine you are watching an interview with a politician **that you might consider voting for**" (emphasis added). Conditions D&E begin with the sentence: "Imagine you are watching an interview with a well-known person (celebrity) **that you like or admire**. For example this could be a TV presenter, a musician, a sports person, or maybe an actor." (emphasis added).) The respondents' will be asked if they are more or less likely to vote for the politician, or if they like and admire the celebrity more or less.

1. Much less likely (Much less)
2. A bit less likely (A bit less)
3. About the same (About the same)
4. A bit more likely (A bit more)
5. Much more likely (Much more)

Environmental identity. To what extent do they have an environmental identity? The respondents' levels of agreement/disagreement with the following items will be measured.

1. Being environmentally-friendly is an important part of who I am
2. I would be slightly embarrassed to be seen as having an environmentally friendly lifestyle
3. I think of myself as someone who is very concerned about environmental issues

Scales/Indices: Items 1-3 will be combined into an Environmental identity scale (Item 2 reverse coded). Confirmatory factor analysis will be carried out on this scale. The scale will be used to compare responses across conditions using ANOVA/MANOVA analysis.

Other measures in survey

Normative and social norms Who do respondents think should take the lead on lifestyle changes? The respondents' levels of agreement/disagreement with the following items will be measured.

1. Politicians, business leaders and celebrities should set an example by making lifestyle changes first
2. The personal behaviour of politicians, business leaders and celebrities is not relevant to climate change
3. Everyone should make lifestyle changes at about the same time to tackle climate change
4. People with the biggest carbon footprints should make the biggest lifestyle changes to tackle climate change
5. If politicians, business leaders and celebrities went first, I would be more willing to change my lifestyle to tackle climate change
6. If I knew that most other people were changing their lifestyles because of climate change, I would be more willing to change mine too

Politics, Generalised Trust Where do respondents place themselves on the political spectrum, how much do they trust other people and the world generally?

1. In politics people sometimes talk of “left” and “right”. Using the scale below, where would you place yourself on the political spectrum? (11-point scale: Far left (1), Centre (6), Far right (11))
 1. I am convinced that most people have good intentions
 2. You can't rely on anyone these days
 3. In general, people can be trusted

Final questions about the leader: Did they think the leader was male/female/NB? What do they think the survey was about? (**Not measured** in Disembodied condition)

Demographics (age, income, gender)

The **Survey design** was included in the OSF registration, and is included elsewhere in this Appendix.

END of OSF initial registration.

The following update was made to the OSF registration on 18 June 2021 to include survey items that were erroneously omitted from the original version of the preregistered OSF document, although survey items **were** included in the actual survey that went live in April 2021.

The following section has been updated in the survey design further below to include the survey items highlighted in **red**, which were missing from this registration document (but not from the survey itself):

(Start of Block: Warmth and competence)

(Block **not used** in Disembodied condition)

Next we are interested in your impressions and feelings towards the politician.

How much do you agree or disagree with the following statements?

(Presented in Randomised order:)

- The politician is warm and friendly
- The politician is competent and capable
- The politician is trustworthy
- The politician is honest
- The politician makes moral and ethical decisions
- The politician shares similar values to mine
- The politician is inspirational

(End of Block: Warmth and competence Politician)

<End of 18 June 2021 update to OSF registration.>

Appendix D Flight Free Survey

This appendix contains supplementary material for Chapter 7 – Flight Free Survey

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D.1 Sample characteristics – whole sample

	count	%		coun	%
	968	100		t	
Age			Income		
18-29 y/o	80	8.3	£0 – £14,999 p/a (EUR 0 – 16,499)	183	20.8
30-39	154	15.9	£15k – £29,999 p/a (16.5k – 33,999)	255	29.0
40-49	190	19.6	£30k – £44,999 p/a (34k – 49,999)	274	31.1
50-59	208	21.5	£45k – £59,999 p/a (50k – 66,749)	81	9.2
60-69	236	24.4	£60k – £79,999 p/a (66,750 – 88,999)	52	5.9
70-79	96	9.9	£80k+ per year (89k+)	35	4.0
80+	4	0.4	Total	880*	100.0
Total	968	100.0			
Gender					
Female	610	64.0			
Male	329	34.5			
Other	14	1.5			
Total	953*	100.0			
Nationality					
UK	489	50.5			
Sweden	390	40.3			
Canada	11	1.1			
USA	11	1.1			
Netherlands	10	1.0			
Rest Europe	47	4.9			
Rest World	10	1.0			
Total	968	100.0			

*Some participants did not answer the optional Gender and Income questions, which came at the end of the survey, hence the totals are lower.

D.2 Survey

Flight Free 2020 Participants Survey

Start of Block: Information and Consent

Q1 Welcome to this survey for people who took the Flight Free 2020 pledge. You will be asked about your reasons for signing up.

We are gathering information for Flight Free, We Stay on the Ground, and for PhD research at Cardiff University. It's about people who take action on climate change – ie. you! The first part of the survey will take only 2 minutes, and then you have the option to continue with some more questions. In total it should take less than 10 minutes. There are no right or wrong answers so please feel free to answer as honestly as possible.

Please read the following statements and click the option at the bottom of the page to indicate your consent to take part in the survey:

- I have been informed about the nature of this study and willingly consent to take part.
- I understand that my answers will be anonymous unless I choose to give my name and contact details at the end of the survey, in which case this information will be held fully confidentially.
- I understand that I may withdraw from the study at any time.
- I am over 18 years of age.

Here is some more information about the research: The results of the survey will be anonymous and collated for analysis. If you choose to give your name and contact details at the end of the survey, this data will remain fully confidential and will be stored for up to one year.

Your computer's IP address will not be recorded.

The survey findings will form part of a thesis that will be submitted for assessment and may be published afterwards. The anonymous survey data will be kept indefinitely and may be used in subsequent research projects.

If you have any questions about this research please contact the primary researcher: Steve Westlake (westlakest@cardiff.ac.uk). If you have any concerns about this research, please contact the research supervisors: Dr Christina Demski (demskicc@cardiff.ac.uk; +44 (0)2920 876020) or Professor Nick Pidgeon (pidgeonn@cardiff.ac.uk; +44 (0)29 2087 4567).

Privacy Notice The information provided will be held in compliance with GDPR regulations. Cardiff University is the data controller and Matt Cooper is the data protection officer (inforequest@cardiff.ac.uk). The lawful basis for processing this information is public interest. This information is being collected by Steve Westlake. The research information you provide will be used for the purposes of research only and will be stored securely. Only Steve Westlake, Dr Christina Demski and Prof Nick Pidgeon will have access to this information. After one month the data will be anonymised (any identifying elements removed) and this anonymous information may be kept indefinitely or published.

- Yes I consent to taking the survey (1)
- No I do not consent (2)

Skip To: End of Survey If answer = No I do not consent

End of Block: Information and Consent

Start of Block: Part 1

Q2 Please indicate which age bracket you fall into

- 18-29 years old (4)
- 30-39 (9)
- 40-49 (10)
- 50-59 (11)

- 60-69 (12)
- 70-79 (13)
- 80+ (14)

Q3 Where do you live?

- Country (4) _____
- Current home town (or nearest town) (5)

Q5 How long ago was your last flight?

- I have never flown (1)
- 1-2 years ago (2)
- 2-5 years ago (3)
- 5-10 years ago (4)
- more than 10 years ago (5)

Q6 How many return flights did you take in a typical year prior to 2020?

- (1)
- (2)
- 2-3 (3)
- 4-6 (4)
- 7-10 (5)
- More than 10 (6)

Q7 How did you hear about the Flight Free campaign? (select all that apply)

- Word of mouth (1)
- Social media (2)
- TV or radio (3)
- Other news media (4)
- Other (please state below) (5)

Q8 Thinking back to when you signed the pledge, please briefly explain your main motivations for doing so

Q9 Would you take the Flight Free pledge again?

- Yes (1)
- Maybe (2)
- No (3)

Q10 In a sentence, what effect has taking the Flight Free pledge had on your life this year? (Coronavirus notwithstanding)

End of Block: Part 1

Start of Block: Part2 Influencer

Q11 Thank you. You can stop now if you like! But if you are happy to continue it would be a great help for our research. The next questions will go into a little more depth about your motivations for signing the pledge and your responses to climate change. It will only take a few more minutes.

- Yes I will continue (1)
- No I will stop now thanks (2)

Skip To: End of Survey If answer = No I will stop now thanks

Q12 Before signing the Flight Free pledge, were you aware of anyone else who is flying less or has stopped flying because of climate change?

- No (1)
- Yes, I was aware of 1 person (2)
- Yes, I was aware of 2 or more people (3)

Skip To: Q19 If answer = No

Q13 What is your connection with the person who is flying less because of climate change? (If there was more than one person, select all that apply)

- Family member(s) (1)
- Friend(s) (2)
- Work colleague(s) (3)
- Other acquaintance(s) (4)
- Someone in the public eye (5)

Display This Question:

If answer = Someone in the public eye

Q14 Who is the person in the public eye who you knew was flying less because of climate change? _____

Q15 How much did the other person's decision to fly less because of climate change influence you to sign the Flight Free pledge, if at all? (if there was more than one person, please say how much they influenced you overall)

- Not at all (5)
- A little (4)
- Quite a lot (3)
- It was the main reason (2)

Q16 Do you think the other person's decision to fly less because of climate change affected your attitudes towards climate change or flying at all? If so, how? (select all that apply)

- It made me think more about the impact of flying on climate change (1)
- It raised my awareness of climate change as a problem (2)
- It confirmed my existing knowledge of climate change as a problem (3)
- It highlighted a link between climate change and personal behaviour (4)
- It highlighted moral or ethical dimensions of climate change (5)
- It made personal action seem like a worthwhile response to climate change (6)
- It increased a sense that people are acting on climate change (7)
- It highlighted that flying is not necessarily essential (8)

- It did not really affected my attitudes or knowledge about flying or climate change (9)
 - Other (please state below) (10)
-

Q17 What feelings did you have in response to the other person who flies less because of climate change, if any?

	Not at all	A little	A moderate amount	A lot	A great deal
I felt guilty about flying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt hopeful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt judged by them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt pressure to fly less	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please state below)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:
If answer = Not at all

Q18 What qualities about the person who is flying less influenced you, if any? (select all that apply)

- Their likeability (1)
 - Their passion (2)
 - Their expertise on climate change (3)
 - Their position of authority (4)
 - Their clarity on the issue (5)
 - Their commitment (6)
 - The fact that they were taking an unusual stand (7)
 - Other (please state below) (8)
-

Q19 Was there anything or anyone else that specifically influenced you to sign the Flight Free pledge? If so, please explain briefly what the influence was

End of Block: Part2 Influencer

Start of Block: Part 3 Effects

Q21 Please indicate if signing the Flight Free pledge had any of the following effects on you (select all that apply)

	Strongly disagree	Tend to disagree	Neither agree nor disagree	Tend to agree	Strongly agree
--	-------------------	------------------	----------------------------	---------------	----------------

I have learned more about climate change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have felt restricted by not being able to fly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flying seems less necessary than it did before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have made contact with new people because of signing the pledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have become more confident about my views on climate change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am talking to more people about climate change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more committed to taking action to address climate change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more hopeful that climate change will be addressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please state below)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20 Has signing the pledge led to any other changes in your life, apart from not flying? (If yes, please explain briefly) _____

Q22 How easy or difficult has it been for you not to fly in 2020? (select one answer)

- Extremely easy (1)
- Somewhat easy (2)
- Neither easy nor difficult (3)
- Somewhat difficult (4)
- Extremely difficult (5)

Q23 Was there anything specific that made it easy or difficult? (optional answer)

Q25 Do you think you will fly again in future? (select all that apply)

- No, it is a permanent decision not to fly (1)
- Yes, I will probably fly about as much as before (2)
- Yes, but I will fly less than before (3)
- Yes, I will probably fly more than before (4)
- It depends on what other people do (5)
- It depends on how much progress is made on climate change (6)
- Other (please state below) (7)

Display This Question:

If answer = No, it is a permanent decision not to fly

Q26 What might be your reasons for flying in future? (select all that apply)

- Alternative travel is more expensive (1)
 - Friends and family around the world (2)
 - Because of work (3)
 - There are no practical alternatives for some journeys (4)
 - There are places I want to visit (5)
 - Other (please state below) (6)
-

End of Block: Part 3 Effects

Start of Block: Block 4

Q27 For about how long have you considered climate change to be a serious issue?

- For the last year or so (1)
- For 2-3 years (2)
- For 4-10 years (3)
- For more than 10 years (4)
- I don't think climate change is a serious issue (5)

Q28 When did you first decide to make significant lifestyle changes because of climate change, if at all?

- n/a (1)
- In the last year or so (2)
- 2-3 years ago (3)
- 4-10 years ago (4)
- more than 10 years ago (5)

Q29 Before signing the Flight Free pledge, what if any of the following activities did you take part in? (select all that apply)

- I was not very engaged in environmental issues (1)
 - Contributed financially to environmental organisations (2)
 - Volunteered or worked in an area related to environmentalism (3)
 - Took part in environmental demonstrations or activism (4)
 - Wrote letters to politicians or decision-makers about environmental issues (5)
 - Often read and/or talked about climate change (6)
 - Other (please state below) (7)
-

Q30 The survey is nearly over! Are there any other comments you want to make about the issues in this survey or about taking part in Flight Free 2020?

Q31 Which income bracket do you fall into? (optional answer)

- £0 – £14,999 per year (EUR 0 - 16,499) (1)
- £15,000 – £29,999 per year (EUR 16,500 – 33,999) (7)
- £30,000 – £44,999 per year (EUR 34,000 – 49,999) (8)
- £45,000 – £59,999 per year (EUR 50,000 – 66,749) (9)
- £60,000 – £79,999 per year (EUR 66,750 – 88,999) (10)

- £80,000+ per year (EUR 89,000+) (11)

Q32 Please indicate your gender identity (optional answer)

- Female (2)
 - Male (1)
 - Other (please state below if you wish) (3)
-

Q33 Would you be willing to be contacted again by a researcher from Cardiff University about the topics raised in this survey? (Your contact information would ONLY be used for this purpose, nothing else, and would not be passed on to any other parties.)

- No thank you, I would prefer not to be contacted again about this research (1)
- Yes, I am happy to be contacted about this research (2)

Display This Question:

If answer = Yes, I am happy to be contacted about this research

Q34 Thank you. Please enter your name and preferred contact method (email address and/or phone number)

- Name (1) _____
- Email address and/or phone number (2) _____

End of Block: Block 4
END OF SURVEY

D.3 “Sacrifice” mentioned by respondents

Answers that included the word “sacrifice”. These answers were given to open text questions.

Q8 Thinking back to when you signed the pledge, please briefly explain your main motivations for doing so
I signed the pledge to be in solidarity with like minded people, to hold myself accountable, to make a personal sacrifice for a better future, to draw political attention to climate change, to be able to tell my kids that we tried to do something to avoid climate disaster.
Q10 In a sentence, what effect has taking the Flight Free pledge had on your life this year? (Coronavirus notwithstanding)
Not much, It has not been such a big sacrifice as I Thought.
It has not ben a sacrifice . I felt relieved.
I've sacrificed nothing
A feeling that we keep on fighting for nature, our children, planet Earth, prepared to sacrifice what is needed, weather there is av coronavirus or not.
Not so much. For me it's not a big sacrifice but it gives a good chance to explain to friends WHY I'm not flying anymore.
I sacrifise travel-experiences and it can be quite boring. The children often ask us about trevelling and are disappointed about us not taking the flight abroad.

Q19 Was there anything or anyone else that specifically influenced you to sign the Flight Free pledge? If so, please explain briefly what the influence was

I work to support communities on sustainable travel, and so am acutely aware of the fact that transport is now the biggest contributor to the climate crises, and the complete lack of progress so far in achieving change. I am also increasingly frustrated by the lack of appreciation of how you can live a happy, fulfilling life without (regularly) using non-sustainable travel. I suppose I wanted to further lead by example, and show that travelling sustainably can be positive, liberating and enjoyable. I also love travelling overland, by train especially, so not flying for a good while didn't feel like a major **sacrifice**.

I do have a personal history of flying for work between about 1997 and 2015 when I retired. This took me to some amazing places (albeit not normal holiday destinations - think Iraq, Somalia, Eritrea), which I was conscious my wife had missed out on. I needed her to be ready to give up on e.g. a long hoped-for trip to South Africa. The **sacrifice** was hers not mine

Q21 Please indicate if signing the Flight Free pledge had any of the following effects on you (select all that apply) - Other (please state below) - Text

I work at an environmental research institute as a climate expert. So I had already good knowledge on the climate. The last couple of years the climate crises have reached normal people. And making a individual "**sacrifice**" and a statement is suddenly well worth it. I think that has been my greatest motivation.

Q23 Was there anything specific that made it easy or difficult? (optional answer)

Not flying is a no-brainer. Most flying is self-indulgence in the form of wealthy people from the rich world taking holidays. While in an ideal world I would like to visit other continents, **sacrificing** such an indulgence is virtually no **sacrifice** at all.

Before corona I had to travel, and taking trains/coaches can be complicated. I had to spend a night sleeping on the street in France because of train worker protests. A 30 hour coach journey from Bern to London is pretty tiring too! It is also more expensive to travel by train than by plane. But these are **sacrifices** I am willing to make as flying is unacceptable as long as there is an overland alternative.

