School of Psychology
Faculty of Health Sciences

What Does it Mean to be Green in Australia?
Status, Identity, and Pro-environmental Engagement

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This thesis is presented for the Degree of
Doctor of Philosophy
Of
Curtin University

September 2019

Author's Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Human Ethics: The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research 2007 (updated 2018). The proposed research studies received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number: PSY SP 2014-78.

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Abstract

Humans are using up Earth's natural resources faster than they can be replaced. This is causing a wide range of interconnected problems; the climate is changing, the ocean is becoming acidified, lists of endangered species are growing, globally crops are failing. The Earth is becoming unable to provide the services necessary for the survival of humans, animals and plants. Despite widespread recognition of these issues, Australia, an industrialised nation, continues to generate one of the largest ecological footprints per capita in the world.

Environmental issues are largely a consequence of human behaviour. The discipline of environmental psychology is well placed to provide the tools to understand the drivers of pro-environmental behaviour and contribute to the design of behaviour change strategies to promote pro-environmental behaviour. While the discipline has contributed a range of useful models to predict behavioural engagement, they tend to focus on individual factors and there has been limited investigation into the social and cultural contexts in which behaviour occurs. A key dilemma in the environmental psychological arena is the attitude-behaviour gap (also known as the value action gap), whereby those holding strong environmental attitudes do not necessarily engage in pro-environmental behaviours. Therefore, the starting aim in this thesis was to explore the socio-cultural and contextual factors which might be leading to the gap between environmental attitudes and behaviour.

Chapter One, serves as an overview of the thesis. I set out its aims, structure, goals and significance. Then in Chapter Two, I provide a literature review of the current state of research into the promotion of pro-environmental behaviour. This includes the individualised approach, narrow set of philosophical lenses and a tendency to emphasise consumption rather than conservation.

In Chapter Three, I present the findings of a set of in-depth qualitative interviews with 28 Western Australian residents who self-identified as pro-environmental. Using the emerging futures methodology Causal Layered Analysis. Findings suggested that there was a need to investigate the conditions in which pro-environmental behaviour was enacted for reputational rewards rather than an intrinsic desire to ‘do good’ for the planet.

Based on the findings reported in Chapter Three, a second phase was designed to explore the social status associated with pro-environmental behaviours. I conducted a two-stage

online survey which investigated the relationship between pro-environmental identity, perceived social status and pro-environmental behaviour. The findings from this research are presented in Chapters Five, Six and Seven.

In Chapter Four, I present an in-depth literature review of pro-environmental behaviour, environmental identity, and the applications of social status in the environmental psychology space. This sets the scence for the empirical research results presented in Chapters Five, Six and Seven.

In Chapter Five, I set out to understand whether pro-environmental identity should be considered as two-dimensional: that is as having both intrinsic (self-identity) and extrinsic (public-identity) dimensions. Findings suggest that there may be some underlying differences in people's motivations to engage in pro-environmental behaviour.

In Chapter Six, I explored the factors that contribute to the perceived social status of pro-environmental behaviour. I tested whether behaviours that were costly, effortful, and visible were more likely to hold social status. Findings indicate that pro-environmental behaviours should be designed in a way that communicates to others that they are effortful and educated and ensure that the behaviour is publicly visible.

Finally, in Chapter Seven, the motivations and perceived barriers to pro-environmental engagement amongst green voters and traditional voters were explored. Findings suggests that when pro-environmental behaviour is costly and visible, pro-environmental behaviours hold attributes that appeal to those who do not prioritise environmentalism.

The findings in this thesis suggest that there is a need to take a contextualised approach to understand engagement in pro-environmental behaviour. People are motived to engage in pro-environmental behaviour not only for the sake of the environment itself but for self-serving reasons. Promoting pro-environmental behaviour using social status motives might be effective in the short-term but should be avoided as a long-term strategy. In the longer term, there is a need to rebrand and redesign collective behaviours such that they signal that the actor has incurred costs and is engaging in an educated action. This will allow for transformative change rather than individual piecemeal action.

Statement of Contributors and Structure of Thesis

This thesis was supervised by Associate Professor Lynne Roberts, Dr Peta Dzidic, Dr Zoe Leviston and Associate Professor Brian Bishop. I warrant that I have obtained, where necessary, permission from the copyright owners to use my own published journal articles in which the copyright is held by a publisher. Letters of attribution and approval from Taylor and Francis for reproduction of an accepted manuscript for can be found as appendices at the end of the thesis.

Preamble

This thesis is presented as a series of chapters that have been written in manuscript format. Two empirical papers have been published and are presented as Chapter Three and Chapter Six. References for in-text citations in all chapters can be found at the end of this thesis. Given that these papers were written as independent works, some definitions and themes are presented multiple times throughout the thesis.

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List of Abbreviations

CLA	Causal Layered Analysis
CST	Costly Signaling Theory
IPCC	Intergovernmental Panel on Climate Change
OECD	Organisation for Economic Co-operation and Development
OPEC	Organisation of the Petroleum Exporting Countries
PEBS	Pro-environmental Behaviours
SJT	System Justification Theory
TPB	Theory of Planned Behaviour
UN	United Nations
VBN	Value Belief Norm Theory
WWF	World Wildlife Fund

List of Key Terms

Activism Behaviours	Behaviours that can lead to systemic or societal level changes to policy (e.g., signing a petition).
Curtailment Behaviours	Behaviours which lead to a reduction in resource use (e.g., turning off lights and cycling to work).
Efficiency Behaviours	Behaviours which lead to resources being used more efficiently (e.g., installing a water-saving showerhead or solar panels).
Pro-environmental Behaviour (PEB)	Behaviour that changes the ability of materials or energy from the environment or alters the structure and dynamics of ecosystems and/or the biosphere (Stern, 2000).
Public-Identity	The extent to which one would like to be seen as a pro-environmental citizen by others.
Self-Identity	The extent to which one sees themselves as a pro-environmental citizen.
Social Status	The extent to which a person is respected, admired and held in high regard by others.
Sustainability	The maintenance of Earth's natural capital and systems, such that the planet is able to provide resources necessary for human and other life both now and in the future.

Acknowledgements

Thank you to my fantastic team of supervisors. I feel very lucky to have had the freedom to spend time researching a topic that is so close to my heart. I am still not sick of it! Thank you Peta, for introducing me to the field of Environmental Psychology, encouraging to apply to do a PhD (something I thought was ludicrous idea given I had spent my childhood dreaming of becoming a secretary). Our white boarding sessions and time spend sitting on the floor literally cutting up my thesis and sticking it back together again were so useful, and really helped me to bring together the central messages of my thesis. Lynne, thank you for your never-ending encouragement, pragmatic advice, for laughing at my terrible jokes, and for making me feel like I could do each task at hand. I always left supervision feeling energised and competent; two things which can sometimes get lost when writing a PhD. Thanks to Zoe for showing me that it is possible to make a career from my two of my favourite things, people and the environment. Your super savvy and clever suggestions for improving the logic of ideas, research designs and clarity of my writing were extremely valuable. Brian, thanks for teaching me to embrace the uncertainty, the wisdom of causal layered analysis, and always questioning why.

Thank you to the receptionists, managers and business owners who let me recruit through their institutions, organisations and businesses, and to the generosity of 28 people who let me listen to their life stories, and reflections on living in the Anthropocene. To the hundreds of people who completed my surveys. I had lots of compliments of the design of my online surveys via Reddit; I did not expect such positivity from the depths of the internet. Thank you.

Thank you to the people who read drafts of my thesis at various stages: Lucius, Louis, Vincent. Thanks to Moira O'Connor for her helpful comments on the final draft of my thesis. Thank you to my childhood best friend Alex Miller, your edits and proofreading of my final draft were very much appreciated. It is pretty special be crossing the PhD line together after almost 25 years of friendship.

To the absolute legends in the Higher Degree by Research office spaces. You all kept me laughing until I cried, and were there for me when I was crying for no funny reasons. In thank you Ida Best, Leon Booth, Emily Castell, Michael Chapman, Kim Claudwell, Kate Dorozenko,

Jess Gilbert, Jenine Greves, Robin Lines, Emma Logan, Vincent Mancini, Beatriz Oliveria, Shalane Sadri, Margaret Seally, and Sarah Shihata.

A special thanks to the members of the carb trio Jess Gilbert and Shalane Sadri for giving me many pep talks, buying me fish oil tablets to increase my brainpower, making me lunch and not judging me too much for napping under my desk. It has been such a privilege to travel the PhD journey alongside you. Also to Emily Castell and Kate Dorozenko who have guided me like a small duckling, provided much needed debriefs, words of encouragement, and hot tips on surviving PhD life.

Thank you to the Australian Government for providing me with a Scholarship, allowing me to focus on my research, and still have time to sleep and afford to eat healthily. I hope I can continue to research how the world works. Thank you to the staff at the Graduate Research School, the School of Psychology, and the Human Research Ethics Office.

Thanks to my mum for feeding me and housing me well into my twenties, and figuring out to stop asking me when my thesis would be finished. Thanks Lucius for your unwavering support, including rolling me out of bed, making cups of tea and doing encouraging dances.

It seems fitting to be submitting my thesis in Djilba, a season of transition. The wildflowers are out and the days can be sunny. I am looking forward to spending time with my friends and family and not having to turn down invitations.

Personal Statement

Since I was born in 1990, there has been a 65% increase in carbon emissions. However, it wasn't until relatively recently that I became concerned about this. At the start of 2010, two chance events brought my focus to sustainability; a family friend drew a graph of rising temperatures on the kitchen table, I happened to get a job at a café with a focus on sustainability. Since then I have been to numerous, events, courses, and rallies for environmental causes. Then in 2012 while completing my undergraduate degree in psychology, we received a lecture from Dr Zoe Leviston on the psychology of climate change. This opened my eyes to the possibility of studying human behaviour in relation to environmental issues. The topic of this thesis came out of some of my personal experiences navigating how to be a good green citizen. I want to live in a way that avoids harming the natural environment and allows future generations to live a good quality of life, but I also want to live a life that conforms to social norms. These goals are often in tension and have left me behaving oddly at times. I have found myself emptying chip packets into bowls before going to parties and I refuse to have photos of myself with a plastic straw on my Instagram. I took pride in the fact that I didn't own a car, but once I could afford to buy one I did. I eat meat, fly overseas on holidays and will probably have children one day. How do I and others justify these behaviours, when people are being displaced, animals are going extinct and the ecological systems that keep our planet in homeostasis are becoming unstable? This thesis provides some hints as to why I and so many others act the way we do, and what might be done to get us to act in a way which avoids the widespread suffering of humans, animals and the planet we call home.

Chapter One: General Introduction and Thesis Overview

"It's not easy being green"- Kermit the frog

Human activity is reducing the ability of the life support systems that allow us as humans, as well as animals and plants to survive on planet Earth. If current ways of living continue, humans could become extinct (Snyder-Beattie, Ord, & Bonsall, 2019). Yet little action is being taken to change our destructive ways of life. There is an urgent need to understand how 'green' issues are conceptualised, and what the barriers to pro-environmental behaviour change are. This thesis seeks to understand and answer these questions. In this introductory chapter, I establish the background and rationale for this thesis and provide a brief overview of the current and historical context in which the key concerns are situated. Then, the specific research questions are outlined, and I provide an outline of the methodological process adopted.

What is the problem?

The consequences of human activity on the state of the planet has never been clearer. Collectively, human impact on the land, air and water of our home planet Earth is far out of proportion as one species among millions (Gifford & Nilsson, 2014). Scientists have been warning for decades that human behaviour is pushing life on our shared home, planet Earth toward a sixth mass extinction. Now, these warnings are beginning to become reality; the planetary stability our species has experienced over the past 11,700 years to create a flourishing society can no longer be relied upon (Grooten, Almond, & McLellan, 2012). These changes are so great that global change scientists now regard the influence of human behaviour on the Earth's systems significant enough to constitute a new geological epoch: the Anthropocene, era of the humans (Steffen et al., 2011). Further, environmental issues such as climate change can be considered pandemics because of their sweeping effects on the Earth's natural systems and on human health (Swinburn et al., 2019).

The current generation is the first to fully understand the gravity of the environmental issues Earth faces and may also be the last with the ability to do something about it (Allen et al., 2019). In the last decades, engaging in pro-environmental behaviours has received much attention, and has led to an increase in the environmental awareness of the general public

(Lin, Lobo, & Leckie, 2017). While humans have the tools and knowledge to create more environmentally-friendly lifestyles, environmental quality continues to decline (Allen et al., 2019).

Many environmental issues facing humans and the planet are rooted in psychosocial processes, these include judgemental discounting, optimism biases, system justification, social comparison, denial (Gifford, 2011). As such, psychologists play a crucial role in using social science to improve environmental outcomes, including shaping of policy for a more sustainable future (Stern, 2011). Ground has been made in understanding the individual beliefs, perceptions, attitudes and judgements that predict pro-environmental behaviour (Gifford & Nilsson, 2014; Steg & Vlek, 2009), while this is useful, the gap between scientific understanding of profound global environmental challenges and social and political responses continue to widen. In part, this is because working towards environmental sustainability is a wicked problem; it is ill-defined, complex, intractable, and there is no optimal or definitive solution (Rittel & Webber, 1973). Unlike other wicked problems, with environmental sustainability timing is key, as present actions can avert the irreversible effect of climate change on future generations (Lazarus, 2008). However, limiting global warming to 1.5 degrees above pre-industrial levels as recommended by Intergovernmental Panel on Climate Change (Allen et al., 2019) is a herculean task that requires the total and near immediate transformation of our ways of life (Tollefson, 2018). According to the Intergovernmental Panel on Climate Change (IPCC), report on "The Ocean and Cryosphere in a Changing Climate", future generations could see a sea-level rise of 10m (Pörtner et al., 2019).

Recently there have been some suggestions that people may act pro-environmentally not because of a deep-rooted desire to act in the best needs of the planet, but rather to gain the social rewards associated with being seen to engage in pro-environmental behaviours (Elliott, 2013; Griskevicius, Tybur, & Van den Bergh, 2010). Yet, relatively little research has been conducted to investigate the underlying social structures, world views and myths which shape the views and behaviours of those who self-identify as pro-environmental citizens. Environmental psychologists have often examined how individual-level factors such as attitudes and beliefs influence the adoption of pro-environmental action (Steg & Vlek, 2009). However, environmental attitudes are generally a poor predictor of environmental behaviour, with a known gap between environmental attitudes and pro-environmental behaviour (Kollmuss & Agyeman, 2002). These individual factors are rarely examined in the

context of broader social structures, and systems of beliefs. It can be argued that creating behaviour changes has been difficult because suggested solutions are tied to dominant systems of belief and behaviour where consumption and growth are revered and individual needs are prioritised over collective ones. For example, a focus on gross domestic product as the metric for national progress (Lin & Tyan, 2019) implies that a productive economy is the hallmark of a healthy society. In order to improve environmental outcomes, there is a need to prioritise the measurement of environmental quality. Similarly, success in society is often attributed to an individual, rather than a team, communities or organisations. This suggests that it is individuals who need to drive environmental action alone, rather than in groups.

A large amount of the work done in environmental psychology has focused on promoting green consumption behaviours (Sheth, Sethia, & Srinivas, 2011). While there have been a myriad of definitions of green consumption, it generally involves swapping environmentally damaging materials, (e.g., plastic), for materials that can be reused or recycled (e.g., paper or glass); these are known as efficiency behaviours, as resources are being used more efficiently. Providing a critique of green consumption, Wals (2012), has argued that environmental behaviours are contextually dependent and complex, and therefore an environmentally friendly practice in one context may not be environmentally friendly in another. For example in Australia gardens continue to be designed in a way that conforms to British notions of beauty, such as colourful and lush green foliage (Uren, Dzidic, & Bishop, 2015). This neglects the environmental context of most of Australia as an arid landmass. It is therefore important to understand the socio-contextual history and associated barriers and drivers of pro-environmental behaviour. The current focus on promoting more efficient materials and behaviours has also meant neglect of how material use can be reduced (i.e., curtailment behaviours). For example, until recently there was generally a push for greener transport methods, rather than reducing total transport use. Additionally, there has been less work in understanding how broad-scale collective behaviour (i.e., activism behaviours) could be promoted.

Genuine long term change requires that values and worldviews deeply embedded within the social-psychological system are examined and drawn on to create change (Sanne, 2002). It has been argued that popular individualistic indicators of ‘green’ behaviours such as ‘green’ consumption practices are merely a distraction from the structural and ideological changes required for sustainable lifestyles to exist and create an illusion of pro-environmental progress (Akenji, 2014). Therefore, the examination of cultural practices and their

psychosocial meanings may reveal some of the deeper socio-psychological processes involved in pro-environmental behaviour, thus leading to the creation of policy and practice which can aid in the transition to truly sustainable lifestyles and communities.

On the surface, having people who regard themselves as pro-environmental citizens sounds like good news for the environment. However, there are suggestions that those who live green lifestyles or adopt environmental identities overestimate the 'green-ness' of their lifestyles (Balmford, Cole, Sandbrook, & Fisher, 2017; Leviston, 2014), and engage in behaviour that does not move humanity closer towards sustainability (Connolly & Prothero, 2008). There is a need to understand the common misconceptions around pro-environmental actions, and how seeing oneself as pro-environmental influences the adoption of pro-environmental actions.

Rationale

Dominant approaches to create pro-environmental behaviour change have been limited as they attempt to solve environmental problems in the frame of unsustainable value systems using an individualistic focus, and do not sufficiently account for the complexity of the socio-cultural context in which pro-environmental behaviour occurs (Van Kasteren, 2012). Understanding the social dimensions of pro-environmental behaviour is useful and necessary in order to design interventions which can move humanity towards sustainable ways of living. Understanding the worldviews of people who consider themselves 'green' will allow a better understanding of the barriers to engagement in pro-environmental lifestyles.

Research Aims

In this thesis, I explore how pro-environmental lifestyles are constructed in Australia and engagement in pro-environmental behaviour is perceived. I then investigate the extent to which such an environmental identity brings the holder social rewards.

The research aims in this thesis are as follows:

1) To explore pro-environmental narratives by conducting an in-depth exploration of the worldviews of people who self-identify as pro-environmental.

2) To determine if wanting to be seen as pro-environmental (environmental public-identity) can be empirically distinguished from seeing oneself as pro-environmental (environmental self-identity).

3) To identify the factors which influence the social status of pro-environmental behaviours.

4) To determine how Greens voters differ from traditional voters on their motivations and perceived barriers to engagement in pro-environmental action, and;

5) To explore a wider breadth of pro-environmental action beyond sustainable consumption, with a specific focus on curtailment behaviour and activist behaviour.

Research Design and Thesis Structure

In order to gain a holistic understanding of 'what it means to be green', a mixed-methods approach was adopted. Mixed methods designs function on the principle that there are multiple ways of making sense of the world, and taking multiple viewpoints on a problem allows triangulation of issue (Creswell & Clark, 2017). This means that the weaknesses of one approach can be compensated by the strengths of another.

Given the need to start by exploring the under-researched area of perceptions of what it means to be green, an exploratory sequential mixed-methods approach was adopted (Creswell, Plano Clark, Gutmann, & Hanson, 2003). I began with an exploratory qualitative phase which informed the development of a quantitative phase.

A futures method and methodology known as Causal Layered Analysis (CLA) was used to analyse the qualitative data. The aim of a CLA is to provide a conceptual framework such that individual, societal and cultural ideological themes can be identified in one analysis. Here the data is subjected to analysis at four increasingly abstract layers of meaning: litany, social causative, worldview and myth/metaphor (Inayatullah, 2004). The process of analysis is similar to that of a thematic analysis (see Braun & Clarke, 2014), whereby a series of codes are created and interpreted for each layer of meaning. Data is then analysed both within and across layers (Bishop & Dzidic, 2014). Following qualitative data analysis, quantitative data were collected through a series of three online surveys, involving piloting, testing, and retest. This data was analysed using descriptive statistics and parametric statistics.

The underlying philosophy of this approach is pragmatism. A pragmatic philosophical position poists that there are singular and multiple realities, in practice, pragmatism is the use of research methods that work to best answer and frame the research question, whereby research paradigms can remain separate, but can also be mixed (Johnson, Onwuegbuzie, & Turner, 2007). This allows the researcher to side-step the mental and practical constraints imposed by the ‘‘forced-choice dichotomy between post-positivism and constructivism’’, and instead allows the researcher to solve practical “real world” issues (Creswell & Clark, 2017, p.27) Pragmatism has been recognised as the natural partner of mixed methods designs whereby the emphasis is placed on the question asked rather than the methods used, and multiple methods inform the understanding of the problems studied (Creswell & Clark, 2017). A mixed-methods approach is seen as a methodology rather than a method, which then informs the choice of methods within studies (Creswell & Clark, 2017). This approach is in line with the aim of this thesis- explore how pro-environmental lifestyles are constructed in Australia and the extent to which they serve to fulfil a need for social status.

The structure of this thesis is visually depicted in Figure 1, showing how the data collection phases are connected to the four chapters where findings are presented as journal article manuscripts. Following this introductory chapter, **Chapter Two** outlines the history of green movements in Australia and the role of environmental psychology in encouraging pro-environmental behaviour.

The empirical work begins in **Chapter Three,** an exploratory qualitative study is presented where I asked residents from Perth, Western Australia who see themselves as environmental citizens to share how they conceptualise sustainability and apply it to their lives. In this study, I include demographic and behavioural descriptors of pro-environmental lifestyles as well as broader social factors including the exploration of the worldviews and the myths and metaphors which underlie them. I provide an in-depth exploration of individuals who self-identify as attempting to live a pro-environmental lifestyle.

Building upon the findings of chapter three, **Chapter Four** is a review of the literature surrounding social status, identity and pro-environmental behaviours.

In **Chapter Five,** I explore the need for a new type of environmental identity which I term public-identity. Using an Australian community sample and employing a quantitative survey methodology, I present new scales for the differentiated constructs of self-identity and public-identity.

In **Chapter Six,** I explore the characteristics of behaviour which influence perceptions of social status. Sustainable consumption behaviours have received the majority of the attention in the literature. Here I explore the social status attributed to a broad cross-section of pro-environmental behaviours including non-consumption behaviours within the household and collective pro-environmental behaviours outside of the household.

In **Chapter Seven,** I present the motivations, barriers, and pro-environmental aspirations and types of pro-environmental behaviours engaged in by Greens Party voters and traditional party voters.

To conclude, **Chapter Eight** provides a discussion of the overall findings that summarises and integrates the wider theoretical, methodological and applied implications of this thesis. This chapter also provides suggestions for future research that arise from the findings and limitations of the current studies.

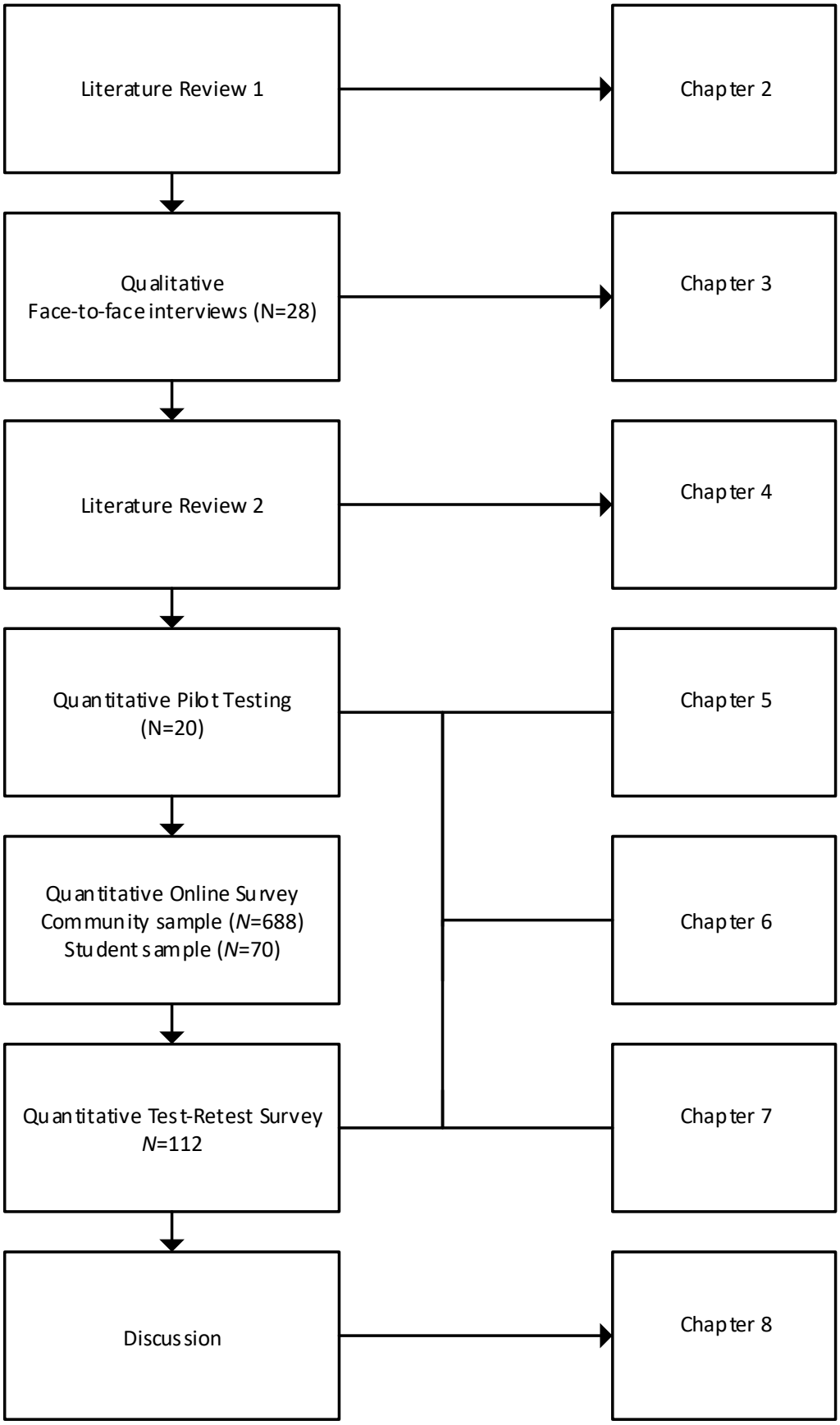

Figure 1. Visual Model of Thesis Structure

Significance

This findings presented in this thesis increase our understanding of why it is that people engage in pro-environmental behaviour. In particular, it highlights how Australians perceive what it means to be 'green' in terms of the *individual* and *collective worldviews* situated within the context of a dominant Western model of living, and how engagement in pro-environmental behaviour might serve as a path to attain social rewards as opposed to an intrinsic desire to protect the natural environment. The premise of the current research is to understand the tensions between the way we know we should behave and the ways which we do behave in relation to environmental issues. In this research, I also aim to better understand the extent to which explicit 'green' *identity* and *behaviours* are social performances versus intrinsically motivated behaviours of goodwill for the planet. This is important in assisting policymakers, developers of environmental learning programs, and researchers in creating genuine long-term sustainable lifestyles in Australia. Without understanding the underlying individual, social and cultural drivers of pro-environmental behaviour, it will be difficult to create long-lasting sustainable change.

Chapter Two: Literature Review- Being Green in Australia

In this literature review chapter, I have two key aims: 1) to set out the background of environmental issues, and why human behaviour is problematic, and 2) to review and critique dominant research perspectives used in environmental psychology.

The State of Planet Earth

Globally, environmental issues such as climate change are having increasingly devastating impacts on lives and livelihoods (Allen et al., 2019). The World Health Organisation (WHO) calls climate change the biggest health crisis the world has ever faced (WHO, 2015). Burning of fossil fuels over the last century has released carbon dioxide (CO_2) into the atmosphere, leading to rapid changes in the Earth's climate. Between 1880 and 2012, the Earth's temperature has increased by an average of .85 °C, with the rate of warming doubling each decade since 1979 (Hansen et al., 2006; Stocker et al., 2013). By the end of the century, the Earth is predicted to warm between two and six degrees compared with pre-industrial levels (Pachauri et al., 2014).

As the Earth becomes warmer, the natural systems that keep the Earth functioning normally become unstable. This means that extreme weather events such as cyclones, drought, and floods are becoming more common (Head, Adams, McGregor, & Toole, 2014). Some effects already being observed include rising sea levels causing coastal erosion and residential damage (Zhang, Douglas, & Leatherman, 2004), fertile lands turning into deserts, and the alteration of the distribution and growth of plants (Parmesan & Hanley, 2015). This has implications for a range of issues such as pollination and grain yield (Hatfield & Prueger, 2015), making farming more difficult, and can lead to unstable supplies and higher prices at the supermarket (Gregory, Ingram, & Brklacich, 2005; Quiggin, 2010). Cumulatively, these changes make for progressively uninhabitable regions, which are already leading to mass human migration and increasing national security concerns, and threatening the existence of humanity (Farbotko, 2018; Gough, 2015). The World Health Organisation has predicted that climate change related causes will lead to one-quarter of a million deaths annually between 2030 and 2050 (*Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s*, 2014). This is thought to be a conservative estimate given

that it does not include deaths from extreme weather and climate events (Haines & Ebi, 2019).

Humans are not the only ones being affected by climate change. Animal habitats and food sources are increasingly disturbed by pressures from resource intensive agriculture, fisheries, manufacturing, mining and other human activities (WWF, 2016). Since 1970, wildlife populations have dropped on average by 58%, predicted to reach 67% by 2020 (WWF, 2016). A report released in May 2019, shows that around one million animal and plant species are now threatened (Díaz et al., 2019). There has also been a worldwide decline in insect species with 40% now facing extinction (Sánchez-Bayo & Wyckhuys, 2019).

The Earth's climate is changing in part due to the burning of fossil fuels; it is also changing due to the rapid consumption of other resources. Deforestation due to livestock production and large-scale agriculture continues to rise, with 2017 the second-worst year on record for tropical tree cover loss (Weisse & Goldman, 2019). Over a third of the Earth's surface and three-quarters of freshwater resources are now dedicated to crop or livestock production (UN, 2019). In our oceans, only 7% of fish stocks were being harvested at levels lower than what can be sustainably fished (UN, 2019).

In an Australian context, there have been a number of changes to the natural environment which threaten plant, animal and human life. Over the past 40 years, the South West of Western Australia has experienced decreases in rainfall (England, Ummenhofer, & Santoso, 2006). This has led to metropolitan potable water supplies being overstretched and now a number of Australian capital cities, including Sydney and Perth, rely on energy intensive desalination plants in order to provide water to residents. Drought has also affected grain production, with the lack of rainfall in winter 2018 meaning Australia has had to start to import wheat from Canada (Wahlquist, 2019). Bushfires have become more frequent due to the increased number of hotter and drier days, and have resulted in the loss of life, property and historical sites (Sharples et al., 2016). Reduced water sources have also meant the drying of land, and reduced feed for animals. At the time of reporting, Ives et al. (2016) reported Australia has 1643 threatened animal species. There has even been a decline in common birds such as kookaburras (Lindenmayer et al., 2018).

Urgent action is required to mitigate the effect of these environmental crises on humans, animals and the natural environment. Scientists have agreed that warming of the planet needs to be limited to 1.5% (Allen et al., 2019). Time is running out to ensure that this limit

is not exceeded. Only present-day action can prevent irreversible damage to the planet causing mass suffering to future generations.

Why is the planet in such a bad state?

A group of 1,300 independent scientific experts from countries all over the world known as The Intergovernmental Panel on Climate Change (IPCC), concluded there is a more than 95% probability that human activities are the cause of climate change. For the most part, it is the energy-intensive lifestyles of people living in high-income industrial nations, such as Australia, which is the primary cause of anthropogenic climate change (IPCC, 2014).

In the middle of the twentieth-century human consumption began to outstrip the regenerative capacity of Earth (Steffen et al., 2011). Increased levels of consumption were made possible as work moved from manual labour to streamline manufacturing methods requiring energy in the form of non-renewable resources such as coal, and enabled large volumes of standardised, low-cost commodities to be produced. These improved efficiencies led to rising incomes and increased consumption of goods and services, and also led to increased standards of hygiene, which became new moral and social criteria (Grigg, 2008). This increased access to resources, hygiene and health care associated with the industrial revolution led to an explosion of the human population, a decline in infant mortality, and longer life spans than ever before (Khan, 2008).

In more recent decades, consumer culture in Western countries such as America and Australia have undergone dramatic growth (Paul & Guilbert, 2013). Resource use in developed nations in 2017 has been estimated to be double that of 1980 (UN, 2019). Shopping centres have become the centre of the community, and are now twice as common as high schools (Khan, 2017). In an effort to keep up the levels of consumption which have become the norm, many Australians report intensified work. There has been increasing labour market participation by women, increasing working hours and declining unionisation and collective bargaining (Williams, Pocock, & Skinner, 2008; Wooden & Drago, 2009). With an increase in work, people have reported being increasingly time-poor, and with less time, there has been a trend towards households owning multiple vehicles (Currie & Delbosc, 2011), and a decrease in homemade food evidenced by the increase in heavily packaged commercial prepared foods (Venn, Banwell, & Dixon, 2017). The need for increasing resources to improve standards of living has led to the formation of a treadmill of consumption, where people work longer and harder to buy more goods in an effort to

maintain the standard of living prescribed by the dominant culture. Yet the acquisition of goods seldom leads to greater fulfilment (Van Boven, 2005), and instead prioritises consumption and convenience over sustainable living (Fischer & Boer, 2011; Layard, 2011).

Contemporary economies are built on the principle of growth, and progress is measured by a country's ability to produce and consume resources (Jackson, 2011). This has led to a consumer culture that emphasises possessions and achievement over people and relationships (Khan, 2017). Environmental problems, at their core, are problems of consumption (Kilbourne & Pickett, 2008; Stern, 2000). This is in conflict with Australia's key industries, as a nation built on iron ore, coal and natural gas; electricity powered by coal, and cars powered by petroleum remain the norm. As such, it is thought that individuals who hold pro-environmental attitudes often find it difficult to enact pro-environmental behaviours without foregoing other socially revered practices such as owning a car or being up-to-date with fashion trends (Elliott, 2013).

History of Environmental Action

In response to the impacts of industrialisation and consumer culture on the state of the environment, there has been a push for more pro-environmental ways of life. The 'green' movement gained momentum in the 1960s and 1970s in recognition of global environmental problems. This was partly as a result of the first oil crises which created a general distrust in society, industry, and modern technology and a desire to 'get back to nature' (Dunlap & Mertig, 2014). Rachel Carson's seminal book *Silent Spring* (1962) was the first to recognise environmental issues as a social crisis embedded in economic and population growth requiring societal change. Then, *Limits to Growth*, a report published by scientists and political leaders in 1972, drew attention to the increasing pressure on natural resources from human activities (Meadows, 1972). More recently, Al Gore's 2006 documentary *An Inconvenient Truth* coupled with the economic uncertainty following the global financial crisis of 2008 re-fuelled concern about the sustainability of modern lifestyles, particularly in relation to climate change and clean energy (Strife, 2010).

Despite the poor track record of environmental outcomes, Australia has some history of environmental protection and at some points was regarded as a world leader (Pakulski, Tranter, & Crook, 1998). Climate science in Australia dates back to the late 1940s (Smith, Thomsen, & Keys, 2011), and action to deter environmental degradation began in the 1970s, starting with an activist organisation known as the United Tasmania party. The United

Tasmania Group eventually went on to become the Australian Greens, one of the first political parties in the world to campaign on a predominantly environmental platform (Jackson, 2016). At the turn of the century, Australia was looking in good stead to tackle climate change, with Australia the first country to establish a government department dedicated to reducing carbon emissions; the Australian Greenhouse Office was established under the leadership of John Howard ("Hill Announces New Greenhouse Chief," 1998). In 2011, under the leadership of Julia Gilliard, Australia introduced a carbon pricing scheme requiring large businesses to purchase emissions permits. Australia's greenhouse gas emissions dropped 1.4% in the year after the introduction of the scheme, the largest recorded decrease in the previous decade (Milman, 2014). However, concern about the scheme's impact on household electricity prices meant that it was quickly dismantled when the Australian government changed hands to the conservative Liberal-National Party coalition led by Tony Abbott in 2014 (Meng, Siriwardana, & McNeill, 2014).

Since the 1980s, Australian climate change policy initiatives have tended to be framed in terms of economic impact, whereby targets to reduce greenhouse gas emissions have been subject to their effect on the Australian economy (Smith et al., 2011). In 1994, the Kyoto Protocol, an internal treaty to reduce greenhouse gas emissions, was ratified by all members of the UNSECO, except Australia and the United States, meaning that any agreements made were not legally binding (Talberg, Hui, & Loynes, 2016). It was not until 2007, with climate change a central talking point of the Australian federal election that the government, led by the Australian Labor Party, ratified the Paris agreement and the Doha Amendment to the Kyoto protocol. This brought hope for more rapid and radical change at a government level, with the Labor government establishing a Department for Climate Change and Energy Efficiency and legislating emissions trading scheme. With a change of government back to the Australian Liberal-National Party coalition in 2010, a number of climate related policies were dismantled including the Department for Climate Change and Energy Efficiency and the Clean Energy Act (Talberg et al., 2016).

In the last decade, climate research in Australia has tended to focus on adaptation policies and programs through national research programs. These have included the National Climate Change Adaptations Research Facility and the establishment of the Department of Climate Change and Energy Efficiency by the Australian Government. Despite the strong research culture, progress on decarbonising the economy and moving to renewable energy sources has been stunted by substantial political controversy and pressure from industry (Smith et

al., 2011). Fossil fuel industries continue to provide significant funding to two of the largest political parties, and therefore play a powerful role in shaping Australian society (AEC, 2019). There are also vested interests in the media landscape, with their largely unchallenged discourse in mainstream media outlets (Holmes & Star, 2018). For example, the media has often portrayed climate change as a debate, with climate change sceptics and believers. This is not representative of the reality that 98% of climate scientists agreeing that climate change is occurring and is caused by humans (Cook et al., 2016).

Why are people struggling to act 'green'?

At a household and individual level, engaging in a 'green' lifestyle is a broad concept that has provoked conflict over its definition (Hoffman & Bazerman, 2007). Today, there are a number of terms used to describe engaging in a pro-environmental lifestyle including environmentalism, eco-friendly, ethical living, and zero-waste lifestyles (Ball, 2016). Australians say they care about the environment and are interested in engaging in pro-environmental behaviour (Newton & Meyer, 2013). Survey data shows that the most universally engaged in pro-environmental behaviours are household recycling and switching to products that are more environmentally friendly (Leviston, Price, Malkin, & McCrea, 2014).

Despite these positive trends, it has been observed that those who say they engage in pro-environmental behaviour do not always act any more environmentally friendly than those who say they do not, or as environmentally friendly as they think when compared with others (Balmford, Cole, Sandbrook, & Fisher, 2017; Leviston & Uren, 2020; Newton & Meyer, 2013). Some explanations for this include contextual barriers such as financial and time constraints, as well as convenience and comfort (Newton & Meyer, 2013). There are also psychological explanations such as the moral licencing effect, Jevon's paradox and the better than average effect. Moral licencing is said to occur when engagement in pro-environmental behaviour leads people to feel that they have a moral licence to indulge in self-interested and unethical behaviours (Mazar & Zhong, 2010). Jevon's paradox is the phenomenon that an increase in efficiency does not lead to a decrease in resource use (Alcott, 2005). In Massachusetts for example, an environmental campaign to reduce water successfully lead to a 6% decrease in water use, but electricity use during the same time increased by 6% (Tiefenbeck, Staake, Roth, & Sachs, 2013). It is suggested that resource conservation in one area may make feel people entitled to be more wasteful elsewhere (Dütschke, Frondel, Schleich, & Vance, 2018; Mazar & Zhong, 2010). This is problematic, as people feel as they are acting pro-

environmentally, and are able to avoid guilt, however, there is no net impact on environmental conditions (Alcott, 2005; Freeman, Yearworth, & Preist, 2016).

Another cognitive strategy used to alleviate feelings of guilt regarding our environmental contributions; the phenomenon that people tend to think of themselves as better than others, known as the better than average effect. In a survey of over 5000 nationally representative Australians, Leviston et al. (2014) found respondents overestimated their engagement in pro-environmental behaviour. Respondents were asked how their pro-environmental behaviour fared compared to the average Australian. More than 90% thought that they were doing equivalent to the average or better. Similarly, in a survey of 17,000 people from 17 countries by National Geographic, Australians were some of the least concerned about the environment and performed the fewest pro-environmental behaviours, compared with other countries (Malmqvist & Whan, 2014). Despite this, over half of Australians viewed themselves as 'green' (53%), with an additional 24% agreeing that they are not 'green' now, but plan to be in the next five years (Malmqvist & Whan, 2014).

The disconnection between our current ways of life and what is deemed sustainable by experts is vast. While people perceive that they are doing well and acting 'green', many supposedly 'green' lifestyles are not really 'green' at all. Given that people tend to overestimate how green their lifestyles are, it appears many people maintain a skewed understanding of what 'green' means. This can be explained in part by the tensions between living sustainably and living in the developed world, with messages of environmental concern in conflict with dominant social values of growth and consumption (Elliott, 2013). People struggle to engage in pro-environmental behaviours because the behaviours required to meet long-term sustainability goals are at odds with both the structure of the dominant social system and individual psychological factors (Browne & Bishop, 2011; Gifford, 2011).

There are a number of reasons why people struggle to act pro-environmentally. First, the perception of climate change and other environmental crises as abstract and distant is thought to undermine action (Gifford, 2011). When moving towards sustainable lifestyles there is a need to consider life beyond our own. Until a few centuries ago, the major focus of humans was providing food and shelter for their families. Now, humans can be aware of their impact on future generations, but human perceptual systems have not been designed to act in the face of long term threats.

Second, the dominant social paradigm positions humans as independent persons above, and separate from nature (Hofmeister-Toth, Kelemen, & Piskóti, 2012). In order for life on Earth to be sustainable, as humans, we must understand the interconnectedness of human life and the natural environment (Vining, Merrick, & Price, 2008). However, in many Western societies modern life is disconnected from the natural environment, with built environments servings as barriers to the natural world (Schultz, 2002). People must purposefully make time to spend in nature. Without spending time with nature, it is easy for people to think of themselves as separate from or above nature, rather than a part of it. How then can people value nature, if they are not exposed to it, and do not understand it's importance?

Third, in market-based societies like Australia, the dominant social system is based on a capitalist worldview, and as such, Australians tend to cite short term economic problems as the most important national issue (Leviston et al., 2014). While a capitalist system creates high standards of living in the short term, it assumes an abundance of resources and is dependent on endless growth and consumption (Cock, 2011). Fourth, behaving sustainably resembles a commons dilemma (Hardin, 1968), whereby there is a need for communities, organisations, and countries to work together rather than working on piecemeal individual efforts. It has been suggested that capitalism is antithetical to a healthy functioning planet, and a total paradigm shift is needed to avoid social and ecological crises that stem from climatic conditions that are unable to support life (Cock, 2011).

Another barrier to action is the appropriation of sustainability rhetoric (Akenji, 2014). The term sustainability has become a popular buzzword; corporations and governments have tended to oversimplify what sustainability entails, making it questionable whether we understand what sustainability is, or how it can be achieved (Cock, 2011). It has been recognised that there is money to be made from greening lifestyles; companies are now differentiating their products by marketing them as green, sustainable and environmentally friendly (Cai & Zhou, 2014). One example is the remarkable growth in the global market for goods and services with pro-environmental credentials (Akenji, 2014), and Leonidou and Skarmeas (2015) state that there has been a four-fold increase in the years between 2011 and 2015 from $209 to $845 billion. Examples include green bags, hybrid cars, dolphin-safe tuna, fair-trade chocolate, and organic cotton. While on the surface these products appear to be a positive step towards sustainable development, they have been met with criticism. There is concern that 'green' consumerism is tokenistic, creating the illusion of environmentally conscious progress without shifting away from the underlying narrative

promoting growth and consumption (Akenji, 2014). The term 'greenwashing' has been coined to emphasise that products marketed as green are seldom as green as they appear (Delmas & Burbano, 2011).

Psychology's contribution to sustainable societies

Given that environmental problems are fundamentally human behavioural problems, then psychology as the 'science of human behaviour' ought to be well placed to offer understandings as to how to change people's perceptions of, attitudes to and behaviour in relation to the environment. Research focusing on how to promote pro-environmental behaviour can be traced back to the start of the 1970s, emerging alongside the rise of the environmental movement (Stern, 1992; Uzzell & Räthzel, 2009). Formal recognition of the need for a focus on psychological science to address environmental issues did not come until 1994 when the American Psychological Association set out the need for a research agenda for the psychological study of environmental problems (Cvetkovich & Wener, 1994). Since then, a range of social, psychological and community-based research has been conducted in an attempt to understand how people think and behave with regard to the environment and conservation issues (Gifford & Nilsson, 2014; Steg, Bolderdijk, Keizer, & Perlaviciute, 2014; Swim et al., 2011).

The work conducted by environmental psychologists and related social scientists has significantly advanced our understandings of the types of people who engage in sustainable lifestyles and the types of behaviours they engage in (Steg & Vlek, 2009). It has also highlighted a range of predictors and descriptors used in the creation of interventions to encourage pro-environmental behaviour (Osbaldiston & Schott, 2012). Despite this, current approaches focusing on promoting pro-environmental behaviour are not achieving the mainstream changes needed to ensure the sustainability of resources or the stability of the climate (Sörqvist, 2016). Community and environmental psychologists have voiced conflict between the positivistic traditions inherent in scientific planning and in understanding complex social issues (Browne & Bishop, 2011). There are a number of shortcomings in the way environmental psychology research has tended to be conducted which I will lay out in the following section: 1) overly rational, 2) lack of context, 3) focus on consumption, 4) homogeneity of methods.

Overly rational

Models and theories used in environmental psychology were predominantly developed in the United States at a time when social cognition was a dominant approach within social psychology (Brown, 2017). These models focus on measuring, recording and explaining behaviour; treating the individual as a processor of information. At the core of these theories is the belief that at the centre of a person lays an objective, free-acting, autonomous, and rational actor (Uzzell & Räthzel, 2009). These theories assume that experiences can be reduced into smaller parts and that individuals can be separated from each other, their communities, their culture and the rest of the natural world. As such, approaches to encouraging pro-environmental behaviour have traditionally focused on using rational choice models, where change occurs by educating the public and convincing the public of the importance and reality of environmental problems (Bain et al., 2016). Here it is thought that presenting climate science and its consequences in a convincing manner would be enough to get people to act in a pro-environmental manner (Cooper, Green, Burningham, Evans, & Jackson, 2012). This is reflected in the dominance of mesoscale theories, which emphasise individual-level constructs such as knowledge, education, values, goals and worldviews. Three of the most commonly used theoretical models in environmental psychology - Theory of Planned Behaviour (Ajzen, 1991), Value-Belief-Norm Theory (Stern, 2000), and Goal Framing Theory (Lindenberg & Steg, 2007) - all focus on individual factors such as attitudes, values, beliefs and behavioural intent. A focus on these factor models suggests that if people care about and value the environment they will engage in pro-environmental behaviour. While holding environmental values do contribute to pro-environmental behaviour (Steg et al., 2014), models like this over emphasise rational choice by individual actors and fail to acknowledge the host of contextual factors that influence behaviour.

Models such as the Theory of Planned Behaviour and the Theory of Reasoned Action have been found to be somewhat successful in predicting relationships, being able to explain up to 35% of the variance in pro-environmental engagement (Unsworth, Dmitrieva, & Adriasola, 2013). While from an academic perspective, this is a substantial amount of variance, evidence shows that individuals expressing high levels of environmental concern do not necessarily adopt pro-environmental behaviours in their daily life (Kollmuss & Agyeman, 2002; Moser, 2015). This phenomenon is known as the value action gap (similar to the intention-behaviour gap), whereby people's environmental values do not match their engagement in pro-environmental behaviour (Kollmuss & Agyeman, 2002). There are a number of flaws in

human perceptual systems which mean that rational choice models, such as those just described providing an incomplete account of human behaviour. I will describe some shortcomings of these perceptual flaws below.

First, humans have not evolved alongside the need to manage long term threats. As a result, humans often have trouble responding to slowly developing but potentially catastrophic conditions (Griskevicius & Kenrick, 2013). Unfortunately for problems such as climate change, by the time problems are readily apparent it might be too late. Second, environmental problems are overwhelming. Humans have a strong innate tendency to delay action rather than work to prevent crises and prefer ignorance to the complexity and enormity of addressing environmental issues (Gifford, 2011; Wolf & Moser, 2011). This phenomenon is made clear in the acceptance of anthropogenic climate change. Despite near unanimity between climate scientists, as of August 2013 less than half the Australian population believed that humans were to blame for climate change (Cook et al., 2013; Leviston et al., 2014).

Third, pro-environmental choices are complex and challenging (Gifford, 2011). For example, is it better for the environment to burn fossil fuels by driving 15km to the farmers market, or shop at the neighbourhood chain supermarket where food has travelled hundreds of kilometres by truck? Is it better to have a water-dependent lawn which cools the house or AstroTurf that does not need watering but heats the house? It is often very difficult to hold all the information required to make an informed decision about the environmental impact of behaviour. Additionally, if a decision is the most environmentally sensible at one time or place, this will change with seasons, climate and the relative availability of resources.

Finally, rational choice models assume that it is possible to exercise deliberate choice over our behaviours, however contextual factors often preclude action. For example, cyclists are not able to cycle if cycle lanes do not exist, engineers cannot leave their work at an oil company for a greener industry if there is no renewables industry. Homeowners cannot install solar panels on their roofs if they are not financially viable.

These flaws in human perceptual systems mean that rational choice models are simplistic, and do not consider the need for nuance when considering pro-environmental engagement. Recently there has been a growing agreement of the importance in widening the understanding of pro-environmental behaviour beyond individual attitudes or knowledge,

and looking at the social value and symbolic significance of pro-environmental behaviours (Elliott, 2013; Steg et al., 2014).

Lack of recognition of context

The pursuit to understand the individual has meant that we have often neglected the significance and power of social change, and failed to acknowledge the socio-cultural context in which individuals are embedded (Clayton et al., 2016; Uzzell & Räthzel, 2009). Behaviour is not just determined by rational deliberation, rather, it is enmeshed in a web of non-instrumental motivations such as habit and cultural tradition, emotional impulses, and the influence of peers, family, social norms, as well as wider societal trends (Brown, 2017; Soron, 2010).

Additionally, while attitudes and values do have a role in influencing behaviour, they are not created in a socio-cultural vacuum (Uzzell & Räthzel, 2009). Instead, attitudes and values are embedded in and cultivated from social contexts including socio-economic class, ethnicity, and environmental settings. For example, if fresh produce is increasingly imported and packaged in plastic because it is cheaper and leads to longer shelf life, it does not make sense to teach people about the dangers of plastic and the carbon footprint of international transport. Instead, it is necessary to rethink the system and take measures to restructure local fruit and vegetable supplies and how they are sold. Environmental issues, therefore, require a systemic perspective-with parts understood in relation to their whole, and phenomena understood in relation to other phenomena (Jackson, 2011). Meaningful change requires recognition of the great complexity and ecological influences behind the motivations for pro-environmental behaviour.

Not only does the dominant rational and individualistic perspective fail to consider the overwhelming socio-cultural shifts needed to create a sustainable society, such a perspective often unintentionally legitimises and promotes problematic values which serve to exacerbate the problem. Pro-environmental behaviour campaigns have tended to promote behaviours using values that inadvertently reinforce aspects of identity that are associated with environmental problems. These have included campaigns which appeal to extrinsic values such as financial self-interest and social status, specifically green consumption behaviours. While potentially successful for specific behaviours in the short-term, campaigns promoting the consumption of green products ultimately reinforce materialistic and selfish values (Crompton & Kasser, 2010). Further, these campaigns have been shown to support self-

serving values at the expense of others and hence hamper the development of environmental concern and motivation to behave in pro-social and pro-environmental ways (Steg et al., 2014).

Without considering broader social-cultural drivers of complex social psychological issues (e.g., pro-environmental behaviour), creating sustainable homes, communities, and societies is unproductive (Bishop & Dzidic, 2014). It has been said that people's pro-environment actions are exceedingly complex and contextual, and cannot be captured by a simple causal model (Wals, 2012). Taking a contextual approach to understanding pro-environmental behaviour is therefore essential.

Homogeneity of Methods

There has been a noted lack of variety of measurement amongst environmental psychology research. The vast majority of approaches to pro-environmental promotion have adopted quantitative psychological approaches, in particular, one-time self-reports (Gifford, 2014). Although these have been shown to be very useful, they are not able to sufficiently account for the complexity of the socio-cultural context in which pro-environmental behaviour occurs (Batel, Castro, Devine-Wright, & Howarth, 2016; Uzzell & Räthzel, 2009).

One issue is that measures of environmental attitudes have relied on explicit self-report measures which assume that the participant is aware of their attitudes (Kormos & Gifford, 2014). There is substantial evidence however that many daily activities are the result of non-conscious cognitive processes (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). This causes issues with the measurement of environmental behaviour and attitudes. Self-report measures capture explicit attitudes, require deliberate processing and are subject to the influence of social desirability (Beattie, 2011). This means that self-report measures are likely to measure our ideal selves rather than our actual selves, which may artificially alter reported attitudes and reduce the variability in responses (Schultz & Tabanico, 2007), and potentially provide a partial explantion of the attitude behaviour gap commonly observed. A potential remedy to the weaknesses of self-report pro-environmental behaviour data it to include other types of approaches such as observation and qualitative research approaches. Qualitative research is often inductive in that it draws on the complexity and richness of human situations and meaning to produce descriptive generalisations and theories grounded in practice (Seamon & Gill, 2016). Qualitative approaches are often overlooked because they are at odds with the positivist methods which traditional psychological science has tended to

privilege (Breen & Darlaston-Jones, 2010; Wertz, 2011), and quantitative methods have been noted to be favoured in research funding and publishing processes (Gough & Lyons, 2016). However, qualitative approaches allow for probing, discussion of context, and for tensions and inconsistencies in responses to be identified (Atieno, 2009). This places qualitative approaches as a much-needed addition to the environmental psychology discipline in order to tease apart the tensions between wanting to act in a pro-environmental manner, and not following through.

Overemphasis on sustainable consumption

Sustainable (or green) consumption refers to the production and promotion of goods and services which are preferred by consumers on the basis that they are more environmentally friendly than conventional products (Akenji, 2014; Thogersen & Olander, 2002). Along with the rising concern of overconsumption, research promoting pro-environmental behaviour has often focused on promoting green or sustainable consumption. Green consumption literature involves studying factors that influence the uptake of engagement in the purchasing of green products (Thogersen & Olander, 2002). Research promoting sustainable consumption has involved developing schemes for eco-labels on products, the promotion of energy-efficient appliances and the development of recycling strategies (Akenji, 2014). A recent Australian example of a sustainable consumption initiative was the phasing out of single-use plastic in Western Australia, with State Government agencies replacing them with compostable alternatives (Premier's Circular, 2018).

Some have labelled sustainable consumption 'mundane environmentalism' as it fails to reject the norms associated with dominant economic models (Kashima, Paladino, & Margetts, 2014). Consuming too much of anything is unsustainable regardless of the green credentials. There have been calls to focus on reducing consumption rather than replacing consumption (Akenji, 2014). While policies and programs such as those listed above are likely to bring about specific changes in pro-environmental behaviour, they may not necessarily generalise to other behaviours, that is, behavioural spill over and environmental improvements are often limited in scope and temporary (Maki et al., 2019). Importantly, while these types of policies are needed and do promote sustainability, they do little to challenge current ways of living, and instead (often unintentionally) legitimise consumerist values, whereby consumption continues but is focused on the consumption of different materials (Moloney, Horne, & Fien, 2010). It is also important to acknowledge that green products are often a

part of the industrial process, and therefore approaching environmental issues with sustainable consumption suggests that it is possible for humans to continue business as usual whereby nature is used for, and dominated by, humans (Schimelpfenig, 2017). Additionally, tackling environmental issues from a sustainable consumption perspective tends to reinforce the notion that individuals are not responsible, and that it is not possible to do anything about broader environmental problems (Uzzell & Räthzel, 2009). The limitations of sustainable consumption perspectives highlight the need to explore the 'upstream' causes of environmental problems rather than the 'downstream' symptoms.

Another factor that may have led to prioritising consumption and individual consumer behaviour is the notion of free choice (Uzzell & Räthzel, 2009). Consumers are told that they are able to vote with their wallets in order to influence change (Becchetti, 2012). However, for the most part, consumers can only operate through largely ineffectual individual action (O'Rourke & Lollo, 2015). It remains relatively rare that consumers have been organised and numerous enough to assert collective pressure, although there is reported evidence that consumers are punishing brands for their environmental track record. For example, Cadbury chocolate is transitioning from using palm oil in its chocolate to using other Australian grown alternatives, after significant push back from its customers (Lucio, 2020). For the most part, it is only when consumers become an organised collective that they have weight to influence producers. It is not anonymous, free-market forces through the sum of individual actions, rather it is conscious political action, that has the potential to bring about wide-scale transformative change (Uzzell & Räthzel, 2009).

What is lacking?

Psychological research mainly consists of individualistic and reductionistic models of human behaviour that often fail to account for human behaviour within its social, economic and political context. In order to effectively respond to environmental and climatic crises, there is a need for coordinated actions that consider the individual in their context (Clayton et al., 2016; Thøgersen & Crompton, 2009). In line with a more collective and ecological approach to enquiry, there appears to be merit in literature exploring how pro-environmentalism is defined and constructed by people who believe that they are living sustainable lifestyles. Little is known about what types of behaviours are seen to be environmentally sustainable, what motivates pro-environmental behaviours, and if motivations to engage in pro-environmental behaviours expressed by people who believe that they are living sustainable

lifestyles are different from those who do not self-identify as pro-environmental. This exploration needs to be conducted using research methods that allow participants to contextualise their experience and explain the forces that influence them in their own words. This would move the focus of encouraging pro-environmental behaviour from looking solely within the individual to also looking at the contextual structures, worldviews, and myths that people are situated within and have varying levels of capacity to act on.

Summary

The planet we call home is under threat. Transitioning towards more pro-environmental ways of living would bring massive public benefit, and environmental psychology is well placed to assist in developing approaches to encourage sustainable lifestyles. While quantitative psychological research has identified a number of important predictors of pro-environmental behaviour, there is a need for studies looking at the underlying meanings of sustainable behaviour. Pro-environmental behaviour communicates shared meanings co-created in interaction with social systems (Pearce, Willis, Mamerow, Jorgensen, & Martin, 2014), therefore engagement in pro-environmental behaviour is not just the result of individual agency but is embedded within complex social systems The individualistic perspectives dominant in extant environmental psychology research are based on the assumption that the main barriers to pro-environmental action are a lack of appropriate information and personal interest. However environmental issues are wicked problems; they are inherently hard to understand, have complex causality, are largely invisible, lack concrete certainty, and are removed from us in space and time. As such, it is often very difficult to ascertain the true environmental costs of a behaviour (Gifford, 2011; Wolf & Moser, 2011). There is, therefore, a need to look at pro-environmental behaviours in context, in order to understand how people strive to meet the ideologies of the dominant social system and to understand the worldviews that support unsustainable ways of living.

In the first step towards meeting this need, in the next chapter, I explore the perceptions of what it means to be a green citizen amongst people who consider themselves to be green.

Chapter Three: Green Tinted Glasses

Uren, H. V., Dzidic, P. L., Roberts, L. D., Leviston, Z., & Bishop, B. J. (2019). Green-tinted glasses: How do pro-environmental citizens conceptualize environmental sustainability? *Environmental Communication*, 1-17. doi:10.1080/17524032.2017.1397042

Abstract

Recent research has shown that many Australians see pro-environmental behaviour as desirable, and identify as being green. However, when compared to other countries, Australians score poorly on pro-environmental behaviour measures, engaging mostly in tokenistic pro-environmental actions, and demonstrate low levels of concern for the environment. In this article we examine this tension through exploring the meaning of the term sustainability to Australian participants who self-identify as pro-environmental. Twenty-six interviews were conducted and analysed using Causal Layered Analysis. Through the examination of participants' environmental discourse and practices, some of the deeper socio-psychological processes influencing pro-environmental behaviour are revealed. While participants aspired to be green, their actions were bound by cultural traditions and worldviews that perpetuate environmental degradation. Participants struggled to define the term sustainability and held self-enhancing motives for adopting what they identify as a pro-environmental identity. These findings highlight the influence of collective cultural constructs in shaping how pro-environmental behaviours are understood and enacted.

Keywords: sustainability, social construction, worldview, Causal Layered Analysis, environmental identity

Highlights: Despite claiming to hold a sustainability identity participants found it difficult to define sustainability, and distanced themselves from social activism. A sustainability identity was used to leverage moral superiority and feelings of self-approval and accomplishment.

Introduction

Sustainability and environmental sustainability are concepts that have gained increasing popularity in Australia, and across the Western world in the last few decades. Yet despite social, political, and commercial recognition of the need for sustainable lifestyles, few would argue that lifestyles are becoming more sustainable (Batel et al., 2016). Compared to Organisation for Economic Co-operation and Development (OECD) countries, Australia scores poorly on a number of sustainability indicators (Kroll, 2015). Australia's continued reliance on coal as a power source, makes it one of the top ten emitters of greenhouse gases in the world, producing more pollution per unit of energy than China or the USA (Kroll, 2015; Stock, 2014). Australia also has the highest domestic material consumption rate of any OECD country, and now consumes resources three times faster than they can be replaced (Kroll, 2015; WWF, 2016). The latest Australian statistics reveal a 145% increase in gross waste production in the 15 years leading up to 2012, despite only a 22% increase in population over the same period (ABS, 2013). Additionally, almost all biodiversity indicators examined by the 2011 State of the Environment Report rated 'Poor' or 'Very-poor' and are predicted to deteriorate further (State of the Environment Committee, 2011).

Despite Australia lagging behind developed nations in environmental credentials, there has been a growing focus by media on promoting pro-environmental lifestyles, with increased attention given to environmental issues (Schmidt, Ivanova, & Schäfer, 2013) and sustainable lifestyle television programs (Lewis & Potter, 2011). Similarly, recent years have witnessed an increased uptake of environmental sustainability reporting by business (Higgins, Milne, & van Gramberg, 2015) and the consumer market has seen an increase in both demand and supply of green consumption products, such as organic and eco labelled products (Hassan & Valenzuela, 2016; Nielsen, 2015). Australians also consider sustainability to be an important issue and desire to live in a sustainable society (van Dam & van Trijp, 2011). However, understandings of what a green lifestyle entails does not appear to be well understood. A survey of over 5000 Australians found that Australians' think they are more 'green' than they are in practice (Leviston, 2014). When people were asked what pro-environmental behaviours they were carrying out in their everyday lives, more than 90% believed that, compared to others, they were doing the equivalent of the average Australian or more. In 2012, National Geographic asked approximately 17,000 people from 17 countries about their environmental attitudes and lifestyles (Malmqvist & Whan, 2014). Australians were some of the least concerned about the environment, and performed the fewest pro-environmental

behaviours. However 53% of Australians thought of themselves as 'green', with a further 24% agreeing that they are not 'green' now, but plan to be in the next five years (Malmqvist & Whan, 2014). This suggests that while Australians like to think of themselves as environmentally friendly members of society, they are seldom as 'sustainable' as they believe.

The Role of Psychology in Promoting Pro-environmental Lifestyles

A range of social, psychological, and community-based research has been conducted in an attempt to understand how humans think and behave with regard to environmental issues (Clayton et al., 2015; Swim et al., 2011). This work has significantly advanced understandings of the predictors and descriptors pro-environmental behavioural engagement used in the creation of interventions to encourage pro-environmental behaviour (Osbaldiston & Schott, 2012). There has been a tendency however, to focus on individual factors and there is a corresponding lack of research looking at the broader social and cultural drivers of environmentally detrimental behaviour.

In order to create true and lasting social change, it is necessary to understand the underlying social systems and structures that underpin unsustainable lifestyles (Bishop & Dzidic, 2014). It can be argued that the social, historical, and political systems in which we are embedded will by virtue of context shape how we view and understand the world, the research questions we ask, and subsequently the conclusions we make (Bronfenbrenner, 1977; Gergen, 1985). Empiricism has historically been the 'valued' epistemology within psychology and the social sciences, and hence the types of questions asked have been those that answered through positivistic and at times reductionist methods (Teo, 2006; Tolman, 2012). This episteme lends itself to a certain 'type' of questioning, typically quantitative enquiry, and in doing so provides a certain 'type' of answer, claimed to be objectivist, value free, and 'truth' (Prilleltensky, 1989). 'Alternative' epistemological positioning, such as that which argues for a more complex and contextualised perception of knowledge (and knowledge generation), can for example be seen within constructionism, whereby foundational beliefs or the status quo, are fundamentally questioned (Breen & Darlaston-Jones, 2010). This episteme demands an exploratory and contextualised 'type' of questioning conducive to qualitative methodology whereby the 'type' of answers found through this process of enquiry can be forms of social criticism themselves (Prilleltensky, 1989).

For some, it might be perceived audacious to ask qualitative questions in a bid to understand wicked problems such as sustainability and consumerism, particularly given the social scientific value and perceived worth in positivism. However, we argue that failing to recognise dominant paradigms embedded within our discipline, and how this shapes questioning is grossly limiting (Sarason, 1982). Failing to examine the types of questions we ask and how we ask them, may instead be maintaining methodological status quo, and consequently limiting the conclusions we make, and the strategies we pose to address the issue under investigation (Sarason, 1982).

One area of investigation that has addressed systemic-level influences on the behaviour and choices of individuals are theories of social-system legitimacy. Grounded in traditions such as Marxism and Feminism, these social psychological conflict theories seek to explain how individual differences and values interact with, and are constrained by social institutions. These theories, including System Justification Theory (Jost & Banaji, 1994), have only recently been applied to elucidate the nexus between environmental attitudes, behaviours, and social change (Hennes, Ruisch, Feygina, Monteiro, & Jost, 2016; Jost, 2015).

The central tenet of System Justification Theory (SJT) is that there is a general ideological motive that functions to justify the existing social order. SJT identifies three main motives: *ego justification*, or the need to maintain a positive self-image and to feel justified, valued, and a legitimate member of society; *group justification*, the need to maintain a favourable image of one's own group and fellow group members; and to this is added *system justification*, the need to maintain a favourable view of the status-quo and to see it as fair, legitimate, desirable, natural, and inevitable (Jost, Banaji, & Nosek, 2004). System justification works predominantly at the implicit, non-conscious level, and occurs even if this comes at the expense of personal and/or group interests (Jost et al., 2004).

Whereas ego and group justifications function to protect the interests and positive image of the self and the group, social-system legitimacy provides *ideological justifications.* These justifications are a sense-making mechanism to explain why things are as they are, serving to satisfy people's drive to think the world is just and fair, and increasing satisfaction with one's own situation and life circumstances (Lerner, 1980). In addition, in seeking to understand *why* people engage in system justification, Jost and Hunyady (2003) conclude that system-justifying ideologies have a more immediate, palliative function. Specifically, these ideologies reduce anxiety, guilt, cognitive dissonance, discomfort, and uncertainty for both those who are advantaged by prevailing systems, and those who are disadvantaged by them. These

goals are achieved by bolstering one's defence of the status quo, and by rationalisations, justifications, and legitimising 'myths' for prevailing social systems and inequities.

To date, the myths and worldviews shaping people's notions of 'sustainability' and 'sustainable lifestyles' have not been sufficiently considered nor explored. This has often led to shallow deconstructions of what sustainable lifestyles are, as well as to campaigns and approaches that unintentionally reinforce consumeristic and individualistic values (Barnhart & Mish, 2016; Evans et al., 2013). This unintentionally promotes unsustainable ways of living, as it ignores the behavioural constraints imposed by prevailing societal systems; systems that we are ideologically motivated to defend (Evans et al., 2013; Steg & Vlek, 2009). As such, we set out to unpack the concept of sustainability in Perth, Western Australia.

Research Rationale

In Australia, while discourses of environmental sustainability have becoming increasingly ubiquitous; lifestyles are becoming increasingly resource intensive (Malmqvist & Whan, 2014). It is well documented that there is an inconsistency between people's environmental values and their pro-environmental behaviours - the value-behaviour gap (Kollmuss & Agyeman, 2002). Yet little research exists exploring what environmental sustainability means to people who see themselves as pro-environmental. The vast majority of research investigating pro-environmental behavioural engagement has concerned itself with the psychometric development of scales such as the frequently used New Environmental Paradigm (Dunlap, Van Liere, Mertig, & Jones, 2000). The qualitative foundations upon which such quantitative scales are built are not commonly revisited (Hawcroft & Milfont, 2010), nor is there adequate reflection or critique that the range of attitudes captured by such scales may be bounded by hegemonic systems that impose structural constraints on behaviour. Qualitative research on environmental sustainability has tended to focus on the construction of the sustainable consumer identity (Autio, Heiskanen, & Heinonen, 2009; Roy, Verplanken, & Griffin, 2015), corporate settings (Millar, Hind, Cherrier, Russell, & Fielding, 2012; Wright, Nyberg, & Grant, 2012), and students (Emanuel & Adams, 2011; Kagawa, 2007). A possible outcome of an identity-driven focus to pro-environmental behaviour that ignores structural-level constraints is that proffered solutions to environmental problems unwittingly reinforce the imagined boundaries of actions available to the individual (Brulle, 2010). As such, there is a need to elucidate the implicit assumptions in individuals about what these structural constraints are, and to investigate the deeper functions and meanings of environmental

sustainability within the everyday life experience of Australian's who consider environmental sustainability an important part of their identity.

In the current study we draw on interviews with people for whom environmental sustainability is an important part of their identity. Focusing on those who see sustainability as a part of their self-concept sheds light on tensions, paradoxes, rationalisations, conceptualisations, and broader socio-cultural drivers implicit in adopting an environmental self-identity. Understanding the contextual and cultural factors influencing the gap between environmental attitudes and environmental behaviour is key for effective interventions to be designed. We argue that it is both difficult and impractical to live sustainably in our modern consumerist society. Australian lifestyles are bounded by the dominant cultural and social systems that rely on biophysical impossibility of constant economic growth and promote self-interest and unsustainable levels of consumption. Yet, people identify as someone who is sustainable or green. We set out to better understand the paradox of seeing oneself as sustainable in in an unsustainable society. The term sustainability in the context of the environment continues to provoke conflict over its definition and interpretation and there is little consensus as to what these terms means (Roy et al., 2015). For the purpose of this paper we define sustainability as the maintenance of Earth's natural capital and systems, such that the planet is able to provide resources necessary for human and other life both now and in the future (Christen & Schmidt, 2012; Morelli, 2013).

The four research questions driving this research are as follows:

1. How do Australians who consider environmental sustainability to be an important part of their identity conceptualise what environmental sustainability is?

2. What do Australians who consider environmental sustainability to be an important part of their identity consider their role and responsibility in enacting their identity?

3. What function(s) does an environmental sustainability identity serve?

4. What are the underlying societal forces shaping these conceptualisations of sustainability?

Methods

Given that limited empirical research has investigated how environmental sustainability is understood and enacted amongst those who hold a green identity, an exploratory research

design was deemed appropriate. Qualitative methods are advantageous for exploration as they offer enhanced possibilities for contextually-anchored analyses, especially when investigating complex issues such as sustainability (Whitmarsh, 2009).

Participants

As the overarching aim of the current study was to understand sustainability from those who identify as pursuing a sustainable lifestyle, we engaged a diverse group of people who self-identified as attempting to live a sustainable lifestyle. Potential participants were recruited through postings obtained via a convenience sampling process. Using the Facebook search function “environment Perth”, “sustainability Perth” and “green Perth” were searched for pages related to environment and sustainability. Twenty-six Facebook pages related to sustainability were also posted to, including pages promoting green energy, sustainable housing, environmental conservation and advocacy, eco catering and environmental education. Administrators were also sent a message asking for them to also share the advertisement. This allowed for snowballing to a wide section of sustainability groups and organisations located in the Perth, Western Australia. Maximum variation sampling (Suri, 2011) was employed, whereby diverse stakeholders were chosen from members of the public who expressed interest in participating. This allows for the shared patterns of experiences in sustainability by diverse stakeholders to be identified. In total 28 participants took part in 26 interviews (24 individual interviews, two interviews in pairs). Participants represented a broad range of ages and occupations, although the sample was highly educated, with 20 out of 28 participants completing at least an undergraduate degree (see Table one). Participants also came from various parts of the Perth Metropolitan Area, with 22 different postcodes represented.

Table 1

Summary of participant demographics

Demographics		***n***
Age		
	18-29	5
	30-39	6
	40-49	7
	50-59	6
	60-69	4
Gender		
	Male	12
	Female	16
Highest Level of Completed Education		
	Postgraduate degree	14
	Undergraduate degree	6
	Trade or Technical qualification	5
	High school	3
Profession		
	Business and financial operations	4
	Education and training	4
	Management	4
	Architecture and engineering	3
	Healthcare practitioner	3
	Life, physical, and social sciences	2
	Installation, maintenance, and repair	1
	Media professional	1
	Retiree	1
	Sales	1
	Transportation and material moving	1

Procedure

Interviews were held at a location convenient to the participant, usually a café, or their workplace or home. Interviews lasted between 30 and 90 minutes. Participants were asked

a series of semi-structured questions covering the following: how they define sustainability, where their interest in the topic stemmed from, which pro-environmental behaviours they engage in or would like to engage in, what the barriers to environmental sustainability are, and whether and how they see society becoming sustainable. A follow up demographic survey was sent asking for gender, age group, occupation, and education. Transcription, interviewing, and analysis occurred simultaneously, allowing for the interview schedule to be updated as questions revealed themselves as redundant or requiring more in-depth exploration (Coyne, 1997).

Analysis

This study adopts Causal Layered Analysis (CLA), an emerging method and methodology which has arisen out of futures research. CLA is a particularly suited to the deconstruction of complex or wicked social issues that are often seen as unresolvable and overwhelming for those attempting to solve them (Bishop & Dzidic, 2014). The aim of CLA is to get to the root of an issue. It is argued that depth of understanding in the form of discourse, worldview, myths, and metaphors shape our understandings and reactions to complex problems, and are therefore essential to examine, if meaningful change is to occur (Inayatullah, 2004). The key strength of this approach it that forces the analyst to view the problem under investigation under four different lenses, and therefore allows for strategies and interventions which capture the deeper more complex underpinnings of an issue. For detailed instructions on the use of CLA see Bishop and Dzidic (2014). The four layers examined in a Causal Layered Analysis are presented in Table 2, starting with the shallowest layer (litany) at the top and working down to the deepest, most unconscious layer (myth/metaphor). The steps involved in conducting a CLA are presented in Table 3. To assist in ensuring quality throughout the data collection and analysis phase, findings were discussed between the authors at weekly research meetings, and themes developed in an iterative process as further interviews were completed.

Table 2. Layers of a Causal Layered Analysis

Layer of Analysis	Problem defined by	Solution	Examples
Litany	The undisputed reality of a problem	Short term approaches	The official public or media description of an issue
Systemic causes	Systemic and technical factors which impact on an issue	Integrated approaches-systemic solutions	Government policy and historical forces
Worldview/ discourse	Understanding of the way in which worldviews are a reflection of lived experience	Transform consciousness, change worldview, rethink self and other	Liberal versus conservative worldview
Myth/ Metaphor	Emotive dimensions of the problem	Uncover myth and metaphor and create processes to imagine alternative stories of what it means to be	Mythical stories, folk sayings, slogans, archetypes

Note. Adapted from Uren, Dzidic, and Bishop (2015)

Table 3. Steps involved in Causal Layered Analysis

Steps		
1	Consider your research question	Check that the research question requires in-depth understanding of complex social phenomena.
2	Familiarisation	Transcription of interviews while concurrently conducting interviews. Viewing and reviewing data sources. Reflexive note taking is to include any nuances or observation that are anticipated might be useful and to capture initial interpretations of the data.
3	Coding Between the layers	Identifying text relevant to each social layer
4	Coding with the layers	Identify themes specific to each causal layer using the excerpts coded from the previous step. Construct thematic maps Re-read interview transcripts to refine understandings
5	Reconstruction of the issue	The step aims to find the overall meaning of the deconstructed issue.

Findings

In the findings section the conceptualisation of sustainability among people who consider sustainability to be an important part of their self-concept is explored. Findings are presented as themes within each causal layer starting with the most proximal layer, the litany, and progressively delving into deeper, more complex understandings of the issue. A thematic map illustrating the relationship between themes is presented in Figure 1. Unlike the name 'causal layered analysis' these arrows do not infer causation, rather illustrate how an issue can manifest at different levels of understanding. Here each theme is presented next to the associated causal layer, and links to deeper layers are illustrated.

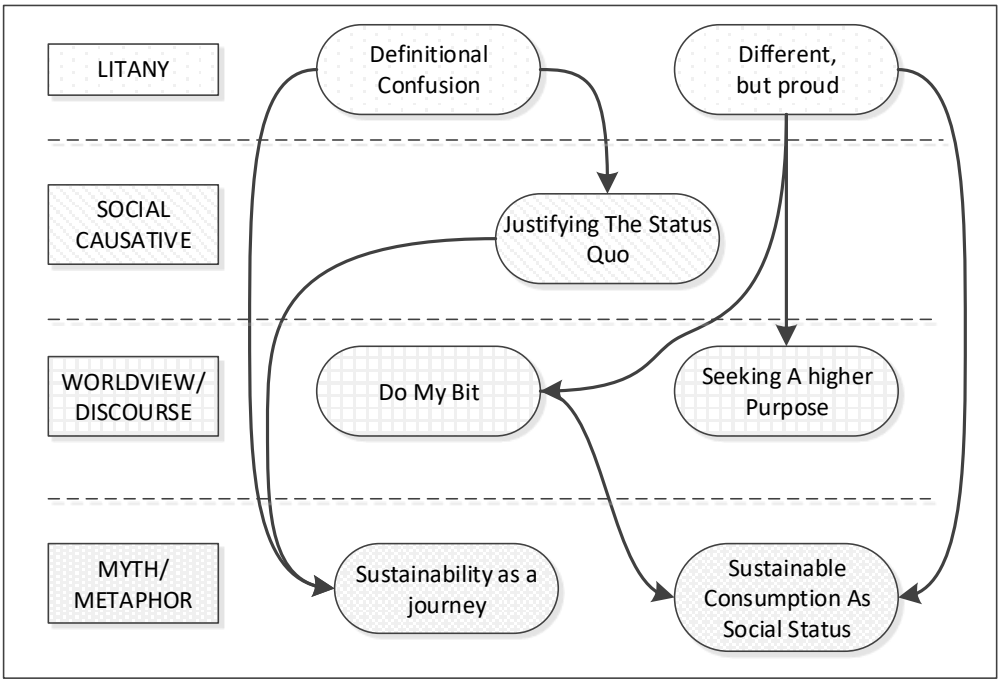

Figure 1. Thematic Map

Litany

The litany layer consists of the uncontested truth of an issue. Through analysis two prominent themes were identified: '*Definitional Confusion',* and *'Different. But Proud'*. The former reflects participants' confusion in defining sustainability whilst the latter reflects the sense of pride and enjoyment participants experienced in attempting to live a sustainable lifestyle.

Definitional Confusion

Although participants volunteered to participate in an interview about their experience living a sustainable lifestyle they tended to find sustainability as a concept difficult to define and conveyed confusion surrounding what sustainability meant theoretically and practically. One participant stated:

> "I think as a society even within the sustainability realm it is really hard to understand what that actually means because something that is recycled is assumed automatically to be sustainable." Participant 18

Here the participant posits that recycling behaviours are incorrectly thought of as being sustainable. When describing sustainable actions, recycling was a behaviour that held mixed meanings. For many participants, recycling was a key behaviour they engaged in in an effort to be sustainable. For others, recycling was seen as a reflection of consumption, and therefore effort was made to reduce or reuse items rather than recycle. Several participants expressed a frustration that recycling was assumed to be automatically sustainable, and that people who were consuming were able to rid themselves of environmental guilt by discarding consumed resources into a recycling disposal. What to one person was viewed to be sustainable, was to others unsustainable. This was not limited to recycling, but also included low density versus high density housing, growing one's food versus buying food, and the benefits of installing water tanks or grey water systems. As one participant noted, *"the huge problem with any debate about sustainability, is that everyone has different definitions of it."* Participant 22

For those who provided definitions their descriptions of sustainability varied greatly, and included terms such as living "within our limits", ensuring intergenerational equity, and protecting "our lifestyles". Despite their differences, participants' approaches to sustainable lifestyles commonly converged on the sustainability of human quality of life, as opposed to focusing on sustaining the environmental systems that support humans. That is, environmental sustainability tended to be framed as protecting humans from the limits of the environment rather than protecting the environment from human destruction. This is important, as the framing of the environment as an externalised issue can have implications for action. This will be examined further in the worldview/discourse layer.

Different, but proud

Although sustainability was difficult for participants to define there was an overwhelming sense that people were proud to engage in what they perceived as sustainability practices. In particular, participants were proud to engage in sustainable consumption practices such as buying local food and, installing solar panels, as well as high effort behaviours such as growing vegetables. One participant reflected:

> …it [sustainability] has that feel good factor, it gives you that feeling of saving and it is fun because it is something to look forward to and it is something that gives you identity. Participant 4

It appeared that adopting a sustainability identity served a function beyond reflecting a concern for the environment. Engaging in pro-environmental behaviours was an identity that promoted a sense of pride. Another participant stated:

> I take a bit of personal satisfaction in reusing stuff, our housemates are kind of like, 'What the fuck are you doing'? Participant 17

Participants explained that despite feeling as though others perceived them as unusual and unorthodox, they experienced a sense of fulfilment from engaging in pro-environmental behaviours, and appeared proud to be different.

Social Causative

At the social causative layer of analysis, the systemic limitations to engaging in a sustainable lifestyle in Perth are explored in the theme *'Justifying the Status Quo'*.

Justifying the Status Quo (by attacking the status quo)

Not only was there confusion as to what sustainability meant in theory, there was also confusion as to what sustainability looked like in practical terms. Many participants reflected that making decisions with the aim of making their lifestyles more sustainable had the potential to be very difficult. As one participant noted, *"it is difficult to live in a sustainable manner, because society is against you"* Participant 19, acknowledging that their efforts to live sustainably were bound by the city in which they lived. Another participant commented *"Often it's especially complicated with living in Perth too because the urban fabric doesn't lend itself, necessarily, to living a wholly sustainable life."* Participant 3. Furthermore, participants noted that acting sustainably in one capacity was to be unsustainable in another.

An example posed by participants was that of owning a car. Most participants accepted that owning a car was an unavoidable reality of living in Perth [1]. One participant described owning a four-wheel-drive, and posed a justification of this ownership by explaining that this vehicle allowed for camping trips and for the participant's children to engage in nature. In this way, the participant is seen to justify ownership of an unsustainable vehicle, through environmental reasons but acknowledges the paradox that their car was contributing to environmental problems. Another participant stated that he still owned his vintage car because he would rather own an older inefficient car and drive it less than owning a more efficient newer model. Similarly, another participant described how they tried to think about the long-term effect of their behaviour, the net impact of driving their car.

> The way I always justified it in the past, was well, what is your net impact, so you drive your car but by doing that you are doing good. So you just do this little balancing thing in your head, where you think, well the good that I am doing, offsets that negative, but I do think that it is a lot of playing with things in your head. Participant 20

Other examples of justifying unsustainable behaviours included only buying second-hand, eating only organic meat, and only driving on weekdays. These examples potentially reveal post-hoc justifications and rules that participants made to themselves around their consumption behaviours to offset what appears to be cognitive dissonance regarding their consumption. These systemic societal restrictions are invoked as a barrier preventing the participant from aligning their behaviours to their values.

Many participants recognised tensions and contradictions in their consumptive practices, acknowledging that if it were not for perpetual economic growth they would not have the opportunities and privileges that they currently hold. Participants reflected that the economy in Perth is based around the mining and resources sector, and without this environmentally destructive industry, they might not have a job. As one participant noted,

> An apparent paradox which is for my business to exist, I need a growing economy and yet a growing economy is one of the things I have acknowledged is not sustainable unless we decouple economic growth from resource use. Participant 4

[1] Perth was designed around the use of the car, and the low density and urban sprawl make travel without a car difficult (Newman, 2014). In the most recent census, only 6% of Perth households did not own a car (ABS, 2016).

Here the participant acknowledges the paradox that their own sustainability business is most successful when the economy is growing, while recognizing these are inherently unsustainable.

Worldview/ discourse

The third layer of a Causal Layered Analysis examines the worldviews, ideologies, value systems and beliefs, and discourse that perpetuate or fuel conceptualisations of sustainability. Here we are interested in precisely what people say, and the perspective that these words convey. Through analysis three prominent themes were identified '*Do my bit' and 'Seeking a higher purpose'*.

"Do my bit"

When participants described how they went about engaging in actions for sustainability, a distinct discourse was identified, *"doing my bit".* When describing what they did and what they saw as important participants focused on the ethics of the personal actions, with individual acts and private decisions seen as the key vehicle by which sustainable development would be possible. Participants idealised the role of individual action, where the individual was seen responsible for doing their "fair share" of pro-environmental behaviours, and the household was seen as the key setting in which sustainability would occur.

Interestingly, "doing my bit" was used with reference to physical and tangible household behaviours, rather than to activism behaviours. Participants tended to distance themselves from collective efforts to pursue social change, such as political environmental activism. Collective action to promote sustainable lifestyles was spoken about far less than individual household behaviours, and when mentioned it was criticised. One participant captures this in their comment that sustainability is *"more than just doing petitions and talking about it"* Participant 5, suggesting that sustainability is viewed as involving tangible individual actions. Talking about sustainability was not only seen as an ineffective way to create change, but was also seen as having the potential to reflect badly on them. Participants reported that they choose carefully when to speak about sustainability issues; *"I don't want to sound preachy"* Participant 11*,* suggesting that being seen to be an environmental activist was not a desired social identity. Similar to this*,* attending rallies or joining community groups were seen as painful and difficult means to create change. One participant stated that she had

come to realise that the forms of political agency that she had tried in her past were ineffective and made her frustrated, stating, *"I think sustainability has got itself a bad rap because the people representing it can often be difficult people."* Participant 4. Dismissing environmental activst behaviours as fruitless appeared to serve as an ego defence function, allowing them to adopt a sustainability identity without engaging in actions for collective transformative change; actions they felt might meet with social disapproval.

Participants also alluded to their motivation to engage in pro-environmental actions to feel good about themselves, rather than to reduce their environmental footprint. For example, one participant stated "I feel better about all the different things happening around me, by doing something myself, even if it is something small" Particpant 28. For others however, doing their bit was in recognition that the government was not taking action, and if lifestyles were going to become more sustainable then action needs to come from an individual and community level.

> A lot of people have the belief that, "I'm only one person, I can't make a difference" and I've got a very crude joke that I use with people, say it only takes one of your body hairs found in food, to shut down an entire restaurant. Do not think for a minute you don't have the power to make good choices. Participant 23

For some, the discourse of "doing my bit" was motivating and led to participants engaging in behaviours which they might cast off as not having an impact in the grand scheme of things. For others however, in the context of Australia where privacy and individualism are rewarded (Klocker, Gibson, & Borger, 2012), the collective dilemma of environmental sustainability manifests as an individual pursuit to feel a sense of self-approval.

Seeking a Higher Purpose

For many participants holding a sustainability identity appeared to provide a sense of life purpose and a moral code to live by; "*Anything that has an ethical base is irrefutable for people to say why should we be doing this? Well it's the right thing to do and it's made it very easy as far as that's concerned."* Participant 6. Embracing sustainable ways to live was described as adding meaning and purpose and the ability to "*make a difference*".

Engaging in pro-environmental groups and activities was described as a way for people to engage meaningfully with their local communities. Participants appeared to gain significant satisfaction from their sustainability actions and reported that it genuinely made them feel happy, satisfied, and provided a sense of mission. Some examples included *"I started to think*

about my place in the world and in society and where I fit and what I am doing" Participant 1*,* and *"it is important to me to live my life with some kind of purpose"* Participant 9*;* and a higher purpose at work *"I want to feel a sense of purpose when I am doing my work"* Participant 19. Explanations had an altruistic component: *"Sustainability to me is being able to contribute meaningfully to the society in a way that doesn't degrade anyone or anything as best as possible. To me that means future generations can also benefit"* Participant 20 *.* Like membership of a sporting club or a church, an interest in environmental sustainability served multiple social functions; as a way for people to connect to one another, and as a way to present themselves to others as virtuous and altruistic.

Myth/ Metaphor

The myth/metaphor layer is the deepest layer in Causal Layered Analysis, and constitutes the (often subconscious) non-rational ways of knowing embedded with-in culture. Through analysis two prominent themes were identified: '*Sustainability as a journey',* and *'Sustainable consumption as social status'*.

Sustainability as a Journey

The metaphor of the journey was commonly used amongst participants when describing actions they were taking towards an environmentally sustainable lifestyle. This metaphor presents an interesting tension. It acknowledges that one will never become "sustainable". One participant stated, *"It's a journey. It's nothing; we will be sustainable when we are dead. If I could be buried under a tree to become compost, I'll be sustainable"* Participant 13. Here the participant recognises that they will never be sustainable on their own, yet conceptualises themselves as an individual. Further, pursuing a purpose with no destination was a potential source of confusion, as there was no vison of where the journey was going.

For others participants however, sustainability was seen to have an endpoint. They would refer to "when I am sustainable". Whether sustainability is conceptualised as an end point or as a journey, both are problematic. Seeing oneself as able to become sustainable means that participants did not see themselves as a part of a system but rather as an individual acting in isolation. This is in contrast to the social causative layer where systemic barriers to sustainability were used to justify the individuals' inability to attain sustainability.

Sustainable Consumption as Social Status

While participants described avoiding talking about sustainability issues because it might reflect negatively on them or make others uncomfortable, engaging in certain sustainability actions served as a way to receive praise, respect, and admiration from others. When asked what they aspired to, participants most commonly described wanting highly visible symbols of a sustainable lifestyle e.g., *"I would love to have an electronic vehicle" Participant 19)*, *"I'd love to build a sustainable house" (Participant 22),"I would love to put in solar panels" (Participant 15).* Interestingly, these are all individual consumption behaviours rather than collective or activist behaviours. This illustrates that the hegemonic western worldview which has emphasized economic growth and individualism has perpetuated environmentally unsustainable behaviours also underlies the way participants conceive 'attaining' a sustainable lifestyle. There were some who recognised the paradox of consumption behaviours being seen as sustainability actions. One participant acknowledges the tension that using any resource, no matter it's environmental credentials is less sustainable than not using that resource at all:

> If you want to be really sustainable with your house, live in the one you're living in, put in a ceiling fan and get a jumper…. don't kid yourself that the reason why you're doing it [building a sustainable house] is to be as sustainable as you can, because just the offset of having to build that house is going to cost you 30 years worth of anything you save in energy. Participant 16.

Here the participant alludes that people are able to socially justify their consumption behaviours as moral and noble acts by portraying them as sustainable endeavours. This is consistent with the idea that sustainable consumption behaviours are used to signal a person's wealth, as well as their altruism (Griskevicius et al., 2010). An architect specialising in sustainable design explained that clients start off wanting a sustainable solution but will give up when there is cost involved: *"clients will be happy if you give them a cost effective solution that makes them look good"* Particpant 3. This suggests that a desire to be seen to acting green by others may be an important driver of pro-environmental behaviour.

Discussion

The findings of the interviews reveal some paradoxical tensions in the identities of the participants. On examination of the themes there are two key narratives.

The first narrative is that what sustainability means theoretically and practically is poorly understood. Participants conceptualised sustainability as an arbitrary concept which is difficult to understand, has competing interests and changing contextual conditions making choosing the most sustainable option almost impossible.

The second narrative is a product of the first. In an effort to engage in sustainability, participants engaged in individual green consumption behaviours. Consumption behaviours, unlike conservation or activism behaviours, are concrete tangible. Replacing a 'brown' product with a 'green' one does not require the actor to diverge from the status quo. Participants described feeling good about these actions, and sustainability was seen as providing purpose, and was a way to gain social approval from others. We now consider the meaning of both of these narratives in turn, and their consequences and implications.

Narrative One: What are we working towards and why?

Dominant discourses of perpetual economic growth and consumption continue to perpetuate unsustainable lifestyles even in those who are conscious of sustainability issues (Roy et al., 2015). In our study, participants felt unsure what they were working towards, and even for those with a keen interest in sustainability, the concept was confusing. Living out a pro-environmental identity in the context of a culture that prioritises the values of growth and consumption gives rise to internal conflict.

Perhaps understandably then, while sustainability has become a popular discourse, it remains abstract and vague and has been used inconsistently, serving divergent and even mutually exclusive visions of what sustainable means (Hedlund-de Witt, 2014). As with our findings, previous research investigating conceptualisations of sustainability has also found great variation in how people conceptualise sustainability (Byrch, Kearins, Milne, & Morgan, 2007; Morelli, 2013). However they did not allude to confusion within individuals. Participants in this study despite seeing sustainability as an important part of their identity found it difficult to define what sustainability meant and were confused as to what exactly it was that they were working towards.

Sustainable lifestyles can be considered a wicked problem, as it is often implied that it requires a trade-off between immediate personal benefits and delayed collective benefits. Unlike Roy et al. (2015), who found that participants tended to attribute their unsustainable behaviour to "lack of thought" (p.190), participants in this study demonstrated that they

conceptualised their own unsustainable behaviour as meeting some other sustainability goal. For example, keeping an inefficient car means not consuming a new car. This fits with with fundamental attribution error whereby people tend to overestimate the influence of personality or individual traits as driving others behaviour, and by contrast cite the situation as being the driver of their own actions.

Narrative Two: Sustainability as a tool for self-enlightenment and enhancement

Participants labelled themselves as being abnormal and marginal, but also considered themselves enlightened and superior to those who do not prioritize a pro-environmental lifestyle. The moral tenets of holding an environmental identity served as ego and group-justification. Consistent with previous qualitative findings (Wright et al., 2012), participants expressed a sense of satisfaction from engaging in pro-environmental behaviours. The metaphor of the "sustainability journey", described also in (Yacoumis, 2017), served as a loophole allowing participants to avoid the tension that participants often did not know where they were going. There remained a dominant perception that sustainability can be 'bought' through consumption behaviours and that those engaging in these behaviours become enlightened moral beings who attract praise from those who surround them. As sustainability was framed by participants as being best pursued individually by making changes in the home, and by purchasing the right products, participants were able to gain the social status associated with consuming, and give life meaning (Moisander & Pesonen, 2002) and justify the status quo i.e. system justification (Jost & Hunyady, 2003).

The major root causes of environmental degradation by humans are economic growth and population growth (Brulle, 2010). Despite this, engaging in individual household level behaviours was seen to be the path forward for sustainability with the discourse of 'do my bit' framing environmental actions as behaviours which should be done individually. Participants felt responsible and empowered in dealing with environmental risks to both the planet and themselves. It appeared that discourses of sustainability emphasised the role of the individual in taking responsibility for the mitigation of environmental degradation. Collective behaviours such as political action were dismissed. Effective responses to today's environmental problems require coordinated actions among diverse actors (Adger, Arnell, & Tompkins, 2005). Yet desire to engage in collective action to promote environmental sustainability among participants was virtually absent.

Participation in private, household level sustainable consumption behaviours are short-term pragmatic strategies that reduce the perceived need to engage in collective, potentially socially-stigmatising actions, thus encouraging a more passive civil society. These private actions perpetuate the imperatives of the economic and political systems and fail to address meaningfully the ecological imperatives defined by global warming. As Gamson and Ryan (2005) note, a focus on finesse in individual framing undermines the goal of increasing citizens' sense that they can collectively change things. The participants in our study were not interested in engaging with collective social movement organizations. Yet it is in the public sphere where collectives can identify problems, develop collective solutions, and create sufficient political pressure to have them addressed by constitutional governments (Brulle, 2010). A participatory structure is essential for large-scale social change. Similar to the findings of qualitative work by Moisander and Pesonen (2002), who gathered narratives of green consumerism from students in Finland, "doing my bit" was conceptualised as "making a difference". It is argued that this accentuates the primary importance of the individual and the virtues of self-reliance and independence of the social and institutional environment for sustainable development. In this study, participants distanced themselves from the traditional 'radical environmental activist'. With the "do my bit" discourse, participants were able to see themselves as moral household agents, even though their environmental efforts were framed by consumerist pursuits (Moisander & Pesonen, 2002).

Strengths, Limitations and Future Research

This is the first article we know of to explore the conceptualisation of environmental sustainability by those who see sustainability as an important part of their identity. This type of work is important, as it points to some of possible explanations for the attitude behaviours gap, which would not be feasible using quantitative methods. In addition, this paper showcases CLA, a valuable and underutilised methodology in exploring environmental communication which deserves increased attention. This study is strengthened by the broad range of lived experiences which participants represent. Although, the participants as a group to be highly educated, this is in line with research which shows that people with pro-environmental leanings tend to be highly educated (Tranter, 2014). It should also be noted that while members of a number of environmental advocacy groups were invited to participate in this research, the dominant anti-activist discourse suggests participants who identified as environmental activists were underrepresented. Given the importance of activism behaviours for sustainability (Stern, 2000), and the negative associations

surrounding activism in found in this study, future research should explicitly aim to explore the social construction environmental activists, as well as the experiences of those who label themselves an environmental activist. Another line of research which requires further exploration is the social rewards associated with sustainable lifestyles. Given that participants in this study appeared to be motivated to engage in behaviours in which they would receive social praise, it would be valuable to investigate the social status associated with various pro-environmental behaviours. In particular the role of environmental identity (including social stigma arising from collective environmental actions) in shaping perceptions of social status. Finally, caution should also be taken when transferring the findings of this study to locations other than Perth. Comparative studies within other geographical and cultural contexts are greatly needed.

Conclusion

The findings from this research suggest two narratives both of which rely on conceptualisations of environmental sustainability based on existing cultural resources. The overarching idea here is that adopting a 'green' identity does not mean that environmental sustainability is understood or that a sustainable lifestyle is engaged in. Even those for whom sustainability is a strong part of their identity, conceptualisations are underpinned by hegemonic worldviews whereby environmental degradation is attributed to a defect in the environment, and solutions are individualistic and consumption oriented. The findings highlight that sustainability can be used as a platform for feelings of moral superiority, guilt and dissonance reduction, and meaningful life purpose. Any attempt to engage the population on a wider scale needs to understand the many facets, tensions, and difficulties (including systemic barriers) associated with 'real world' attempts to live a sustainable lifestyle. It is also important to acknowledge that as researchers we are arguably unwitting accomplices in the creation of the issues presented in this research. More specifically, the research questions we ask and the hypotheses we pose are also somewhat paradoxically a product of the broader Western dominant cultural context we are critiquing. It is perhaps not surprising then that the way we have historically asked questions pertaining to sustainability and our relationship with the natural environment, has been dominated by positivism; in doing so we appear to be constructing the collective issue of sustainability individualistically, and as an issue that can be resolved at the individual level. To wear 'green tinted glasses' then, is to avoid thinking critically about what sustainability actually means and perhaps gives licence for us to decontextualize and individualise not only our (green)

consumptive practices, but also our responsibility as global citizens to question the status quo. This argument can also be made for the way we conduct our research.

Chapter Four: Literature Review: Social Status, Environmental Identity and Pro-Environmental Behaviour

In **Chapter Three**, my co-authors and I described the findings from face-to-face interviews with people who consider themselves pro-environmental citizens. We found that they are often confused about what sustainability means both practically and theoretically. We also learnt that those holding a pro-environmental identity think of pro-environmental behaviour in terms of individual actions, and that these actions can result in a sense of moral superiority, life purpose, and boost perceptions of social status. The aim of the remainder of this thesis is to build upon the findings in **Chapter Three** by seeking to understand the social and personal rewards associated with pro-environmental behaviour. Given that behaviours that are perceived to hold social status are more likely to be adopted and spread (Kafashan, Sparks, Griskevicius, & Barclay, 2014), the aim of this literature review is to understand the situations and characteristics of the types of people for whom pro-environmental behaviour may boost social status. The current chapter is used to set out what is already known by critically appraising the literature on pro-environmental identity, social status, and engagement in pro-environmental behaviour. I start by outlining what is meant by pro-environmental behaviour, and the types of pro-environmental behaviour that have been delineated in environmental psychology literature. Then I review the literature on the construct of environmental identity, the various ways in which environmental identity has been defined, their relationship with behaviour, and why current conceptualisations might be problematic. Finally, I look at the preliminary research which has explored the link between social status and environmentalism. Examining these literatures helps us to understand the social and performative aspects of pro-environmental behaviour.

Pro-environmental behavioural engagement

Pro-environmental behaviours have been described in the environmental psychology literature as behaviours that proactively attempt to conserve and protect the natural environment (Pelletier, Lavergne, & Sharp, 2008; Steg, van den Berg, & De Groot, 2012; Steg & Vlek, 2009). These behaviours encompass a wide range of actions across multiple domains, frequencies, and impacts of action (Hurst, Dittmar, Bond, & Kasser, 2013). Others have stated

that pro-enviormental behaviours need not be intentional, and the actor may not realise that they are engaging in a behaviour(Gatersleben, 2012; Stern, 2000). They can involve using less of a resource, swapping one material for a more sustainable resource, or boycotting the use of a resource entirely.

There have been several classifications of pro-environmental behaviour proposed. Stern (2000) has put forward a categorisation of pro-environmental behaviours that includes four subtypes: 1) private sphere environmentalism (i.e., the purchase and disposal of household items in a pro-environmental way); 2) activism (i.e., active involvement in environmental demonstrations and organisations; 3) non-activist behaviours in the public sphere (i.e., support for public policy and environmental citizenship); and 4) other environmentally significant behaviour (i.e., systemic influences through organisations).

More recently, the UK Department for Environment, Food and Rural Affairs (DEFRA, 2008), summarised pro-environmental behaviour into nine key groups: 1) eco-improving homes through retrofitting; 2) using energy and water wisely; 3) extending the life of things in order to minimise waste; 4) cooking and managing a sustainable diet; 5) choosing eco-products and services; 6) choosing sustainable transport options; 7) setting up and using resources in the local community; 8) using and future-proofing outdoor spaces; and 9) being a part of improving the environment.

Another classification of pro-environmental behaviour types is the distinction between curtailment and efficiency behaviours (Gardner & Stern, 1996). Curtailment behaviours refer to repetitive behaviours which lead to a reduction in resource use, (e.g., turning off lights and cycling to work), while efficiency behaviours are one time behaviours which lead to resources being used more efficiently (e.g., installing a water-saving showerhead or solar panels).

Despite their potential to reduce the overall consumption of natural resources, efficiency behaviours have also been met with criticism. Efficiency behaviours tend to be costly behaviours and allow people to get the same end result for fewer resources; as previously noted this is a phenomenon known as Jevon's Paradox (Alcott, 2005). For example, installing solar panels allows residents to use the same amount of energy with less environmental impact. Residents are then able to justify their resource use and have been shown to use more energy than they did pre-solar (Roy, 2000). Efficiency behaviours have also been critiqued as a form of weak environmentalism (Castro, Uzelgun, & Bertoldo, 2017); they allow people to feel better about their green credentials without having to alter their lifestyle.

Some believe that efficiency behaviours contribute to the worldview that a better form of consumerism will save the planet (Kennedy & Hauslik, 2018).

Despite the breadth and variety of pro-environmental behaviours, the academic literature has tended to focus on category five of the DEFRA pro-environmental groups: choosing eco-products and services. While these are important to study, as they may spill over into other types of pro-environmental engagement (Garnelo-Gomez, 2017), it has been argued that some pro-environmental behaviours perpetuate consumer habits through the purchasing of 'green products'. As sustainability fundamentally requires a reduction in resource use, it has been said to be antithetical to the issue at hand (Black & Cherrier, 2010). Additionally, engagement in green consumption behaviours has been shown to boost moral self-image as people think of themselves as pro-environmental citizens (Akenji, 2014; Fitzgerald, 2010; Mansvelt, 2010). It is necessary for the drivers of behaviours other than green consumerism to be investigated in the pro-environmental behaviour literature.

In line with the dominance of green consumption research, there have been calls for more research on collective level pro-environmental action (Brick, 2015; Clayton et al., 2015). While pro-environmental actions generally benefit the environment and society at large, environmental psychological literature has tended to focus on behaviours at the household level, rather than collective and communal behaviour (Doherty & Webler, 2016). When people come together in a community, they can wield considerable power through donations, volunteering, lobbying, and empowering interest groups (Doherty & Webler, 2016). Creating a change in policy or widespread change in attitude has the potential for far greater impact than an individual can make on their own. While it is important for individuals and organisations to engage in pro-environmental behaviour, governments can implement policies that direct the choices available to millions. In order to create wide-scale policy change, and affect the approval and development of infrastructure projects, it is necessary for citizens to lobby the government.

Public sphere environmentalism has great potential to catalyse political action, yet little is known about the motivations and social and cultural barriers to action. Stern (2000) argued that the motivation to engage in environmental activism differs from engagement in other types of pro-environmental behaviour. A key barrier to engaging in pro-environmental behaviour is the innate human motivation to maximise self-related outcomes (Bamberg & Moser, 2007). It is thought that self-interest could be an explanation of the attitude behaviour gap. At the core of many environmental issues is the tension between personal

and collective interests. Separating the identity-driven environmentalism by extrinsic versus intrinsic motivation has yet to be done.

Research has shown that behavioural outcomes differ depending on the motivation of the actor (Ryan & Deci, 2000). Intrinsic motivations are based on innate needs and self-determination. Behaviour driven by intrinsic reasons is related to inherent satisfaction, and would be engaged in even if the behaviour lacked reward as the actor values the behaviour in and of itself (White, 1959). In the case of pro-environmental behaviour, intrinsic motivation would include performing a behaviour because it is aligned with the individual's identity as someone who engages in pro-environmental behaviour. Extrinsic motivations, on the other hand, are when someone engages in a behaviour to gain reward, or avoid punishment. In the context of pro-environmental behaviour, an extrinsic motivation could be that people act environmentally friendly because they anticipate that they will be afforded social rewards.

Pro-environmental behaviour is often described as behaviour with collective rather than individual benefit, whereby those engaging in pro-environmental behaviours are likely to be self-transcendent rather than self-enhancing (Steg & Vlek, 2009). However, Garnelo-Gomez (2017) asserts that people still meet internal needs and capabilities when engaging in collective pro-environmental action. By joining community groups or environmental organisations, members can build relationships, and identify with a group. People may also gain a sense of self-satisfaction or moral superiority from engaging in behaviours that have collective benefit, and therefore it is possible for actors to meet individualistic and collective goals simultaneously.

Studies often only look at one type of pro-environmental behaviour. There has been a lack of empirical testing of clusters of behaviour types together, and, between sub-types of environmental behaviour. This is important, as there is preliminary evidence that the promotion of some types of behaviour hinders engagement in other behaviours, a phenomenon known as negative spill over (Thøgersen & Crompton, 2009; Truelove, Carrico, Weber, Raimi, & Vandenbergh, 2014). Negative spill over occurs when engagement in one type of behaviour leads to reduced engagement in a related behaviour that was not specifically targeted. For example, Hagmann, Ho, and Loewenstein (2019) showed that nudges for quick fixes such as turning off lights have been shown to undermine support for policies with greater impact (e.g., carbon tax).

Key to promoting pro-environmental behaviour is understanding what the drivers and barriers to these behaviours are. As discussed in **Chapter Two**, traditional approaches to predicting pro-environmental behaviour have emphasised the role of individual attitudes, beliefs, values, and perceptions of climate change, and failed to take into account the socio-cultural and contextual factors that might influence pro-environmental engagement (Doherty & Webler, 2016). Much research has been conducted looking at individual factors which predict pro-environmental behaviours, in particular, there has been a focus on using models such as Value-Belief-Norms Theory (VBN) (Stern, 2000) and the Theory of Planned Behaviour (TPB) (Ajzen, 1991) which place little emphasis on the contextual factors, including other people and the systems in which we live.

Environmental Identity

To understand the role of identity in shaping pro-environmental behaviour, it is important to define what is understood by 'identity'. In this section, I first define identity and then explore and critique common theories of identity used in environmental psychology.

What is identity?

"*Identities are the traits and characteristics, social relations, roles, and social group memberships that define who one is*" (Oyserman, Elmore & Smith, 2012, p. 69).

Identity refers to who or what a person is (Twigger-Ross, Bonaiuto, & Breakwell, 2003). It can refer to how someone constructs themselves, connects with a place or belongs to a group, as well as how they are seen by others in social situations (Clayton, 2003a; Garnelo-Gomez, 2017; Twigger-Ross et al., 2003). According to psychological theories of identity, people develop much of the sense of who they are and much of their self-esteem from their personal and unique features as well as from their group memberships or place belongings; though the emphasis on one element or the other varies across different theories (Twigger-Ross et al., 2003). Holding an identity is what distinguishes someone who says "I am a cook", from someone who says "I cook". Although someone might cook on a daily basis, they might not think of it as a key part of who they are.

Identity is not static, nor unidimensional; people have a multitude of identities that playout to varying degrees depending on context (Côté, 1996; Terry, Hogg, & White, 1999). An individual will almost always be acting in accordance with multiple identities at any one time

(Van Kasteren, 2012). For example, I am a woman, I am a doctoral candidate, and I am a cyclist. Multiple hierarchies are thought to be managed in a hierarchy of salience (Van Kasteren, 2012). Some identities such as those regarding gender or race are likely to be chronically salient (Terry et al., 1999). The relative importance of each identity is context-specific; for example, an identity as a cyclist is likely to be dampened while at work as a researcher. Identity can be both conscious and sub-conscious; sometimes, we carry out specific behaviours because of who we are (Oyserman, 2009). For example, we might choose to take dancing lessons and become a dancer. Other times identity shapes us without us realising (e.g., viewing oneself as a Volkswagen driver after growing up in a family that drives Volkswagens) (Oyserman, 2009).

Studying identity in psychological research is useful because it plays an important role in decision making. Identity has been shown to predict the types of behaviours that people engage in. This is thought to occur through identity congruent action, whereby people behave in ways which are congruent with their identities (Oyserman, 2009). Identity is also seen as a useful construct in psychological research, as it has shown to be more stable than attitudes, and to transcend specific situations (Gatersleben, Murtagh, & Abrahamse, 2014).

In the next section, dominant identity theories that exist in the environmental psychological literature are explored. Then I detail how identity theories in environmental psychology have been applied, and will highlight some problematic issues with current conceptualisations, as well as underexplored dimensions of environmental identity.

Dominant Theories of Identity in Environmental Psychology

Identity is a concept which has received increased attention in environmental psychology in recent years, as environmental identity has been shown to be a predictor of pro-environmental behaviour, as well as preferences for policy (Brick, Sherman & Kim., 2017; Fielding & Hornsey, 2016). Pro-environmental identity is also thought to be a key mechanism in explaining positive behavioural spill over (Truelove et al., 2014; van der Werff & Steg, 2018). Positive spill over effects occur when engagement in an initial pro-environmental behaviour leads to increased engagement in other pro-environmental behaviours (Thøgersen & Ölander, 2003). This suggests that making an environmental identity salient can prompt the adoption of a range of pro-environmental behaviours.

Although environmental identity is thought to be a useful factor when predicting pro-environmental behavioural engagement, there has been concern over the diverse definitions used. There are now so many various forms of environmental identity discussed in the environmental psychology literature that it is difficult to understand how one's relationship with the environment might be related to engagement in pro-environmental behaviours (Dunlap & McCright, 2008; Kashima et al., 2014; Reed, Forehand, Puntoni, & Warlop, 2012). In a systematic review of pro-environmental identities by Udall, De Groot and Jong (2017), factor analysis revealed that environmental identities are best categorised into three groups: 1) 'Place' identities: the degree to which people consider the physical and symbolic attributes of a place to contribute to their identity, 2) 'We' identities: social identity and the extent to which people see themselves as members of a group (e.g. an environmentalist), and 3) 'Me' identities: how people see themselves in relation to nature, or as a pro-environmental citizen. Below we use Udall et al. conceptualisation of place, 'We' and 'Me' distinction to explore theories of identity and how they have been applied in environmental psychology research, and their shortcomings in accounting for pro-environmental engagement.

Within environmental psychology, place identity has traditionally dominated the identity literature (Proshansky, 1978; Proshansky, Fabian, & Kaminoff, 1983). Place identity has traditionally been defined as a "sub-structure of the self-consisting of broadly convinced cognitions about the physical world in which the individual lives" (Proshansky et al., 1983). Place identity has featured prominently because environmental psychology was originally focused on how the natural, social, and physical environments surrounding people influenced their attitudes, values, and behaviours. Places represent personal memories and are located within a socio-cultural history. Studies in place identity have demonstrated that when environment is conceptualised as 'place', it is more than a mere backdrop to personal and social phenomena, but a unique way of seeing the world that contributes to self-environment interactions (Devine-Wright & Clayton, 2010). More recently however, there has been a shift in interest away from Place identity, towards social identity (We) and self-identity (Me) approaches.

The concept of social identity is based on identification with the values of a specific group (Tajfel, 1981; Turner & Tajfel, 1986). Social identity has been used to explain the processes of relationships between groups, including related phenomena such as prejudice and social stereotypes. When applied to pro-environmental behaviour, social identity focuses on whether an individual would regard themselves as having a social membership as an

environmentalist. Here, what it means to be an environmentalist is largely determined by the cultural understanding about the traits, characteristics, values and goals of environmentalists (Oyserman, 2009; Tajfel, 1974). Social identity is thought to guide behaviour through shared values, normative influence and conforming to group expectations (Stets & Burke, 2002). For example, in the environmental realm, it can be thought of as thinking of oneself as a member of a specific environmental organisation (e.g., Green Peace, Sea Shepard, or WWF), or more broadly as someone who would consider themselves to be an environmentalist (e.g., I imagine Greta Thunberg, David Attenborough, David Suzuki would place themselves here).

Identifying as an environmentalist has been shown to be related to engagement in a range of pro-environmental behaviours. For example, social identity has been directly related to green consumerism (Klas, 2016), and indirectly related to environmental activism (Dono, Webb, & Richardson, 2010). However, there is evidence to suggest that encouraging an environmental social identity might not be an effective means to encourage pro-environmental behaviour, as there has been shown to be a stigma around the adoption of the identity of an environmentalist. Perceptions of what it means to be green have changed dramatically in the last three decades (Gallup, 2016). In 1991, when asked "Do you consider yourself an environmentalist or not" 78% of United States residents reporting identification, but by 2016, it had fallen to 42%. This decline in environmental identity was accompanied by the growth of a partisan divide in environmentalism (Brick & Lai, 2018). The lack of environmental identity poses a problem for the conservation movement and is reflected in a number of recent studies that have also shown that environmentalists are often evaluated negatively by others (Bashir, Lockwood, Chasteen, Nadolny, & Noyes, 2013; Castro, al i Uzelgun, & Bertoldo, 2016).

In an Australian context, Klas, Zinkiewicz, Zhou, and Clarke (2018) found that environmentalists are often perceived as extreme, aggressive and stubborn in their beliefs. This was also reflected in the findings presented in Chapter Three of this thesis (Uren, Dzidic, Roberts, Leviston, & Bishop, 2019). Several participants, despite stating that they would consider themselves pro-environmental citizens, were hesitant to group themselves with others with an environmental agenda or call themselves environmentalists. It is thought that because environmentalists tend to be thought of as a politicised group, they attract more social stigma than other social groups that are not political in nature (Klas, 2016). Parallels can be drawn here to feminism. While many people have been shown to agree that there should be gender equality, fewer people are willing to consider themselves as a part of the

group that share this value; feminists (North, 2009). It is thought that the overly politicised and social-justice tenants of both feminism and environmentalism have led to negative public connotations (North, 2009). While social identity undoubtedly plays a role in engagement in pro-environmental behaviour, I suggest that promoting an environmental social-identity may not be the most productive means of doing so.

'Me' identities are the types of identity that focus on the individualised view of identity. This is where self-concept is borne out of personal views of the self or idiosyncratic experiences (Tajfel, Turner, Austin, & Worchel, 1979). The first conceptualisations of environmental 'Me' type identities were posited in regard to one's perceived interdependence with nature, this was known as environmental identity or ecological identity (Bragg, 1996; Clayton, 2003a; Light, 2000). Here, identity is thought to be a product of environmental values, which in turn is thought to influence attitudes, personal norms, intentions and behaviour (Steg et al., 2014). From this perspective, it is argued that people engage in pro-environmental behaviour because of an affinity with the natural world (Clayton, 2003b). A recent meta-analysis found that connection to nature was shown to have a moderate positive relationship with engagement in pro-environmental behaviour (Whitburn, Linklater, & Abrahamse, 2019). However, these days, people do not need to feel an inherent connection with the natural world in order to be the sort of person who engages in pro-environmental behaviours. As a consequence, the concept of environmental self-identity has gained traction.

Environmental Self-Identity

Self-identities can be thought of as the labels we ascribe to ourselves (Cook, Kerr, & Moore, 2002); they are the key aspects of our self-concept that guide our engagement in particular behaviours (Conner & Armitage, 1998). Self-identity encompasses all aspects of the self, this includes preferences, values, personal goals, habitual behaviour, personality traits, physical attributes and personal narratives (McAdams, 1995). In a pro-environmental context, an environmental self-identity is a term that generally has been used to describe the self as someone who values the natural environment and engages in pro-environmental behaviour (Whitmarsh & O'Neill, 2010). People holding strong environmental self-identity are thought to be intrinsically motivated by a moral obligation to engage in pro-environmental behaviour. That is, people engage in pro-environmental behaviour because it is the right thing to do and feel a sense of guilt when they do not engage in pro-environmental behaviour (van der Werff,

Steg, & Keizer, 2013b). Emphasis is placed on what an individual is -'I am an environmentally-friendly citizen', rather than what they do -'I bring my own reusable bags when I go shopping'.

Holding an environmental self-identity is considered useful as it is considered to be an important influence on engagement in pro-environmental behaviour (Sparks & Shepherd, 1992). Self-identity has shown to be associated with a range of pro-environmental behaviours. This includes recycling, buying fair-trade products, avoiding flying (Gatersleben et al., 2014), reducing waste, and, conserving water and energy (Whitmarsh & O'Neill, 2010), reducing meat consumption and showering time, and engaging in a fuel-efficient driving style (van der Werff et al., 2013b). Environmental self-identity has also been shown to be an important mediator between values and behaviour, with the relationship between environmental values and green consumption (and a range of other pro-environmental behaviours) mediated by environmental self-identity (Gatersleben et al., 2014; Ruepert et al., 2016; van der Werff et al., 2013a, 2013c). Dermody et al. (2015) found that pro-environmental self-identity partially or totally mediated the relationship between concern, motivation, and behaviour in relation to sustainable consumption behaviours. Environmental self-identity has also shown to be a better predictor of engagement in pro-environmental behaviour than socioeconomic determinants such as age, gender, education, income, and number of household members (Moser & Kleinhückelkotten, 2018). Additionally, environmental self-identity has also been shown to be predictive of pro-environmental behaviour over and above that of the original variables of the commonly used Theory of Planned Behaviour (i.e., social norms, attitudes and behavioural intentions). The Theory of Planned Behaviour has been found to account for no unique variance once self-identity has been added to the model (Nigbur, Lyons, & Uzzell, 2010; Whitmarsh & O'Neill, 2010).

There are caveats to the utility of environmental self-identity in predicting pro-environmental behaviour. While self-identity has been shown to predict engagement in many types of pro-environmental behaviour, there appears to be a limited association between environmental self-identity and overall carbon footprint (Moser & Kleinhückelkotten, 2018). That is, people who hold an environmental self-identity have not been shown to have a smaller carbon footprint than those who do not hold an environmental self-identity. There is a concern that those holding a pro-environmental identity emphasise small behaviours that do not reduce the overall environmental impact of their lifestyle (Moser & Kleinhückelkotten, 2018). This is shown, whereby engagement in low-impact, easy to engage behaviours such as purchasing of efficient appliances and taking your own bags to

the shops is better predicted by self-identity, than difficult to engage in behaviours such as reducing car use (Moser & Kleinhückelkotten, 2018; Whitmarsh & O'Neill, 2010). It has been proposed that behaviours such as daily commuting choices are less likely to be shaped by environmental self-identity, as people are often not willing to sacrifice large chunks of time for a small reduction in greenhouse gas emissions (Moser & Kleinhückelkotten, 2018). It is also important to note that the difficulty of pro-environmental choices, can often be attributed to pragmatic and contextual constraints (Gatersleben et al., 2014). For example, reducing car use would rely on public transportation infrastructure to be of a reasonable standard. Additionally, high impact behaviours such as flying less, reducing car use, and investing in energy-efficient home improvements are thought to be driven by other identities that hold high social status (Gatersleben et al., 2014; Nigbur et al., 2010; Whitmarsh & O'Neill, 2010). Whitmarsh and O'Neill (2010) observed that environmental self-identity had little relationship with one-off domestic energy conservation (e.g., installing insulation or solar panels), travel, and political behaviours.

Summarising Environmental Identity

As discussed, identity in the environmental psychology literature has been conceptualised as 'Place', 'We' and 'Me' identities. While conceptually different, these definitions of identity share the underlying view that one's experience with the environment contributes to self-concept. However, identity does not only arise from personal experiences like feeling an interdependence with nature (i.e., ecological identity), nor thinking of one's self as an environmental citizen (i.e., environmental self-identity), or group membership (social-identity). Identity can also be derived from modelling others, and perceptions of what others will approve of. Here, identity is not due to group membership (social identity), introspection (self-identity), nor connection to a place (place identity). Hence there is a need to consider the socio-cultural forces that shape identity that are not currently taken into account when measuring self-identity. When looking to understand prosocial behaviours it has been said that it is important to consider moral rules that might be at play (Darley & Shultz, 1990). Darley and Shultz (1990) posit that when engaging in prosocial behaviour, people will need to decide whether to satisfy their immediate personal needs or whether to contribute to the collective good.

Additionally, people feel the need to conform to social roles and expectations held by others which work to guide patterns of behaviour. In order to account for the findings of phase one

that suggest people are engaging in pro-environmental behaviour not explicitly to protect the state of the natural environment, but rather to feel a sense of moral superiority or improved wellbeing, it is proposed that the concept of an environmental public-identity is explored. I define environmental public-identity as wanting others to see you as the kind of person who engages in pro-environmental action. We propose that public-identity is a type of self-concept characterised by a desire for social rewards and social status; a need by actors to be approved of, and praised by others. In the next section, I explore social status and how the social status of pro-environmental lifestyles and behaviour may have changed over the last few decades.

Social Status

Social status is when someone is held in prestige and esteem by others, and is said to be an innate human desire (Elliott, 2013). I draw on the succinct summary of social status from Anderson, John, Keltner, and Kring (2001) who posit that it has three key features: 1) prominence, 2) respect, and 3) influence. Prominence refers to the idea that people holding social status tend to receive asymmetrical amounts of attention, are well known, focused on by others, and receive greater scrutiny than those who do not hold social status. Respect refers to those holding social status being respected and held in high regard; this is due to those with the social status being assumed to be competent. Influence refers to the idea that an elevated social position leads to those with social status having sway and pull; they have influence over others, and others look to mimic what they do.

Social status can either be attained or ascribed. Attained social status occurs when status on the basis of merit. Specific professions and societal roles, for example, are revered because they indicate that a person has worked hard and earnt their position in society. For example those who control economic resources (e.g., a CEO), political power (e.g., a prime minister), military power (e.g., a colonel), legitimate authority (e.g., police), or those who have skills and knowledge valued by others (e.g., a doctor) (Colarelli & Dettmann, 2003). Ascribed social status, on the other hand, is held by people who have characteristics valued by society at a particular time. Here, the amount of social status a person holds is dependent on the specific social rules of a specific society and is based on traits beyond their control. In the past, kinship and religious ties have been key assertions of moral worthiness (Peterson, 1997). Today, this may include, white middle-aged men, or those who fit conventional beauty standards.

Social status is an important variable to consider in psychology because behaviours that are associated with social status are more likely to be imitated and adopted (Brooks & Wilson, 2015; De Nardo, Brooks, Klinsky, & Wilson, 2017). Those who hold social status are afforded a number of personal and social rewards (Kenrick, Griskevicius, Neuberg, & Schaller, 2010). These include greater resource entitlement (Kenrick et al., 2010) and sexual opportunity (Kafashan et al., 2014), and being treated more favourably in social situations (Lee, Ko, & Megehee, 2015; Nelissen & Meijers, 2011). These have positive flow-on effects on health, with those who hold social status being shown to have better self-esteem, and mental and physical health outcomes (Anderson, Hildreth, & Howland, 2015).

How is social status communicated?

Social status is not a tangible truth, rather the meaning and attribution of social status are based on co-created, broadly held social beliefs about the value of a product, action, or person (Puska, 2019; Sadalla & Krull, 1995). The behaviours we engage in communicate to others the kind of person we are and how we wish to be seen (Brooks & Wilson, 2015; De Nardo et al., 2017). Purchasing socially desirable goods affords individuals an opportunity to express their social status and communicate to others how they wish to be seen. As humans are a highly social species, the benefits of behavioural engagement are determined in part by how others are expected to respond to that behaviour (Heffetz, 2004). Social encounters between people involve the communication of symbolic information between a performer and an audience (Sadalla & Krull, 1995). People also consider how others perceive them when they decide to engage in public behaviour (Park & Lee, 2016).

In order to attempt to control what is communicated to an audience, individuals engage in self-presentation, where they continuously attempt to alter how their values, attitudes, intentions, abilities, and physical characteristics are perceived. If a person perceives that engaging in an action will portray them in a negative light, then they are unlikely to engage in that behaviour in a public setting. There are thought to be two motives for self-presentation (Baumeister, 1982). First, it serves to construct one's public self, and second, it serves to please the audience. It is important to note that the actor may not be cognisant of these motivations, nor is the actor inauthentic or consciously deceptive (Sadalla & Krull, 1995). It is thought that self-presentation serves to maximise social rewards and minimise social punishments, and therefore is an important factor that influences whether people choose to engage in a particular behaviour.

To maximise social rewards, effective signalling is dependent upon two key factors: 1) the sender, and 2) the receiver, whose perception of the world allows the appropriate response to be evoked (Nelissen & Meijers, 2011). Therefore, in order for a signal to work, both the signaller and the receiver of the signal need to share an understanding of what the signal means (Nelissen & Meijers, 2011). This is why people seldom give anonymously to charity and why many organisations make an individual's contributions publicly visible (Ariely, Bracha, & Meier, 2009; Glazer & Konrad, 1996). For example, crowdfunding websites list donor names, and charitable organisations will often have a board with donor names in their foyer, on their annual report, and on their website.

What types of behaviours are afforded social status?

Given that social status is gained through the communication of symbols, the types of behaviours that signal social status depend on what is valued by society. Costly Signalling Theory (CST; Zahavi, 1975) has been applied as an account of wasteful displays in both animal and human behaviour (e.g., Bliege Bird & Smith, 2005; Cronk, 2005). For example, male peacocks are famously valued for their extravagant display of their tails. Lacking the extravagant physical characteristics that some animals have, humans have been said to flaunt their capability through the ability to acquire resources. Traditionally social status has been associated with wealth, earning potential, and the purchasing and consumption of luxury, quality and comfort goods (Dermody, Hanmer-Lloyd, Koenig-Lewis, & Zhao, 2015; Richins, 2004; Veblen, 1899). According to anthropological literature, there is evidence of the association between the acquisition of resources and social status in almost every contemporary culture (Anderson et al., 2015). This is no different in modern industrialised societies, where people have been shown to prefer more expensive goods over cheaper functionally equivalent goods. As a result, high-status possessions tend to be larger, rarer, and more labour intensive to produce, and therefore signal the ability of the owner to consume resources and is indicative of social position (Sadalla & Krull, 1995). This is known as conspicuous consumption, whereby expensive goods are consumed in a public setting as a way to attain social status (Veblen, 1899). Important is that the ability to acquire and consume resources that offer no functional benefits signals to others that an actor possesses excess resources that they can afford to squander (Saad, 2013).

Engaging in the consumption of expensive items takes time, energy and resources. Therefore frivolous consumption signals to others that an actor has the resources to sacrifice; this is

known as costly signalling. It explains behaviour that appears wasteful but may serve as a reliable signal of a person's desirable attributes (Zahavi & Zahavi, 1975). Hence, people are able to communicate to others that they are rich and altruistic, without explicitly stating that information to observers (Bennett & Chakravarti, 2011). People who are publicly generous are seen to be more co-operative and trustworthy and are more likely to be chosen as allies and group leaders (Berger, 2017).

Traditionally, social status has not been thought to have any bearing on pro-sociality - and it has even suggested that social status is associated with selfishness (Dubois, Rucker, & Galinsky, 2015). So it is then counterintuitive that an additional way to attain social status is through altruistic acts (Hardy & Van Vugt, 2006). The Evolutionary Theory of Competitive Altruism posits that social status is related to altruism because altruistic acts signal to an observer whether a person is pro-social and able to incur costs, rather than selfish or lacking in resources. The Evolutionary Theory of Competitive Altruism, therefore, suggests that status motives might actually lead people to act pro-socially. Costly Signalling Theory has also recently been used to show that people are helpful when their behaviour has clear symbols of pro-sociability (van der Wal, van Horen, & Grinstein, 2016). Griskevicius (2008) found that when status motives were activated, people were willing to forgo luxury and performance in exchange for an opportunity to show their altruism. This supports the Evolutionary Theory of Competitive Altruism, where status is directly linked to pro-sociality (Sadalla & Krull, 1995).

The social status of pro-environmental behaviour

There has been relatively little research looking at the perceived social status of pro-environmental behaviour. This might be because engaging in pro-environmental behaviour is generally considered to have functional disadvantages; they tend to be less luxurious, less convenient, poorer quality, and require more effort than their non-environmental counterparts (Steg, Perlaviciute, van der Werff, & Lurvink, 2012). For instance, riding a bike is usually less convenient, requires more effort, and is more time consuming than driving a car. Similarly, turning down the thermostat and using blankets to keep warm is less luxurious than turning up the heater.

Engaging in pro-environmental behaviours has been thought to hold little status, as these behaviours tend to involve using fewer resources, which has been thought to indicate that a person lacks resources (Sadalla & Krull, 1995). Hence, when framed in conservation terms, pro-environmental behaviours do not communicate social status, as conservation requires

the consumption of fewer goods. This is the opposite of costly signalling whereby those who engage in pro-environmental behaviour are aiming to do the opposite: conserve resources. High status, on the other hand, is communicated through the consumption of goods, such as the size of residence, mode of transport, the types of food consumed, and the quality of clothes worn (Sadalla & Krull, 1995). Modern societies place a high value on growth and economic prosperity, and people living in these societies are continuously exposed to values promoting material wealth and accumulation of possessions (Elliott, 2013; Gatersleben et al., 2014). Engaging in pro-environmental behaviour is in tension with these dominant values, as they require people to consume fewer resources. It is thought that the lower social status associated with many pro-environmental behaviours is a barrier to more sustainable ways of life (Brooks & Wilson, 2015; Sadalla & Krull, 1995; Welte & Anastasio, 2010).

However, some pro-environmental behaviours do in fact offer reputational benefits which boost social status. One example is green consumer products, for example, toilet paper made from recycled paper, the Toyota Prius, organic cotton t-shirts. The consumption of green consumer products such as these enable people to appear pro-social (rather than selfish) (Griskevicius et al., 2010). Buying green products can be understood as pro-social, as buying green products are often expensive and have limited functionality, which signals that an individual has enough resources to be able to sacrifice money and quality for distant collective benefit (Sachdeva, Jordan, & Mazar, 2015).

Someone with an expensive pro-environmental product is thought of as being nicer than some-one with an equally expensive unsustainable product (Griskevicius et al., 2010). Instead of doing something environmentally wasteful, that would only benefit the actor, a person can instead do something that will benefit everyone, earn themselves a pro-social reputation, and hence social status. In fact, having a reputation as a cooperative and helpful group member can be extremely valuable; individuals with positive social reputations have been shown to be more desirable friends, allies, leaders and even romantic partners (Barclay, 2012).

Prosocial behaviours are behaviours that increase the wellbeing of others while incurring a cost to oneself (Kafashan et al., 2014). These costs can include time, energy, money, or other valuable resources (Kafashan et al., 2014). When prosocial behaviour yields a positive image, people tend to be more co-operative and altruistic in public settings (Ariely et al., 2009). Pro-environmental behaviour, therefore, can serve as a costly signal, showing one's willingness

and ability to incur costs for other's benefit as well as enhance their personal reputation as an altruistic person.

Vladas Griskevicius (2008) coined the term 'conspicuous conservation' to describe a phenomenon where people engage in pro-environmental behaviour to gain respect or social rewards from others. He conducted a series of laboratory experiments, finding that participants reported an intent to purchase backpacks, cars, and dishwashers marketed as environmentally friendly when they were primed with status-seeking motives. So, while traditional perspectives suggest that a desire for social status should increase a desire for luxurious items denoting quality and comfort, Griskevicius found that social status motives could lead to a desire for being seen as an altruistic person willing to forgo luxury goods. This suggests that status motives led participants to be attracted to pricey pro-environmental products. Conspicuous conservation implies that people are more likely to engage in pro-environmental behaviour in public settings as opposed to private settings, and is reflected in the literature. It has been shown that people are more likely to donate money to a charitable cause when the donation is observable by others (Berger, 2017; Vesely & Klöckner, 2018) and that people tend to be more generous with time, money, energy, and other resources in public situations (Nettle et al., 2013; Northover, Pedersen, Cohen, & Andrews, 2017; Van Rompay, Vonk, & Fransen, 2009).

Griskevicius et al. (2010) found that when purchases are made in public, people are sensitive to social status even for mundane goods such as soap and batteries. It has also been shown that visible pro-environmental behaviours like solar panels and heat pumps are more likely to be installed than undertaking less conspicuous projects like draught-proofing and solar passive design features, despite the latter being more cost-effective (Sovacool, 2009a; Wilk & Wilhite, 1985). It is thought that because these non-visible features cannot be shown off to visitors, they are harder to sell.

Similarly, Brooks and Wilson (2015) found that consumption reducing behaviours tend to convey less social status than their consumption intensive counterparts, regardless of the environmental orientation of the respondent. For example, driving a car was rated as having more social status than taking a bus to the shops, and buying second-hand furniture was rated as having less social status than buying new furniture. Behaviours that were rated as holding social status despite lower resource use were health-related behaviours, for example avoiding pesticide use, and eating a vegetarian diet. The authors concluded that consumption reducing behaviour need not be associated with low status, particularly when additional cues

indicate that such behaviour is intentional. Brooks and Wilson (2015) findings suggest that symbols of environmental citizenship can be just as status-enhancing as cues indicating luxury.

It has also been shown that behaviours with low social status are seen as such because they indicate scrimping and frugality, rather than a choice. De Nardo et al. (2017) used a Q-sort to assess the social status of pro-environmental behaviour. Highest status rankings were given to solar, renewable energy, local food, and fuel-efficient cars. Behaviours with the lowest-ranked social status were insulating and catching the bus. This is consistent with older research by Sadalla and Krull (1995), who found that recycling and taking public transport were considered low status because they signalled a lack of resources. De Nardo et al. (2017) also found that curtailment behaviours tended to be lower ranked than efficiency behaviours. The only two curtailment behaviours which had positive social status scores were composting and vegetarian diet, both of which can be seen as active choices rather than indicating a need to save money.

So is engaging in pro-environmental behaviour really altruistic?

It is thought that pro-environmental behaviour is able to hold social status because the symbolic value attached to pro-environmental behaviour is changing (Brooks & Wilson, 2015). Over time, as awareness of environmental crises grow, there has been a boom in new environmentally friendly technology and products coming onto the consumer market (Brooks & Wilson, 2015). Green varieties of almost every consumer good are now available, from cars to toilet paper to t-shirts. This is where symbolic advantages might explain why people choose to engage in pro-environmental behaviour. Unlike functional benefits, the symbolic benefits of pro-environmental behaviour focus on people's need for social expression and outer-directed self-esteem. So, it might be that the behaviours that hold social status are not those that signal altruism, but rather, those that signal wealth. For example, Elliott (2013), stated that green consumer goods often lack function (e.g., green cleaning products that do not clean well), and can only be engaged in by those who have the money to feel a sense of superiority.

Take the example of the Toyota Prius. The Prius is an expensive car, with mediocre performance and distinctive design features which make it easy to spot in traffic. When a person purchases a Prius it is a clear signal that they are willing to forgo speed, performance, and money in order to drive a car that uses reduced levels of fossil fuel. It is essentially a self-

promoting billboard that conveys the driver cares about the environment. When the New York Times surveyed people on the reason they bought a Prius, the majority of respondents did not say that they wanted to save the planet, nor did they do it for the higher fuel economy (Maynard, Bunkley, & Chapman, 2007). Instead, buyers said that they wanted their car to say something about themselves, that “it makes a statement about me”. Rather than the purchase being driven by caring about the environment, people were interested in looking like people who care about the environment. For example, one respondent is quoted as saying “I really want people to know that I care about the environment” (Maynard et al., 2007). These benefits are in line with outer-directed self-esteem and satisfying a need for social expression for people looking to gain social status (Lin et al., 2017). Owning a Prius not only signals that someone cares about the environment, but it also signals that the person is willing to sacrifice their wealth for a less powerful car that is several thousand dollars more expensive than a comparable non-hybrid car.

Examples like the Toyota Prius have led to criticisms of green consumerism and status-based motivation. It appears that the ability to gain social status through green consumerism has meant that consumer behaviours have become one of the main ways in which people engage in sustainability. The tension between dominant social systems that emphasis economic growth and the need to consume fewer resources has resulted in a new market for goods with environmental credentials. The market for sustainable goods has increased dramatically; Unilever’s most sustainable brands grew 46% faster than the rest of business in 2018, as well as delivering 70% of its turnover growth ("Unilever’s Sustainable Living Plan continues to fuel growth," 2018). Australian eco packaging company BioPak has experienced unprecedented growth, with their bio-degradable cups sales going from 1 million per month in 2009, to 20 million per month in 2015 ("BioPak: 10 Years of Innovation," 2016). While this shift towards more environmentally friendly consumer goods is positive, there are concerns that it is merely commodifying environmentalism, rather than reducing consumption of resources (Barnhart & Mish, 2016; Elliott, 2013).

Motivational type has been shown to influence engagement in pro-environmental behaviour. Friedrichsen and Engelmann (2014) found that participants with low intrinsic motivation to buy Fairtrade chocolate reacted positively to image building opportunities, whereas those with high intrinsic motivation do not. Similarly, when donations to charity are made in public, they have been shown to signal social status (Ariely et al., 2009a). This suggests that for some, engaging in pro-environmental behaviour can be motivated by an innate desire to do good

for the planet, but for others, the threat of a negative social image is needed to shift behaviour. There is a need to better understand the circumstances in which pro-environmental behaviour is engaged in for social reward versus an intrinsic desire to do good for the planet.

What might influence the effect of social status on pro-environmental behaviour?

A person's need for social approval and political orientation are also thought to be important factors influencing perceived social status. These two factors will be briefly explored below.

Need for Social Approval

A need for social approval is the extent to which a person feels a desire for others to approve of their actions (Rege & Telle, 2004). It is thought that a need for social approval is an important factor that contributes to whether a person is motivated by social status. Park and Lee (2016) found that those with high self-consciousness were less likely to engage in pro-environmental behaviour as the innovativeness increased and therefore clearly signalled that they were engaging in pro-environmental behaviour. Those who did not feel self-conscious were more likely to engage in pro-environmental behaviour when innovativeness increased. Kastanakis and Balabanis (2012) similarly found that those who held an independent self-construal were less likely to need social approval, while those with an interdependent self-construal tended to have higher levels of need for social approval. Those with a need for social approval have also been shown to engage in behaviours with louder symbolic attributes (Han, Nunes, & Drèze, 2010). For example, those with a need for social status people have been shown to prefer a Gucci handbag with a prominent Gucci symbol rather than a Gucci handbag with a subtle logo on the bamboo hinges (Han et al., 2010).

Political Orientation

Pro-environmental behaviour is also thought to be a form of political social expression. It has also been shown that political orientation is a significant influence on pro-environmental attitudes (Clayton et al., 2015; Hornsey, Harris, Bain, & Fielding, 2016; Whitmarsh & Corner, 2017). Those with left-of-centre political views are usually more concerned, less sceptical, and more receptive to messages regarding climate change and think it is important to engage

in pro-environmental behaviour (Leiserowitz, Maibach, Roser-Renouf, Feinberg, & Rosenthal, 2015; Leviston, Greenhill, & Walker, 2015). However, there have been shown to be trivial differences in the ecological footprints of green and non-green consumers (Balmford et al., 2017), suggesting that environmentally mindful attitudes and behaviour do not always reduce the impacts of consumption. It has been suggested that green consumption practices provide a way for people to think that they are doing something about the environment while precluding collective and transformative environmental action (Elliott, 2013).

Rationale

Research conducted within the discipline of environmental psychology has largely ignored the social nature of pro-environmental behaviour. Yet, there is emerging evidence that the way in which pro-environmental behaviours are perceived by the general public influences their adoption. The literature reviewed suggests that in some situations, engaging in pro-environmental behaviour can illicit social status, however, beyond green consumption there is limited information on what types of pro-environmental behaviour are afforded social status, and whether this is influenced by environmental identity. In **Chapters Five**, **Six** and **Seven**, I set out to explore the structure of environmental identity, the nature of pro-environmental social status, and how political orientation might influence the types of pro-environmental behaviours people engage in, as well as the motivations for engaging in them. This is done by going beyond the dominant literature looking at sustainable consumption behaviours and looking at a broader range of pro-environmental behaviours which include conservation and activism behaviours.

Chapter Five: Do we need to distinguish between public and self-environmental identity?

Abstract

Environmental identity is known to be a useful predictor of pro-environmental behavioural engagement but is assumed to be motivated by intrinsic forces (e.g. environmental values). The aim of this research was to test whether environmental self-identity (how one sees oneself) can be distinguished from and environmental public-identity (how one wishes to be seen by others), and can differentially predict engagement in pro-environmental behaviour. Australian adults (*n* = 561) completed a new measure of environmental identity that included both environmental public-identity and self-identity items. Measures of public-identity, negative public-identity and self-identity were identified and validated against reported engagement in pro-environmental behaviours, environmental values, need for social approval, social status-seeking and materialism. While self-identity was the best predictor for all types of pro-environmental behaviours, associations between the types of identity and material values, status consumption and need for social approval, suggest differing underlying motivations for behaviour.

Highlights

Environmental identity was found to be a higher order construct with three sub-factors:

- All three factors should be used when measuring the full-breath of environmental identity
- Self-identity was the better predictor of all types of pro-environmental behaviour
- Public behaviour was not better predicted by public-identity
- Results suggest identity types hold differing underlying motivations for behaviour

Pro-environmental behaviour (PEB) can be thought of as a type of altruistic behaviour as it requires personal costs (e.g., time, effort, money) and contributes to collective benefit (e.g., the state of the natural environment). Therefore, engaging in PEB may signal that the actor is both willing and able to sacrifice their own resources for the betterment of the environment and those around them. While models of engagement in PEB tend to emphasise values, beliefs, and attitudes (i.e., people are thought to engage in PEB out of intrinsic concern for the environment) (Steg et al., 2014), we propose that engaging in PEB is not necessarily reliant only on a 'legitimate' concern for environmental issues but may also be motivated by the pursuit of social rewards.

New motivations for adopting an environmental identity are emerging. Elliott (2013) argued that the ability to 'buy yourself green' has shifted the relationship between environmental identity and environmental impact from an intrinsic connection to nature or environmental concern, to identifying as a consumer of green goods. In a qualitative study by Uren, Dzidic, Roberts, and Leviston (2019) participants described that they wanted to be seen engaging in pro-environmental consumption behaviours and were able to socially justify their consumption behaviours as moral and noble acts by portraying them as sustainable endeavours. Similarly, Garnelo-Gomez (2017) developed a four-group typology of the expression of a sustainability identity and identified a group that she labelled "publicly sustainable"; this group is said to be predominantly driven by personal interest and self-enhancement rather than an intrinsic desire to protect the state of the environment. They are also thought to have a desire to be seen to be "doing their bit" and to avoid guilt. Moreover, experimental and correlational research has shown that people are more likely to engage in green consumption when primed with status motives (Griskevicius, Tybur, & Van den Bergh, 2010), and that engagement in PEB depends on the public visibility of the behaviour (Brick, Sherman, & Kim, 2017).

Given that PEB has the ability to provide social rewards to the actor, we argue that in some circumstances, holding a pro-environmental public-identity (i.e., being seen by others as an environmental citizen) may be desirable even if the actor does not hold pro-environmental values or sees him or herself as a pro-environmental citizen. It is also possible that people with little interest in environmental issues, or who are actively opposed to environmentalism and environmentalists, see PEBs as having little to no social reward because they do not communicate something that is socially valuable about them to others. Therefore, we argue it is important to establish whether wishing to be seen by others as pro-environmental (environmental public-identity) is a separate construct to seeing oneself as pro-environmental (environmental self-identity) and whether these constructs differentially predict PEB.

Conceptualisations of Environmental Identity

Within environmental psychology, identity has been approached from a number of theoretical perspectives. A commonly used and validated scale by Clayton (2003) focuses on the strength of one's connection to the natural world. This scale has been found to be related to environmental concern (*r* = .58; Clayton, Fraser, & Burgess, 2011), attitudinal support for environmental causes (*r* = .49), and engagement in PEB (*r* = .36; Tam, 2013). However, given the widespread awareness of environmental issues, PEB need not be related to an inherent connection with the natural world (van der Werff, 2013) or environmental concern or values at all (Stern, 2000). Other conceptualisations of environmental identity have understood identity not in terms of connection to the environment but in terms of self-referent environmental citizenship (i.e., the extent to which one sees oneself as a pro-environmental citizen). van der Werff (2013) termed this type of identity "environmental self-identity". Several studies highlight links between environmental self-identity and PEB, including intention to engage in environmental activism (*r* = .64; Fielding, McDonald, & Louis, 2008) and intention to reduce meat consumption (*r* = .44; Van der Werff, Steg, & Keizer, 2014). These measures of environmental self-identities have had greater predictive utility in predicting behaviour than the factors contained in the Theory of Planned Behaviour (TPB), including specific attitudes toward the environment (Fekadu & Kraft, 2001; Terry, Hogg, & White, 1999).

Whitmarsh and O'Neill (2010) explored a construct which they also termed "pro-environmental self-identity". This measure is similar to van der Werff's 3-item measure of environmental self-identity. An important theoretical distinction between van der Werff and Whitmarsh's conceptualisation is that Whitmarsh's scale captures both how people see themselves, as well as the perceived social influence of those around them. This measure has shown to be a significant predictor of waste reduction, water and energy conservation, and green purchasing behaviour and eating, and accounted for 10% of the variance in carbon off-setting, over and above that of the TPB for carbon offsetting (Whitmarsh & O'Neill, 2010). Interestingly, one-off domestic energy conservation, travel, and political behaviours were not significantly predicted by environmental self-identity.

While links between self-referent environmental identities and PEB are well established (Devine-Wright & Clayton, 2010; van der Werff, Steg, & Keizer, 2013; Whitmarsh & O'Neill, 2010), it is not currently known whether public identity can be distinguished from a more general sense of identity amongst those who consider themselves pro-environmental. This distinction is similar to role-identity theory (Burke & Tully, 1977; McCall & Simmons, 1978), which posits that individuals will base their actions on how they like to see themselves (self-identity) and how they like to be seen by others

(public-identity). It is also similar to personality research in which public and private self-conceptions have been separated (Baumeister & Tice, 1986), and identity research where athletic identity has been deconstructed into public and private dimensions (Nasco & Webb, 2006). Given the potential for social rewards to be gained from engagement in PEB, we believe the same distinction might be true for environmental identity too.

Categorising Pro-environmental Behaviour

The predictive utility of public versus self-identities were comprehensively assessed by looking at three groups of behaviours: efficiency, curtailment and activism behaviours. A frequently used demarcation of types of environmental behaviour is 'efficiency behaviours' versus 'curtailment behaviours' (Stern, 2000). These terms have previously been used in relation to energy conservation behaviours, but their definition can also be applied to water, transport, and a host of other household level PEBs. 'Curtailment behaviours' are repeated behaviours (e.g., turning off lights), while 'efficiency behaviours' are once-off behaviours that usually involve purchasing goods with a lower environmental impact than their original counterparts (e.g., installing solar panels). Curtailment behaviours have been shown to hold less social status than efficiency behaviours as they may indicate that the actor lacks financial resources (De Nardo, Brooks, Klinsky, & Wilson, 2017). On the other hand, efficiency behaviours demonstrate that an actor can afford to spend money to improve environmental outcomes. Therefore, we predict that curtailment behaviours are likely to be more strongly related to an intrinsic environmental identity (i.e., stronger association with self-identity than public identity), while efficiency behaviours are more likely to be related to a desire to engage in PEBs that fit within existing societal norms (i.e., stronger association with public-identity than self-identity).

To these two behavioural groups, we add an additional group of behaviours which has received less attention: activism behaviours (Stern, 2000). We define activism behaviour as engaging in action to reduce environmental impact at a collective level (e.g., joining a protest march). Environmentalists involved in activism behaviours in Australia have been described as being stigmatised (Klas, Zinkiewicz, Zhou, & Clarke, 2018), suggesting that activism behaviours might be a category of PEB that people avoid being affiliated with. Given that activism behaviours have negative associations, we predict that engagement in environmental activism behaviours will be more strongly related to an environmental self-identity than public-identity.

Need for Social Approval, Materialism and Social Status Seeking

Need for social approval, materialism, and social status seeking tendencies are also likely to have an impact on the adoption of PEB by people high in environmental public-identity. There is evidence that when behaviours are costly and signal altruism by the actor there is potential for them to hold social status (Griskevicius et al., 2010; Welte & Anastasio, 2010). This has been termed conspicuous conservation, whereby people engage in PEB in order to gain social approval and social status (Griskevicius et al., 2010) and is evidenced in the rapid growth in the global market for environmentally friendly products (Leonidou & Skarmeas, 2015). This may be problematic, as the over-consumption of resources, 'green' or otherwise, is likely to be unsustainable. We suggest that environmental public-identity might be related to materialistic, social status seeking tendencies, and need for social approval, as the public expression of PEB allows the actor to receive the social rewards associated with being seen to engage in PEB.

The Current Study

The current study sets out to understand whether self and public-identities are distinct constructs. We propose that people may differ in their motivational predispositions to engage in PEB; that is, some actions may stem from a desire to earn social or material rewards (environmental public-identity), while others may be traced to an intrinsic desire to improve environmental quality (environmental self-identity), and it is therefore important to tease apart these types of environmental identity.

Understanding how public-identity may differ from self-identity has important practical and theoretical implications for the measurement of identity, and for designing interventions to promote PEB. In this paper, we test whether public and self-identities can be empirically distinguished and, if so, to validate scales to measure both self-identity and public-identity and examine whether self and public-identity differentially predict engagement in PEB. We hypothesise that:

1) Environmental public and self-identities will emerge as discrete constructs:
    a. self-identity will better predict private behaviours than public-identity; and
    b. public-identity will better predict public behaviours than self-identity.
2) Activism and curtailment behaviours will be more strongly related to environmental self-identity than public-identity.
3) Efficiency behaviours will be more strongly related to environmental public-identity than self-identity.

4) In regard to convergent and discriminant validity, we predict that:
    a. social status-seeking, need for social approval, and materialism will be more strongly related to environmental public-identity than self-identity; and
    b. environmental values, activist identity, and identification as someone who is connected to nature will be more strongly related to environmental self-identity than public-identity.

Finally, we will compare the predictive validity of our identity scales with other commonly used measures of environmental citizenship and identity.

Phase One

In Phase One, we tested whether environmental self-identity and public-identity can be empirically distinguished.

Methods

Participants, design and procedure

A cross-sectional correlational design with a test-retest component conducted after six-months was used. This study was approved by the University research ethics committee prior to the commencement of the research. A convenience sample of 633 Australian residents aged 18 years and older started the survey. After removing those who had failed an attention trap (n = 18), and those who had not completed the identity measures (n = 54), 561 cases remained for analysis. Participants ranged in age from 18 to 73 years (M = 34.43; SD = 12.9), and 54% were female. The majority of participants (68.7%) held an undergraduate university degree. Participants were recruited by posting links to the online survey on social media (Facebook) and on the Reddit page associated with each Australian capital city.

A link from social media took potential participants to an information sheet on a Qualtrics landing page where the online survey was hosted. Participants were asked to provide informed consent and were then directed to the start of the survey. After completing the survey, participants were invited to provide an email address if they were interested in participating in future research or were interested in entering a draw to win one of two AU$100 Visa gift vouchers. Data were then downloaded into IBM SPSS v.23 for analysis.

Measures

This online survey was a part of a broader study investigating the ratings of social status of PEB. A measure of environmental identity was developed by the authors.

Environmental Identity

Eight items measured self-identity, (i.e., the extent to which one saw themselves as an environmental citizen), and eight items measured public-identity (i.e., the extent to which one would like others to see them as an environmental citizen). Respondents rated each item on a seven-point scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). All items and their sources are included in Table 2. The items added by the authors were created to increase the number of public-identity items and balance the number of reverse-coded items. These items were modelled on the existing self-identity items measuring concern, consumption, and communication of environmental citizenship.

Pro-environmental Behaviour

A 26-item behavioural index of PEB was created to represent a broad range of behaviours that were appropriate for the climate and lifestyles of Australian residents. These were informed by the 12 headline behaviours identified by Defra (2008) shown to have the most environmental impact and were categorised according to whether they represented activism, efficiency, or curtailment behaviours (Table 1). Further categorisation of 'public' or 'private' was made for each behaviour to denote the visibility of behaviours[2]. This item categorisation is based on the results of a pilot test (*n* = 23), where participants rated behavioural items on a five-point Likert scale of 1 (not publicly visible) to 5 (highly publicly visible).

For each item, respondents were asked if they engaged in the following behaviours during the previous week, month, or year. Responses were recorded as either yes, no, or not applicable. Percentage of behaviours were calculated without the 'not applicable' responses (e.g., if three behaviours were reported as 'not applicable', the participant's total behaviour score was calculated out of 23 not 26).

[2] Further categorisation of pro-envrionmental behaviours was made according to financial cost and physical effort (see Chapter Six), but these additional categorisations were not used in this study.

Table 1

Pro-environmental behaviour items and their behaviour type grouping, and mean and stand deviations of level of public visibility from pilot testing.

	Activism	Public or Private	*M*	*SD*
1	Taking part in a political campaign about an environmental issue	Public	4.27	0.88
2	Signing an online petition regarding an environmental issue	Private	1.59	0.80
3	Contacting an elected government member about an environmental issue	Private	1.77	0.75
4	Discussing environmental issues with family and friends	Public	3.68	0.57
5	Donating money to an environmental organisation	Private	1.59	0.73
	Efficiency			
6	Install insulation in your home	Private	1.50	0.80
7	Install a rainwater tank on your property	Public	1.72	0.76
8	Replace conventional light globes with low energy fluorescent or LED bulbs	Private	1.41	0.80
9	Bought carbon offsets when purchasing flights	Private	1.50	0.74
10	Installed solar panels on the roof of the home	Public	4.27	0.77
11	Buy an electric car	Public	4.27	1.03
12	Install a grey-water recycling system at home	Private	1.68	0.78
13	Switch to green power electricity	Private	1.63	0.73
14	Install a water efficient shower head at home	Private	1.50	0.80
	Curtailment			
15	Switch lights off when leaving a room	Private	1.45	1.05
16	Recycled household waste	Private	1.45	0.67
17	Refuse plastic bags when shopping	Public	4.05	1.00
18	Made a special effort to walk or ride instead of driving	Public	4.00	0.98
19	Took public transport instead of driving	Public	4.23	0.87
20	Compost your household food waste	Private	1.55	0.67
21	Chose to shop at an organic grocer	Public	3.95	0.95
22	Collected excess water from the shower to use elsewhere (e.g., in the garden)	Private	1.95	0.58
23	Brought your own cup to a cafe when ordering takeaway	Public	4.05	1.04
24	Tried to repair things rather than replacing them	Private	1.40	0.59
25	Grew some of your own vegetables	Private	1.59	0.73
26	Changed your diet for environmental reasons (e.g., vegetarian, vegan, less meat, seasonal food)	Private	1.68	0.84

Results

Data Analysis Procedure

Data screening indicated that of the 561 cases, there were 2 missing data points (<0.01% missing data). The two missing data points were replaced with expectation maximization. Prior to analysis, two data sets were randomly selected using SPSS for principal axis factoring (*n* = 271) and confirmatory factor analysis (*n* = 290). Exploratory then confirmatory factor analyses were used to investigate the factor structure of the newly developed scale of environmental identity.

Exploratory Factor Analysis

Principal axis factoring with oblimin rotation with Kaiser Normalisation was used to explore the factor structure of the 16 environmental identity items. Parallel analysis was used to determine the number of interpretable factors (Horn, 1965), and indicated that three factors should be extracted. In combination, these accounted for 71.44% of the variance in the data. Self-identity items fell cleanly onto the first factor. The direction of wording appears to be responsible for the second and third factors, with the second factor consisting of the positively worded public-identity items, and the third factor the negatively worded items. We labelled factor one “self-identity”, factor two “public-identity” and factor three “negative public-identity”. The three-factor solution is presented in Table 2. Self-identity and public identity were correlated .67, self-identity and negative public-identity were correlated .49, and public-identity and negative public-identity were correlated .42.

Table 2

Three-Factor Solution and Means and Standard Deviations of Identity Scale Items

	Item	Source	*M*	*SD*	Factor 1	Factor 2	Factor 3	EC
Self-Identity	13. I see myself as an environmentally-friendly person	VDW	5.17	1.21	**.90**	.2	.10	.77
	16. I think of myself as an environmentally-friendly consumer	W	4.78	1.25	**.81**	-.7	-.08	.64
	4. *I do not think of myself as an environmentally friendly person	New	5.40	1.47	**.78**	-.07	.07	.65
	7. I am the type of person who acts environmentally friendly	VDW	5.00	1.24	**.77**	-.11	-.09	.52
	14. *I am not the kind of person who chooses the environmentally friendly option	New	5.29	1.41	**.63**	-.02	-.25	.55
	15. I think of myself as someone who is very concerned with environmental issues	W	4.73	1.58	**.62**	.13	-.12	.60
	3. *I do not consider myself the sort of person who cares about the environment	New	5.70	1.44	**.62**	.28	.00	.58
	10. Acting environmentally-friendly is an important part of who I am	VDW	4.49	1.71	**.61**	.21	.10	.69
Public-Identity	2. I would feel proud if others saw me acting in an environmentally-friendly way	New	5.15	1.35	-.11	**.94**	-.06	.80
	5. I would like others to see me as someone who cares about the environment	New	5.05	1.40	.02	**.91**	-.03	.82
	1. I would like my friends to think that I am concerned about environmental issues.	New	4.97	1.35	.03	**.82**	-.11	.79
	8. It is important to me that others see me as a person who acts environmentally-friendly	New	4.03	1.60	.17	**.74**	.07	.69
	11. I would like it if others saw me using environmentally friendly products	New	4.62	1.43	.14	**.68**	-.01	.62
Negative Public-Identity	12 *I would feel embarrassed if others saw me engaging in environmentally-friendly activities	New	5.94	1.23	-.04	.04	**.80**	.65
	9. *I would not want my friends to think of me as someone who is concerned about environmental issues	W	5.84	1.22	.03	.01	**.79**	.43
	6. *I would be embarrassed to be seen as having an environmentally-friendly lifestyle	W	6.04	1.20	.16	.12	**.50**	.64

Note. * reverse-scored items. VDW = (van der Werff et al., 2013), W = (Whitmarsh & O'Neill, 2010), IC = Initial Communalities, EC = Extracted Communalities

Confirmatory Factor Analysis

A confirmatory factor analysis was conducted using EQS Structural Equations Program. The three-factor model suggested by the exploratory factor analysis was tested using a higher-order model, three-factor correlated model, and three-factor uncorrelated model, with each compared to a single factor model. Fit indices for each model are presented in Table 3. The higher-order three-factor correlated model (Figure 1) provided the best fit to the data. Internal consistency for the three subscales were adequate: Self-Identity (Cronbach's α =.91), Public-Identity (Cronbach's α =.89), Negative Public-Identity (Cronbach's α =.78).

Table 3
Fit indices for confirmatory factor analysis models (robust statistics)

Model	*df*	SB χ2/df	CFI	NNFI	RMSEA
Cut- off criteria		2-5	= />0.85	= />0.85	= /<0.06
3-factor higher order model	100	2.39	0.93	0.92	0.07 [0.06,0.08]
3-factor correlated	101	2.42	0.93	0.92	0.07 [0.06, 0.08]
3-factor uncorrelated	104	4.44	0.84	0.81	0.11 [0.10, 0.12]
1 factor model	104	6.23	0.75	0.71	0.13 [0.12, 0.14]

Note. CFI = comparative fit index. NNFI = non-normed fit index. RMSEA = root mean square error of approximation. Cut-off values recommended by Hooper, Coughlan, and Mullen (2008).

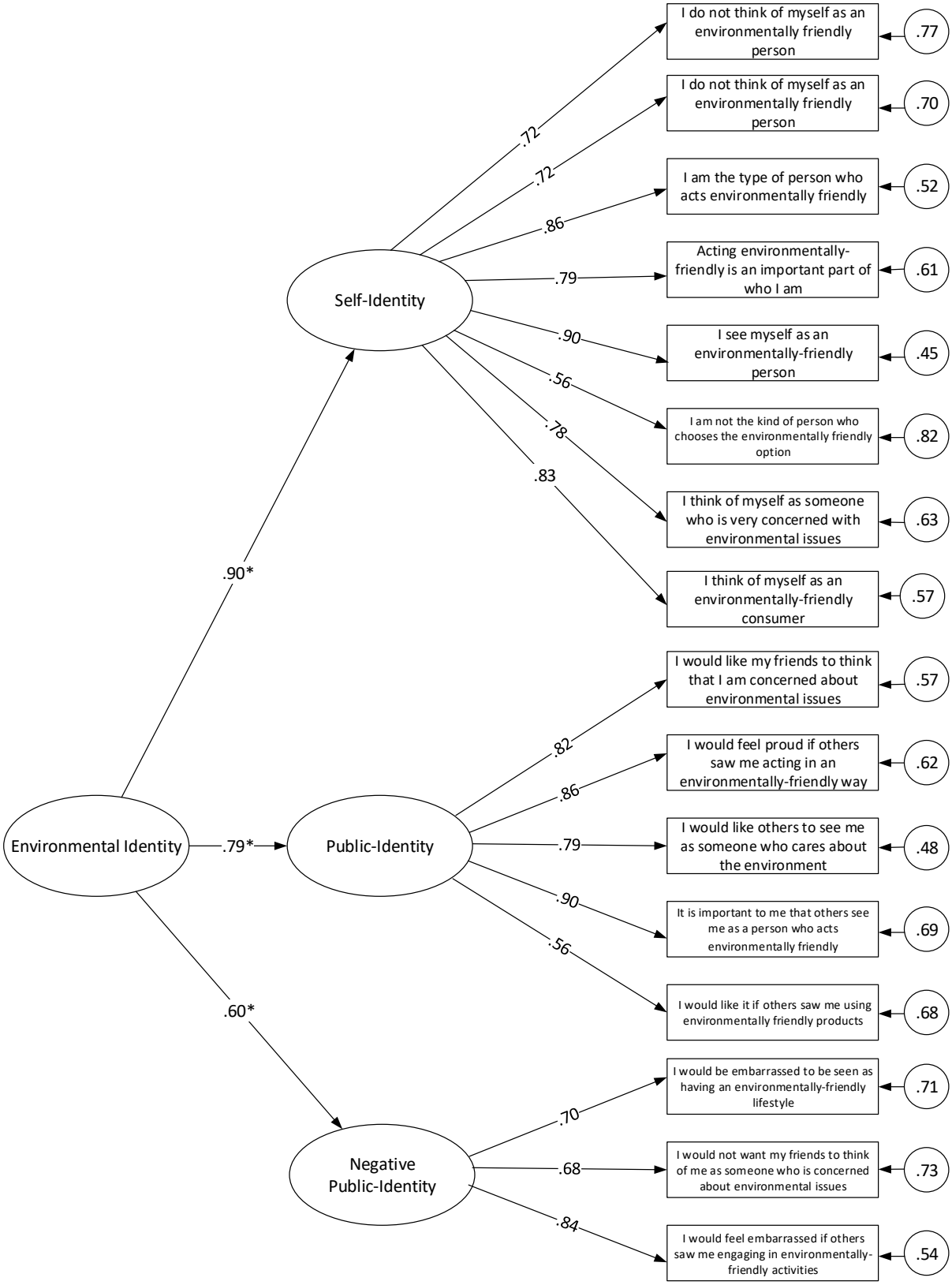

Figure 1. Three-factor higher order model, items marked with (R) have been reverse-coded.

Predictive Validity

To estimate the proportion of variance in PEB that can be accounted for by self-identity, public-identity, and negative public-identity, a series of six standard multiple regressions were used. In combination, the three measures of self-identity accounted for 41% of the variance in overall PEB. Efficiency behaviours were the category of behaviours least well predicted by identity (16% of variance explained). As illustrated in Table 4, self-identity was the strongest predictor in all regressions. Negative public-identity did not account for unique variance in any of the regressions. Public-identity accounted for a small but significant 2% unique variance in efficiency behaviours and was also a significant, but trivial (less than 1% unique variance), predictor of overall PEB. There were eight public behaviours and 17 private behaviours. On average participants engaged in 38.86% (M = 3.11, SD = 1.74) of public pro-environmental behaviours, and 45.89% (M = 7.80, SD = 3.08) of private pro-environmental behaviours.

Table 4

A series of standard regressions with Self-Identity, Public-Identity and Negative Public-Identity as Predictors of Engagement in Pro-environmental Behaviour Types

	Self-Identity					*Public-Identity*				*Negative Public-Identity*			
	R^2	B [95% CI]	Std. Err *B*	β	sr^2	*B* [95% CI]	Std. Err *B*	β	sr^2	*B* [95% CI]	Std. Err *B*	β	sr^2
Overall PEB	.41	3.12 [2.71,3.51]***	.20	.70	.25	-0.37 [-0.72,-.024]**	.18	-.09	.00	-0.05 [-0.40,0.31]	.18	-.01	.00
Efficiency Behaviours	.16	1.04 [0.81,1.26]***	.11	.50	.13	-0.38 [-0.57,-0.18]***	.01	-.20	.02	-0.07 [-0.27,0.13]	.10	.03	.00
Curtailment Behaviours	.33	1.35 [1.15,1.55]***	.10	.64	.21	-0.18 [-0.35,0.00]	.01	-.09	.00	-0.03[-0.15,0.21]	.09	-.02	.00
Activism Behaviours	.34	0.75 [0.61,0.89]***	.07	.50	.13	0.11 [-0.01, 0.24]	.06	.08	.00	-0.06 [-0.19,0.06]	.02	.04	.00
Public Behaviours	.30	1.24 [1.05,1.44]***	.10	.61	.19	-0.21 [-0.38,-0.04]**	.01	-.12	.00	-0.06 [-.24,.12]	.03	.03	.00
Private Behaviours	.37	1.85 [1.59,2.11]***	.13	.65	.13	-0.17 [-0.40,0.06]	.12	.20	.00	0.02 [-.22,0.25]	.04	-.01	.00

Note. CI = Confidence Interval.
*** p<.001, ** p<.05

Phase Two

A follow-up survey was used to collect data needed to test the psychometric properties of the constructs, including convergent validity with well-established measures of environmental values and identity.

Methods

Participants and Procedure.

Six months after the initial survey, all participants willing to be re-contacted were asked to complete a second questionnaire. Of the 222 participants, 122 filled out the second questionnaire (54.95% response rate). Ten participants were removed as they did not complete the survey in full. Of the remaining 112 participants, 52.7% were male. Participants' age ranged from 18 to 73 (*M* = 33.79, *SD* = 12.34). The majority of participants (70.9%) held an undergraduate university degree. Participants who participated in the re-test scored significantly higher on self-identity than those who did not, but there were no differences between the groups on public-identity or negative public-identity (see Table 5).

Table 5

Environmental Identity Scores at Time 1 for those who did and did not participate at Time 2

	M (*SD*)		Difference test
	T1 and T2	T1 only	
Self-Identity	42.96 (8.91)	40.72 (8.52)	$t(558) = 2.47$, $p = .014$, Cohen's $d = 0.25$
Public-Identity	24.81 (6.53)	23.67 (5.90)	$t(558) = 1.80$, $p = .072$, Cohen's $d = 0.18$
Negative Public-Identity	5.73 (3.00)	6.28 (3.00)	$t(558) = -1.74$, $p = .083$, Cohen's $d = 0.18$

Measures

Environmental Identity

The measures of environmental identity developed in Phase 1 were used. The environmental public-identity scale consisted of five items, with high internal consistency (Cronbach's α = .84). The

environmental self-identity scale consisted of eight items, also with high internal consistency (Cronbach's α = .93). The negative public-identity scale consisted of three items and showed acceptable internal consistency (Cronbach's α = .79).

Environmental Values

The Revised New Ecological Paradigm (NEP-R) (Dunlap, Van Liere, Mertig, & Jones, 2000) was used to measure environmental values, and therefore assess convergent validity. The NEP-R is a widely used 15-item measure using a 5-point Likert type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). It includes positively and negatively worded items to measure pro-ecological worldview. For example, *"Humans are severely abusing the environment"*. The 15 items were combined into a composite scale, we found this to have strong internal consistency (Cronbach's α = .83).

Connection to Nature

To further assess convergent validity, the 11 item Environmental Identity Scale (EID-SF11) was used (Clayton, 2003). This scale measures environmental identity as connection to nature rather than environmental citizenship. An example item is "*I think of myself as a part of nature, not separate from it"*. It was measured on a six-point scale ranging from 1 (not at all true of me) to 6 (completely true of me). The internal consistency of the Environmental Identity Scale was acceptable (Cronbach's α = .91).

Activist Identity

The four-item Activist Identity Scale was used to measure activism identity (Klar & Kasser, 2009). Items assess the likelihood of engaging in activist behaviours in the future and were modified by adding the term "environmental" to make them specific to the research. For example, *"Being an environmental activist is central to who I am"*. Items were measured on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). This scale showed excellent internal reliability (α = .97).

Material Values

The nine-item short form Material Values Scale (MVS) was used to assess material values (Richins, 2004). The MVS is the most commonly used scale of material values and has been applied across a wide variety of disciplines and samples (Hurst, Dittmar, Bond, & Kasser, 2013). It consists of three subscales each consisting of three items that measure three dimensions of materialism: how central possessions are to a person's life, whether happiness depends on possessions, and whether

possessions define success. An example item is "*I admire people who own expensive homes, cars, and clothes."*. Items were measured on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). This scale showed strong internal reliability (α = .88).

Status Consumption

The status consumption scale (Eastman, Goldsmith, & Flynn, 1999) consists of five items measured on a five-point Likert scale ranging from strongly disagree to strongly agree. Items include, *"I would buy a product just because it has status"*. The status consumption scale showed excellent internal reliability (α = .93).

Need for Social Approval

The Martin-Larsen Approval Motivation Scale-short form (MLAM-sf; Martin, 1984) was used to assess the need for others approval. The short form is based on the original, 21-item MLAM (Larsen, Martin, Ettinger, & Nelson, 1976) that was designed to assess respondents' desire to receive positive evaluations and social approval from others. The MLAM-sf contains five counterbalanced statements to which participants respond using a 5-point scale, with response options ranging from strongly disagree (1) to strongly agree (5). Higher scores reflect a higher need for social approval. An example item is "*In order to get along and be liked, I tend to be what people expect me to be*." The Approval Motivation Scale showed questionable internal reliability (α = .68).

Results

Reliability and Validity

To establish test-retest reliability of the newly created environmental scales, intra-class correlations were used. High intra-class correlations were found for self-identity (.88) and public-identity (.82). Negative public-identity showed a questionable intra-class correlation at .62.

Results from discriminant and convergent validity testing are shown in Table 6. Self-identity and public-identity were positively correlated, and negative public identity was negatively correlated with the three environmental identity measures. Self-identity was negatively correlated, and negative public-identity positively correlated with material values and status consumption. Public identity was positively correlated with, and negative-public identity negatively correlated with need for social approval. Fisher's *r*-to-*z* transformation was used to test significant differences between each

correlation. There were no differences between self-identity and public-identity on measures of environmental values and identity, and negative public-identity correlated negatively with these measures. We did, however, find significant differences on material values, status consumption, and need for social approval for the different identity types.

1

Table 6
Convergent and Discriminant Bivariate Correlations, and Fisher's r-to-z transformations

						Fisher *r*-to-*z* transformation		
	M (*SD*)	α	Self-Identity	Public-Identity	Negative Public-Identity	Self and Public-Identity	Self and Negative Public-Identity	Public and Negative Public-Identity
Self-Identity	41.17 (8.63)	.88	-			-	-	-
Public-Identity	23.89 (6.04)	.82	.67**	-		-	-	-
Negative Public-Identity	6.17 (3.00)	.62	-.47**	-.43**	-	-	-	-
Activist Identity	3.03 (1.55)	.97	.64**	.49**	-.36**	1.64	8.34**	6.71**
Clayton's EIS	5.19 (1.14)	.91	.64**	.45**	-.40**	2.02*	8.68**	6.67**
NEP	3.84 (0.54)	.83	.43**	.30**	-.30**	1.11	5.65**	4.55**
Material Values	2.67 (.084)	.88	-.37**	-.01	.39**	-2.79**	-5.88**	-3.10**
Status Consumption	1.92 (0.96)	.93	-.28**	-.02	.33**	-1.98*	-4.63**	-2.67**
Need for Social Approval	3.14 (0.33)	.76	-.16	.19*	-.18**	-2.61**	0.15	2.75**

Note. **Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed).

Table 7

The predictive validity of environmental identities, environmental values, status consumption and materialism in predicting pro-environmental behaviour

	Zero- order correlations	***B* [95% CI]**	***Std. Err B***	**β**	***sr²***
Self-Identity	.63	.13 [-.001, 0.26]	0.07	.19	.01
Public-Identity	.38	-.03 [-0.20, 0.13]	0.08	-.03	.00
Negative Public-Identity	-.35	.11 [-0.05, 1.60]	0.16	.05	.00
Clayton's EIS	.60	.78 [-0.00, 0.06]	0.41	.17	.01
NEP	.47	.51 [-0.94, 2.00]	0.73	.49	.00
Status Consumption	-.44	-.96 [-1.81, -0.12]*	0.43	-.18	.02
Material Values	-.51	-.60 [-1.68, 0.49]	0.55	-.10	.00
Activist Identity	.68	.33 [0.17,0.49]**	0.08	.38	.06

Note. EIS = Environmental Identity Scale, NEP = New Ecological Paradigm

The predictive utility of environmental identity scales, environmental values, status consumption, and materialism in predicting PEB are shown in Table 7. In combination, these scales accounted for 60.3% of the variance in pro-environmental behaviour, $R^2 = .60$, F (8,102) = 19.39, p<.01. Tolerances were above 0.2 and VIF were less than 3 indicating that multicollinearity was not an issue. Activist identity was the strongest predictor, accounting for 6% unique variance in PEB. After controlling for all other measures, self-identity accounted for 1% unique variance in PEB.

Discussion

While many people are intrinsically motivated to behave in environmentally friendly behaviour, we argued that engagement in PEB may also be motivated by a desire to gain social rewards associated with being seen to be green. This study sought to understand whether public dimensions of environmental identity could be distinguished from self-identity and to tease apart how these types of environment identity predict different types of PEB.

Firstly, we hypothesised that environmental public-identity (i.e., the extent to which an individual wishes to be seen by others as an environmental citizen) would be distinguishable from environmental self-identity (i.e., the extent to which one sees him/herself as an environmental citizen). We did not find public identity to be a separate factor to self-idenity.

Rather, the results of the exploratory factor analysis showed that self and public-identities loaded onto three factors which we labelled self-identity, public-identity and negative public-identity. Confirmatory factor analysis indicated that a higher-order three-factor model was the best fit for the three factors, that is, self-identity and public-identities are related, but separate dimensions of environmental identity. The finding of two separate public-identity factors was unexpected. Negative public-identity consisted of the negatively worded public-identity items, (e.g., I would feel embarrassed if others saw me engaging in environmentally-friendly activities). This may be a measurement artefact as all the negatively worded items loaded on one factor. Alternatively, public-identity might not be the opposite of negative public-identity and therefore may account for the two-separate public-identity factors. For example, those holding a strong negative public-identity are likely to reject environmental values, while those with a strong public-identity could sit on a spectrum somewhere between more genuinely green to more surface-level green. Until these competing suggestions are further explored empirically, our findings suggest that items from all three factors should be used when wanting to measure the full-breath of environmental identity.

Intra-class correlations indicate a high level of consistency for self and public-identity, but not negative public-identity, across two measured time points six months apart. This gives support for the self and public-identity scales being reliable measures over time. This fits with previous research where environmental self-identity is a relativity stable construct (van der Werff et al., 2013). Negative public-identity, however, was not found to be as stable, perhaps because it is a three-item measure, suggesting a need for further scale development.

Recent research suggests the visibility of a PEB influences its adoption (Brick et al., 2017; Vesely & Klöckner, 2018). Firstly, we should highlight that participants engaged in a greater number of private behaviours than public behaviours, this is the opposite of what we expected, and may have been a function of the behavioural items chosen for the study. We hypothesised that public-identity would better predict public behaviours than self-identity, and self-identity would be the best predictor of engagement in private PEB. We found self-identity to be the key predictor of all types of PEB. In fact, public-identities accounted for only trivial variance in PEB after accounting for self-identity. Our results mirror the findings of Brick and Lai (2018), who found PEB to be driven more by personal goals and values than external pressure or social signalling. This suggests that those with a strong environmental self-identity are likely to engage in PEB regardless of the visibility of the behaviour. Nasco and Webb (2006) similarly found that public athletic identity did not account for variance in

athletic activity over and above private athletic identity. We also found an unexpected negative effect of environmental public-identity and engagement in PEB as seen in Table 4; as environmental public-identity increased, engagement in PEB decreased. Interestingly, Nasco and Webb (2006) found a similar result. Public athletic identity was negatively related to athletic activity, although this was a non-significant relationship. The small size of these negative public-identity effects highlights the need for replication.

Taken together, these findings indicate that self-referent identity items are key when attempting to predict PEB. One explanation for the results might be the increasing ability for people to control their public and private identities. For example, the use of social media allows people to share their (otherwise) private environmental efforts. Online platforms have also allowed for a lot of stigmatised activism work to be conducted with relative anonymity online (Ghobadi, 2018).

Secondly, we expected activism and curtailment behaviours would be more strongly related to environmental self-identity than public identity. This was supported; self-identity accounted for more than a third of the variance in activism and curtailment behaviours, and only half of this for efficiency behaviours. Activism behaviours have been shown to wield considerable power in influencing environmental outcomes, yet are rarely included in pro-environmental research (Doherty & Webler, 2016). Whitmarsh and O'Neill (2010) found that engagement in activism behaviours was not significantly predicted by environmental identity, whereas we found that activism behaviours were the category of PEB best predicted by environmental identity. Differences in findings may be due to the specific items used or cultural differences. It is also important to note that the measure of activism identity we included to test convergent validity predicted PEB as well as self-identity did. This suggests that identification as an environmental activist is a construct worth exploring further in relation to PEB engagement. Future research could look to tease apart the relationship between self-identity, activism identity, and PEB in greater detail.

Given that efficiency behaviours tend to involve an initial cost outlay and allow people to engage in environmentally friendly behaviour without changing their use of resources, we expected efficiency behaviours to be more strongly related to environmental public-identity than self-identity. This was not supported, with public identity not accounting for significant variance in efficiency behaviours after controlling for self-identity. Given this finding, we suggest that changing how people see themselves, rather than appealing to their public identity, might be the more effective method of increasing PEB engagement.

In a meta-analysis of the relationship between material values and environmental behaviours/attitudes, all 18 studies that were included reported a significant negative relationship (Hurst et al., 2013). We hypothesised that social status seeking, need for social approval, and materialism would be more strongly related to public-identity than self-identity. While this was the case for need for social approval, we found no relationship between public-identity and material values nor status consumption. However, when observing Fisher r-to-z transformation, there are significant differences between material values and status consumption between identity types. This suggests that those with a strong negative public-identity hold materialistic and status-seeking values, while those with a strong public-identity are neutral on these constructs, and those strong on self-identity are negative. It may be that those with a strong public-identity want to show their credentials as environmentalists for either intrinsic or extrinsic reasons, and therefore status consumption and materialistic values become neutral.

Limitations of the current study include the use of self-reports as an indicator of engagement in PEB. This is potentially problematic as, given the research topic, people with favourable environmental attitudes were more likely to take part, and conversely, people with negative environmental attitudes may have answered in a way which presented themselves in a more favourable light (Kormos & Gifford, 2014). Similarly, participants may not have had the self-insight to be able to accurately report their public and self-identities (Brügger, Kaiser, & Roczen, 2011). It would be useful to further explore the desire to be seen as an environmental citizen by others experimentally, such that participants report on their implicit desire to be seen to engage in PEB.

Despite the majority of items in the newly developed scales being comprised of items from existing scales of environmental identity, these scales should be used with caution and undergo further validation amongst different populations. Investigating specific green consumption identities, where the motivation for behaviour appears to be mostly for appearance (e.g., reusable coffee cup users) would be valuable. Caution should also be taken in the used of the public and private behavioural dichotomy, as there are a number of ways to intrepret what a public behaviour is. For example, diet behaviours are classified as a private behaviour even though people who eat an envionmentally conscous diet (e.g., vegans) are known for making their dietary preferences public. A number of gaps also remain in understanding how different types of pro-environmental identity are related to different

types of pro-environmental engagement. Further research manipulating the normative approval of pro-environmental actions could help explore this divergence further.

Conclusion

Prior research suggests that the expression of environmental identity may no longer be principally motivated by a desire to improve environmental outcomes (Griskevicius et al., 2010). We set out to test whether environmental self-identity could be empirically distinguished from environmental public-identity. Our findings show that environmental self-identity, public-identity, and negative public-identity are facets of a higher-order construct of environmental identity. While our results highlight the greater utility of environmental self-identity in predicting engagement, over and above that of public and negative public-identity, there were noteworthy nuances in the associations between the two types of public-identity and material values, status consumption, and need for social approval that can guide future behaviour-change efforts. Negative public-identity was associated with material values and status consumption, indicating that people who do not want to be seen to be pro-environmental might be more likely to engage in PEB when materialistic characteristics of behaviour are emphasised. In contrast, those holding strong public-identity are likely to be motivated by social approval. Understanding these differing roots of the motivation to engage in PEB can help to tailor behaviour change campaigns.

Chapter Six: High-Status Pro-environmental Behaviors: Costly, Effortful and Visible

Uren, H. V., Dzidic, P. L., Roberts, L. D. and Leviston, Z (2019). High-Status Pro-environmental Behaviors: Costly, Effortful and Visible. *Environment and Behavior*, 1-30. doi: 10.1177/0013916519882773

Abstract

Diffusion of pro-environmental behaviors (PEBs) is known to be influenced by the perceived social status of those behaviors, but little is known about what gives PEBs social status. A sample of Australian residents (*n* = 601) were asked to rate the social status of 16 PEBs and report their self and public environmental identities. Environmental identities accounted for 18% to 19% of the variance in social status ratings. Efficiency behaviors were perceived as conveying the greatest social status, and activism behaviors the least. Visibility, cost, and effort also predicted perceived social status. Short-answer responses indicated the social status ratings of PEBs were also dependent on the perceived environmental motivations for performing those behaviors. Understanding which PEBs are seen as high status provides insight into PEBs that may be easiest to promote and sheds light on the broader social structures that influence social status perceptions.

Keywords

social status, pro-environmental behavior, content areas, environmental self-identity, environmental public-identity, conspicuous conservation, environmental identity, prosocial behavior, costly signaling

Current ways of living in industrially developed countries are unsustainable and the cause of a host of environmental issues (Edenhofer et al., 2014). Scientists and governments have recognized the need for humans to reduce the consumption of natural resources for decades, yet lifestyles are becoming increasingly resource intensive. Countries such as the United States, the United Kingdom, and Australia have some of the highest standards of living in the world, yet have some of the poorest rankings on climate action (Burck et al., 2018; Hsu & Zomer, 2016).

There is now an urgent need to encourage more sustainable ways of living. Research into the psychological factors that influence pro-environmental behavior (PEB) has not pointed conclusively to any one construct as the dominant motivational force. Much of this research has tended to focus on the individual, with individual values, attitudes, and environmental concern often emphasized (Gifford & Nilsson, 2014). This perspective suggests that people predominantly engage in PEBs because they intrinsically care about the well-being of the planet and its inhabitants, and hence the way to encourage PEB is to highlight environmental problems and educate people, thereby encouraging people to care. However, there is a well-documented gap between environmental attitudes and PEBs, and informing people about the plight of the environment is therefore a poor strategy to encourage environmental protection (Owens, 2000; Pooley & O'Connor, 2000).

By contrast, a rational economic perspective suggests that people's behaviors are motivated by self-interest. According to this perspective, PEBs are thought to be engaged in when the choice to do so maximizes the individual's well-being under the constraints they face (Kollmuss & Agyeman, 2002). However, while highlighting economic benefit is effective in the short term, it tends to further encourage self-interested behavior in the long term (Evans et al., 2013). In addition, research taking an individualistic view of behavior change encourages environmental issues to be tackled at an individual level (Barr, Gilg, & Shaw, 2011). There has been concern that focusing on the individual serves to legitimize consumerist values, as traditional products are simply switched out for green alternatives rather than curtailing consumption (Duroy, 2011).

Given the limitations of previous approaches, there have been calls from environmental psychologists to move beyond the individual, toward broader social factors that influence PEB (Steg et al., 2014). An underexplored potential motivator of PEBs is perceptions of social status associated with these behaviors, and how these perceptions might intersect with environmental identity. While people do not tend to think of themselves as influenced by the

actions of others, research shows that social norms can be a powerful motivator of behavior (Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). People tend to act in a way that conforms to informal understandings of other people's values and behavior in an effort to avoid punishment. In the past, PEBs were shown to convey low social status because they characteristically involve using fewer resources (Sadalla & Krull, 1995). Environmentalists have also generally been categorized negatively and have been seen as aggressive and eccentric (Bashir et al., 2013). This has been reported as a barrier to more sustainable consumption patterns, as people do not wish to be perceived negatively (Klas et al., 2018). While environmental attitudes are undoubtedly an important motivator of engaging in PEBs, there is evidence to suggest that negative social normative information surrounding more overt displays of environmentalism are consciously acknowledged by, and concerning to, those identifying as sustainable (Uren, Dzidic, et al., 2019). Little research, however, has been conducted looking at how PEBs may bolster one's social reputation.

A relatively new concept used to explain engagement in PEB is conspicuous conservation (Griskevicius et al., 2010). This is a form of status-driven environmentalism, where individuals engage in PEBs to gain social status. Traditionally, social status has been associated with frivolous displays of consumption (Veblen, 1899) - the act of consuming resources to signal one's wealth, power, and influence - which in turn bolsters social status. However, with an increase in the awareness of environmental issues, social norms have changed along with the cultural and symbolic meaning attached to PEBs (Brooks & Wilson, 2015). For example, in a lab study by Griskevicius et al. (2010), it was found that participants were more likely to intend to buy green products after being primed to think about social status, even when the behavior was slightly more expensive and had reduced functionality. Similarly, Brick and Lai (2018) found those who value social status were more likely to engage in PEB.

Engaging in high–social status behaviors is said to bring the actor a host of benefits, including reputational, psychological, and reproductive paybacks (Kafashan et al., 2014). Individuals who are perceived as holding higher social status are seen more favorably than others, and high-status behaviors are more likely than low-status behaviors to be adopted and spread (Brooks & Wilson, 2015). In addition, people have been shown to prefer to bond with high-status individuals (Saad, 2007), and people displaying luxury brands have been shown to be treated more favorably (Nelissen & Meijers, 2011).

Social status has been defined in a number of ways; however, we draw on the succinct summary from Anderson et al. (2001) who posit three key features of social status:

prominence, respect, and influence. Prominence refers to the idea that individuals with high social status tend to receive more attention (have greater prominence), are well known, visible, and receive more scrutiny than do those without social status. Second, those with high social status tend to be highly respected and held in high regard. Third, individuals with high social status have an asymmetrically high amount of influence and control over others. The literature specific to contributors to the social status of PEBs is reviewed below.

When Are PEBs Seen as Having High Social Status?

Previous research indicates social status is an important determinant for PEB engagement (Griskevicius et al., 2010; Welte & Anastasio, 2010), but very little is known about the social status afforded to specific PEBs. Below we draw upon past research indicating that visibility, financial cost, and physical or mental effort are important for conveying social status.

First, for a behavior to bring social status to an actor, it needs to be observable. Given that social status is not directly observable, people rely on signals of social status to infer it (Berger, 2017). Signals of social status can be communicated in a number of ways, for example through conversation, written text, or through physical visibility of a status-signaling object (Berger & Ward, 2010). It is thought that social status is best communicated implicitly, as prosocial actions are no longer seen as altruistic once someone is perceived to be bragging about it (Ariely et al., 2009). One way in which actions can be communicated is by being publicly visible (Delgado, Harriger, & Khanna, 2015; Puska, Kurki, Lähdesmäki, Siltaoja, & Luomala, 2016). In this study, we define public visibility as the extent to which a behavior is visible to members of the general public. For example, solar panels are likely to be seen by one's local community, whereas a water-saving shower head is not. Among Californian homeowners, visible energy saving practices such as solar heaters have been shown to be favored over less conspicuous measures like drought-proofing, despite the latter having greater energy and cost-saving potential (Wilk & Wilhite, 1985). This has been thought to be because drought-proofing cannot be shown off to visitors (Wilhite & Lutzenhiser, 1999). More recently, (Sovacool, 2009a) reported that it is easier to sell a home with solar panels compared with less-visible features in a home such as passive solar design or insulation. Similarly, (Babutsidze & Chai, 2018) found that Australian consumers were more likely to engage in visible PEBs, and Brick, Sherman, and Kim (2017) found that that the public visibility of pro-environmental behavior moderated the relationship between social identity and behavioral engagement. Finally, Friedrichsen and Engelmann (2014) found that when asked

about chocolate preferences, individuals who chose conventional chocolate in private often chose Fairtrade when the choice was made in public. This suggests that when behavior is publicly visible individuals are able to demonstrate, or signal, they are the "sort of person" who engages in pro-environmental actions. This leads to our first hypothesis:

Hypothesis 1 (H1): Public behaviors (high visibility) will be rated as conferring higher social status than private behaviors (low visibility).

Second, behavior is thought to convey social status when it is costly for the actor. According to costly signaling theory (Zahavi, 1975), individuals engage in costly behaviors to signal information about themselves that is considered desirable. Costly signaling has also been described as a form of competitive altruism, whereby visible prosocial actions serve to signal people's ability and willingness to give up their own resources for the benefit of others (Griskevicius et al., 2010). According to costly signaling theory, costs need not be financial but can also include costs in time, effort, and knowledge. It is proposed that these instrumental drawbacks signal altruism on behalf of the actor and can increase the strength of the status signal. Hence, the often high-effort nature of PEBs may increase their status signaling potential. As "effort" can be an ambiguous term, we use the conceptualization described by Welte and Anastasio (2010), whereby effort denotes the amount of "trying" needed to perform a behavior. For example, switching off a light requires a low level of trying as this is a one-off activity, whereas volunteering for an environmental organization requires a much higher level of trying through personal and sustained investment of time, and mental and physical effort.

Although financial cost and physical effort can both be thought of as costs, there are indications that financial costs may be particularly important when it comes to conveying social status (Nelissen & Meijers, 2011). It is unsurprising then, that low-cost but more effortful behaviors such as taking public transportation and air-drying clothes have been shown to have lower perceived status when compared with more costly environmentally damaging behaviors (Sadalla & Krull, 1995). Engagement in inexpensive or money-saving PEBs might undercut their utility as a signal of environmental social status and signal to others that the actors are unable to afford more expensive alternatives (Sadalla & Krull, 1995), with actions perhaps signaling frugality rather than environmental motives. This highlights the need to examine effort and financial cost separately.

In the past, PEBs that subvert the status quo have usually involved physical and mental effort (e.g., advocacy and campaigning). We expect high-effort behaviors to be rated as conferring higher social status than low-effort behaviors; however, we expect the effect to be less than that of financial cost, as per the following hypotheses:

Hypothesis 2a (H2a): High–financial cost behaviors will be rated as conferring higher social status than low–financial cost behaviors.

Hypothesis 2b (H2b): High-effort behaviors will be rated as conferring higher social status than low-effort behaviors, but not as high as high-cost behaviors.

Curtailment, efficiency, and activism behaviors

There are a number of ways in which PEBs can be categorized. One common categorization is the curtailment-efficiency distinction (Stern & Gardner, 1981). Curtailment behaviors involve using less of a resource, and are often low-cost repetitive behaviors (such as turning off lights), or require the user to use less (such as turning off a tap). Curtailment behaviors have found to convey neutral or low social status as they can be associated with frugality, a need to use less, or a lack of resources (De Nardo et al., 2017; Sadalla & Krull, 1995).

Efficiency behaviors involve using something more resourcefully and tend to be one-off behaviors that involve some financial cost. These include installing solar panels or a water-efficient shower head. Efficiency behaviors tend to have higher perceived social status as they signal an ability to incur financial costs and are behaviors thought to have collective benefit (De Nardo et al., 2017).

The third type of PEB that has received far less attention than efficiency and curtailment is nonviolent activism behaviors. Nonviolent activist behaviors (referred to as activism from now on) involve efforts to effect environmental change by promoting and intervening in environmental issues at a collective level (Dono et al., 2010), with minimal personal gain and arguably, great potential for societal gain (Brulle, 2010). These behaviors might include writing to a member of government or participating in rally or demonstration. Pro-environmental activism behaviors rarely have secondary benefits to the actor (i.e., someone has little to personally gain from signing a petition or contacting a member of government), whereas efficiency and curtailment behaviors on the contrary often bring financial and health benefits. Despite this, past qualitative research has highlighted that activism behaviors tend to hold low social status (Klas et al., 2018). It has been found that while generally

environmentalists are perceived positively, the overly demonstrative nature of some environmental activism behaviors can be poorly perceived even among those who consider themselves green (DeLaure, 2011; Uren, Dzidic, et al., 2019). In these instances, environmentalists are characterized as "militant," "aggressive," and "unclean" (Bashir et al., 2013; Klas et al., 2018). Given the great potential for societal gain through activism behaviors, their poor perception is somewhat inconsistent with the conclusions that curtailment and efficiency behaviors are viewed favorably because of their altruistic characteristics, prompting the following hypothesis:

Hypothesis 3 (H3): Efficiency behaviors will be rated as conferring higher social status than both curtailment and activism behaviors.

The Influence of Environmental Identity on Perceptions of Social Status

The perceived social status of PEBs is likely to be dependent on the extent to which people see themselves as pro-environmental citizens. Environmental identity is a construct that has recently gained attention as an important predictor of PEB (van der Werff et al., 2013b). Relatively little is known about how environmental identity influences perceptions of social status, and to the authors' knowledge, environmental identity has not been explicitly studied with social status previously. Different green products have the potential to mean different things to different consumers and may not be perceived universally as status symbols (Elliott, 2013). Brick et al. (2017) highlighted that desire to be seen to be green depends on environmental identity. They found that people who identified as environmentalists were shown to be more likely to engage in PEB when the behavior is publicly visible, whereas anti-environmentalists were more likely to engage in private PEBs. This brings us to our final hypothesis:

Hypothesis 4 (H4): Environmental self-identity and public identity will each be significant positive predictors and account for unique variance in perceived social status ratings of PEBs.

Research Rationale

The aim of this research is to better understand the factors that contribute to the perceived social status of PEBs. Previous research has indicated that behaviors that are perceived to hold social status are more likely to be adopted and spread (Berger, 2017), yet there remains uncertainty about the particular characteristics of PEBs that lend some higher social status

than others. Past research indicates that financial cost, visibility, effort, the type of PEB, and a personal connection with environmental may all influence the perceived social status of PEBs (Friedrichsen & Engelmann, 2014; Griskevicius et al., 2010; Hards, 2013; Welte & Anastasio, 2010); however, we do not know to what extent these factors, alone or in combination, can account for variance in social status ratings. This article extends the work of others by looking at the social status associated with behaviors beyond that of sustainable consumption. This is important given concerns that encouraging high-status behaviors may reinforce ideologies predicated on unsustainable resource use consumption in the first place. Finally, we look at the relationship between environmental identity and social status to see whether identifying as green is related to ratings of social status.

Method

Design

The online survey data analyzed in this article form part of a larger research project. We adopted a mixed methods approach, with a cross-sectional correlational design, and open coding of online survey short-answer responses.

Participants

The participants of this study consisted of two samples of Australian residents aged 18 years or older: a community convenience sample and a student convenience sample. In total, 758 participants completed the online survey with 688 coming from the community sample and 70 from the student sample. The community convenience sample of Australian residents aged 18 years and older was recruited via social media (Facebook) and by posting a link to the survey on the Reddit page associated with each Australian capital city (Brisbane, Sydney, Melbourne, Hobart, Adelaide, Darwin, Perth, and Canberra) to participate in an online survey. Student participants were recruited via a student participant pool and were rewarded with points required to pass their course. We were not able to calculate a response rate as we did not send out individual invitations to participate.

Participants who had more than five data points missing from a scale were deleted, these totaled 116 cases deleted (5 students, 112 community). Furthermore, 23 cases who failed an attention check on the social status measure were deleted (20 community, 3 students). The

final sample for this study was 601 (542 community and 59 students) Australian residents. Participant demographics are presented in Table 1.

Table 2

Demographic Information for Community and Student Samples

		Community Sample	Student Sample
Gender	Male	43.40% (235)	33.90% (20)
	Female	55.50% (301)	64.40% (38)
	Prefer to self-define	0.90% (5)	1.70% (1)
	Missing	0.20% (1)	0.00% (0)
Age	Range	18-73 years	18-39 years
	Mean	34.34 (*SD* = 12.96)	21.08 (*SD* = 4.08)
Highest Education Attained	Equivalent of Year 11 or below	4.10% (22)	3.40% (2)
	Year 12 (High School)	13.80% (75)	79.70% (47)
	Vocational Education/Training	12.20% (66)	10.20% (6)
	An Undergraduate degree	44.50% (241)	5.10% (3)
	A Postgraduate degree	25.30% (137)	1.70% (1)
Weekly Income	Less than $499	6.30% (34)	6.80% (4)
	$500-$999	14.80% (80)	16.90% (10)
	$1000-$1499	22.70% (123)	20.30% (12)
	$1500-$1999	17.70% (96)	11.90% (7)
	More than $2000	24.20% (131)	15.30% (9)
	Prefer not to say	14.40% (77)	28.80% (17)

Measures

An online survey hosted on Qualtrics.com included the following measures.

Social status of PEBs

Participants were informed that social status is defined as "the respect, admiration, and high regard people receive from others." Participants rated 16 PEBs (Table 2) on their perceived social status, ranging from 0 (no social status) to 100 (very high social status). Participants were then asked to report why they had rated behaviors the way they did.

Table 3

PEBs and Corresponding Categories Developed After Pilot Testing

Behavior	Effort	Cost	Visibility	Type
Bought an electric car	High	High	High	Efficiency
Installed solar panels on the roof of the home	High	High	High	Efficiency
Installed insulation in your home	High	High	Low	Efficiency
Installed a greywater recycling system at home	High	High	Low	Efficiency
Made a special effort to walk or ride instead of driving	High	Low	High	Curtailment
Taken part in a political campaign about an environmental issue	High	Low	High	Activism
Contacted an elected government member about an environmental issue	High	Low	Low	Activism
Collected excess water from the shower to use elsewhere (e.g., in the garden)	High	Low	Low	Curtailment
Refused plastic bags when shopping	Low	Low	High	Curtailment
Brought your own cup to a café when ordering takeaway	Low	Low	High	Curtailment
Replaced conventional light globes with low energy fluorescent or LED bulbs	Low	High	Low	Efficiency
Chosen to shop at an organic grocer	Low	High	High	Curtailment
Donated money to an environmental organization	Low	High	Low	Activism
Bought carbon offsets when purchasing flights	Low	Low	Low	Curtailment
Signed an online petition regarding an environmental issue	Low	Low	Low	Activism
Recycled household waste	Low	Low	Low	Efficiency

Categorization of behaviors into effort, cost and visibility categories was based on a pilot test (n = 23).

Behaviors were chosen to be relevant to people living in Australia, and effort was made to include behaviors that varied on cost, effort, and visibility. The behaviors selected included efficiency, curtailment, and activism behaviors (Table 2). The categories were determined using a pilot test, where 23 people were asked to rate the effort, cost, and visibility of 33 PEBs on a 5-point Likert-type scales (e.g., low monetary cost to high monetary cost). Behaviors with a mean score 1 SD above or below the mean were included as high or low in each of the categories and were then selected for inclusion.

Environmental Identity

The seven-item measure of environmental self-identity (Uren, Roberts, Dzidic, and Leviston, in preparation) was used to measure the extent to which people saw themselves as environmental citizens. An example item is, "I think of myself as someone who is very concerned with environmental issues" (7-point scale, *strongly disagree* to *strongly agree*), and the scale showed excellent internal consistency (Cronbach's $\alpha = .93$).

The five-item measure of environmental public-identity (Uren, Roberts, Dzidic, Leviston, in-preparation) was used to measure the extent to which people wanted others to see them as environmental citizens. An example item is, "It is important to me that others see me as a person who acts environmentally-friendly" (7-point scale, *strongly disagree* to *strongly agree*), and the scale showed very good internal consistency (Cronbach's $\alpha = .84$).

Procedure

This study was approved by the Curtin University Human Research Ethics Committee. Potential participants were directed to an online information sheet and provided informed consent prior to being redirected to the online survey. Participants took a median of 16 min to complete the survey. On completion of the survey, community participants were redirected to a page with the option of entering a participation prize draw, and university participants were awarded participation points attached to completion of their undergraduate course. The survey was available online for 3 months between April and June 2016. Quantitative data were downloaded into IBM SPSS (Version 24) for quantitative analyses. All recruitment ceased prior to commencing the analysis. The proposed analyses determined during the design phase of the research were a 2 × 2 × 2 factorial analysis of variance (ANOVA) (H1, H2a, and H2b), a one-way between groups ANOVA (H3), and three hierarchical multiple regression analyses (HMRAs) (H4).

We used NVivo 11 to conduct a content analysis of answers to the open-ended question, "How did you decide how much social status each behavior conveys?" We initially coded to three pre-existing codes—cost, effort, and visibility—to match the focus of our research. Further inductive coding identified additional themes. One hundred cases were randomly selected for independent cross-coding by two authors. Coding was then discussed, and code descriptions were modified to address some ambiguities and increase the clarity of the intended meaning. The second round of independent coding with a different random sample of 100 cases was coded, this time using the amended codes. All content from the open-ended responses was coded, and the number of codes assigned to a response was not capped, meaning a single response could be assigned multiple codes. According to McHugh (2012), kappa for the second round of coding can be considered strong at .84.

Results

Correlations between overall status rating, efficiency, curtailment, and activism behaviors, and public- and self-identity are shown in Table 3. Social status scores for efficiency, curtailment, and activism were strongly correlated, and social status and identity were moderately correlated.

Table 3

Correlations Between Social Status Ratings and Identity Scores

Social Status	**1**	**2**	**3**	**4**	**5**	**6**
1. Overall Social Status	1					
2. Social Status of Curtailment Behaviors	.91**	1				
3. Social Status of Activism Behaviors	.93**	.76**	1			
4. Social Status of Efficiency Behaviors	.85**	.67**	.71**	1		
5. Public-Identity	.45**	.40**	.40**	.42**	1	
6. Self-Identity	.43**	.39**	.37**	.39**	.71**	1

Note. ** Correlation is significant at the 0.01 level (2-tailed).

A graph of the overall means and standard deviations for the perceived social status ratings of efficiency, curtailment, and activism behaviors is presented in Figure 1. The mean scores indicate that efficiency behaviors were always rated highest followed by curtailment and activism. The behaviors rated as conveying the highest perceived social status were costly infrastructure items (e.g., buying an electric car and installing solar panels); the behaviors

with the least social status tended to be inexpensive, low-effort behaviors, with the exception of installing insulation, which may have ranked low due to its lack of visibility. Signing an online petition was the lowest ranked behavior.

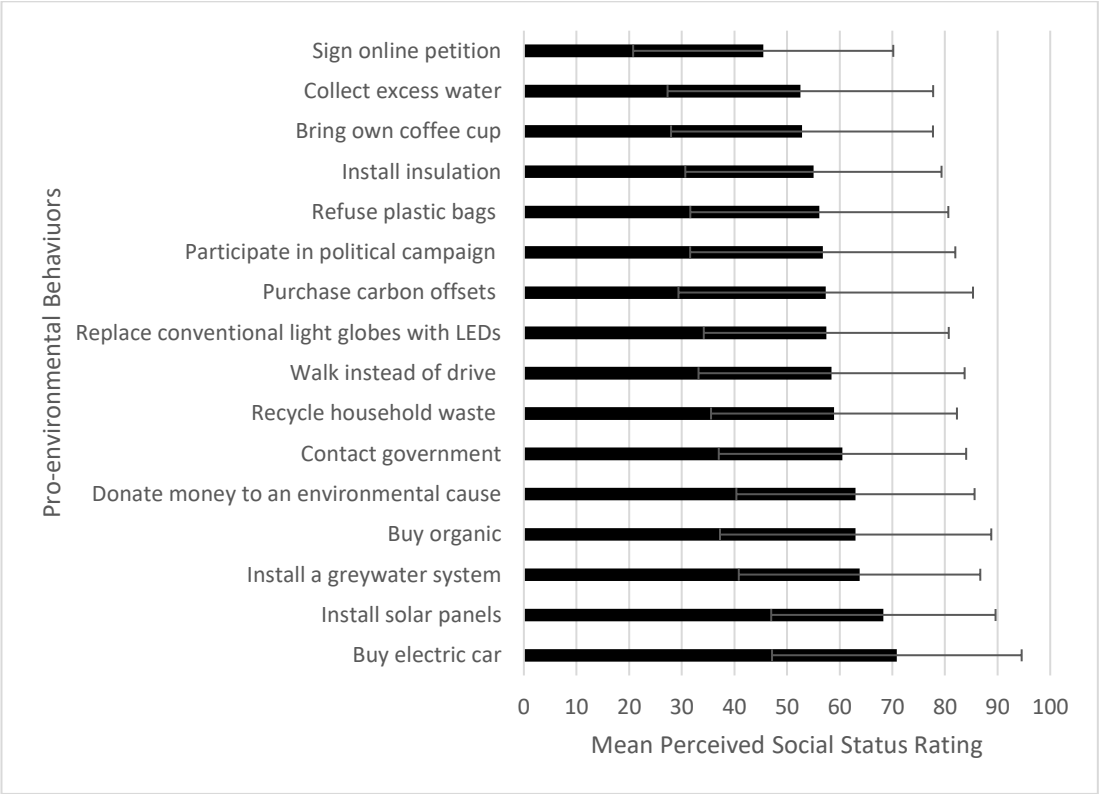

Figure 1. Mean perceived social status ratings of pro-environmental behaviors.

Associations Between Visibility, Cost, and Effort on Social Status

To test whether visibility, cost, and effort of PEBs were related to participant's ratings of the social status of PEBs (H1-H3), a within-subjects factorial ANOVA was conducted. The factors were cost, effort, and visibility each with high and low levels, resulting in a 2 × 2 × 2 design. While statistical tests indicated a violation of assumptions of homogeneity of variance and normality, the data approximated a normal distribution.

The mean social status ratings collapsed by high and low cost, effort, and visibility are presented in Table 4. PEBs that were high in cost, effort, and visibility received significantly higher ratings of perceived social status than those that were low in cost, effort, and visibility respectively: cost $F(1, 9608) = 202.30$, $p < .001$, $\eta^2 = .021$; effort $F(1, 9608) = 30.19$, $p < .001$, $\eta^2 = .003$; and visibility $F(1, 9608) = 49.31$, $p < .001$, $\eta^2 = .005$. Thus, H1 to H3 were supported. In addition, while we did not hypothesize interaction effects, we found significant

interactions between cost and visibility, $F(2, 9608) = 29.46$, $p<.001$, and effort and visibility, $F(2, 9608) = 14.35$, $p < .001$, but not cost and effort, $F(2, 9608) = .000$, $p = .983$. The three-way interaction was also significant, $F(1, 9608) = 10.82$, $p < .001$, $\eta 2 = .001$, and is depicted in Figure 2. Figure 2 illustrates that the relationship between cost and social status is moderated by visibility (i.e., there is a stronger relationship between cost and social status when behaviors are visible). The same pattern of results occurs for effort and visibility, whereby the relationship between effort and social status is stronger when behaviors are visible.

Table 4

Means and Standard Deviations for Cost, Effort and Visibility at Low and High Levels of Social Status Ratings

	Cost		**Effort**		**Visibility**	
	M	*SD*	*M*	*SD*	*M*	*SD*
Low	55.64	0.34	57.92	0.38	57.52	0.34
High	63.06	0.40	60.78	0.36	61.18	0.40

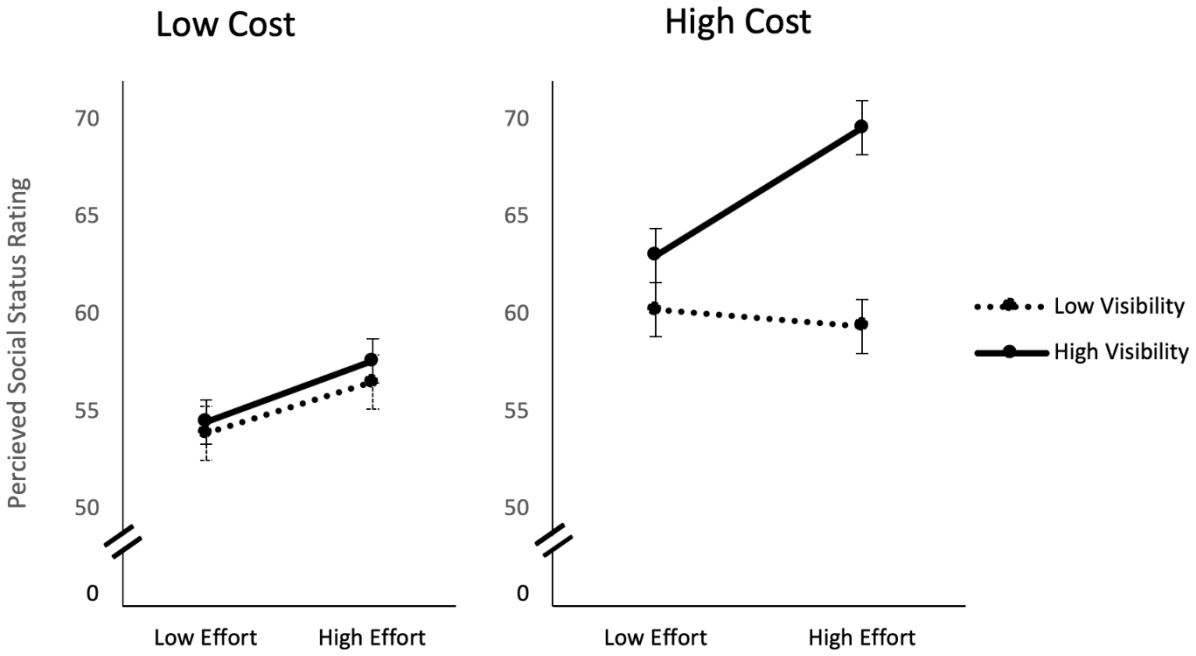

Figure 2. Mean social status and error bars showing confidence intervals for behaviors of low and high effort, and visibility.

The Influence of PEB Type on Social Status

To test H4, that efficiency behaviors confer higher social status than curtailment and activism behaviors, a within-subjects one-way between groups ANOVA was used. All statistical assumptions were met. The ANOVA indicated that as hypothesized there was a significant difference between behavior types, $F(2, 1800) = 18.08$, $p < .001$, $\eta^2 = .02$. Post hoc tests using Tukey's HSD (honestly significant difference) showed that efficiency behaviors held significantly more social status ($M = 62.16$, $SD = 17.24$) than both activism ($M = 56.45$, $SD = 18.77$) and curtailment ($M = 56.98$, $SD = 18.20$) behaviors. There was no significant difference between activism and curtailment behaviors.

Environmental Identity

To test H4, three HMRAs were conducted. These were used to assess the ability of environmental public- and self-identity to predict the perceived social status of (a) activism behaviors, (b) curtailment behaviors, and (c) efficiency behaviors. Four univariate outliers on the two identity scales were changed to one unit higher than the largest non-outlier (Tabachnick, Fidell, & Ullman, 2007). Three multivariate outliers were retained as they did not impact the results. All other assumptions were met.

Table 5 lists the predictors of the HMRAs, R2, standardized and non-standardized regression coefficients and squared semi-partial correlations (sr^2). The R2 indicates the shared variance in behavior accounted for by environmental identities in combination. In combination, the two types of identity accounted for a significant 18% to 19% of the variance in social status ratings of activism, curtailment, and efficiency behaviors. Unique variance is indicated by sr^2; this shows that self-identity and public identity each account for unique variance in social status ratings. This suggests that it is important to measure both personal and public dimensions of environmental identity.

Table 5

Multiple Regressions Predicting Social Status of Activism, Curtailment and Efficiency behaviors using Environmental Public and Self-Identity (n = 601)

Variable	Variable	R^2	*B* [95% CI]	β	sr^2
Social Status of Activism Behaviors					
	Self-Identity		3.17 [1.29, 5.05]**	.17	.01
	Public-Identity	.19	4.84 [3.19, 6.48]**	.30	.05
Social Status of Curtailment Behaviors					
	Self-Identity		3.75 [1.91, 5.59]**	.21	.03
	Public-Identity	.18	3.88 [2.26, 5.49]**	.25	.04
Social Status of Efficiency Behaviors					
	Self-Identity		3.78 [2.04, 5.51]**	.22	.02
	Public-Identity	.18	3.56 [2.04,5.08]**	.24	.03

Note. CI= confidence interval **p<.001

Qualitative Findings

Table 6 summarizes the content analysis of participants' open-ended responses describing the basis upon which their rating of the social status of PEBs was made. Each code is named and described, and example quotes included for illustrative purposes.

Table 6

Open-ended Responses to "How did you decide how much social status each behavior conveys?

Code Name	Code Coverage	Code Description	Verbatim Illustrative Quotes
Cost	*n* = 127 23.65%	Behaviors perceived as 'costly' were described as holding higher social status than perceived low-cost behaviors, and respondents appeared to make a link between perceived high-cost PEBs only being able to be performed by those who are wealthy.	"those with a higher social status may have the financial means and may feel more obligated or even pressured to be more environmentally friendly" "kinds of behaviours that rich people do" "In my experience with lower socio-economic groups, I have found that they are generally less inclined to be concerned with environmental causes"
Effort/ Difficulty	*n* = 62 11.55%	Participants associated social status with direct personal effort engaging in environmental behaviors. Small, easy behaviors that have the potential to effect change on a collective level were not described as holding social status.	"I know people who will sign online petitions but they won't do anything to actually effect change themselves, so I gave that a lower response." "chucking a couple of dollars onto a flight doesn't rate as highly with me as something that requires effort like using grey water on the yard for example."
Visibility	*n* = 62 11.55%	Participants reported that in order to communicate social status it is necessary for the behaviors to be publicly visible. However, this appeared conditional -'talking up' pro-environmental actions to others was reported by some participants as diminishing perceived social status.	"I suspect that each behaviour would only have social status if others knew the individual was participating in these behaviours"

Code Name	Code Coverage	Code Description	Verbatim Illustrative Quotes
Environmental Impact	*n* = 75 14.00%	Participants described that the more pro-environmental a behavior was perceived to be, the more status it was afforded.	“I thought about each activity and its overall immediate impact on resource consumption or pollution.” “People who are enviro-minded are better people and deserve credit for their efforts."
Social Norms	Injunctive *n* = 60 11.17% Descriptive *n* = 40 7.44%	Participants acknowledged that their perceptions of social status were influenced by what other people do, and the context in which actions are undertaken.	“I think about how other people generally react to such behaviour” ”I thought about people I knew who'd exhibited the behaviours listed and their social status”
Gut Reaction	*n* = 25 4.65%	Several participants stated that they followed their ‘gut’ when it came to rating the behaviors.	"First impression after reading the statement”
PEBs have no Social Status	*n* = 23 4.28%	Some participants reported no perceived connection between social status and PEBs.	“why would I give a shit if someone else know I recycled or not?” “I thought about how I rate these people, and to be honest I don’t think any of it impacts how I regard the person”

Code Name	Code Coverage	Code Description	Verbatim Illustrative Quotes
Altruism	n =19 3.54%	Participants reported that they rated social status based on the motivations behind the behavior. Some stated that behaviors that bought personal gain were not rated as conferring higher social status.	"Do people install solar panels to decrease their power bill or do they think about the environment?" "How much an individual benefits from their actions" Participants described "pushy", "invasive" or being "wanky" (showy) or "a brag" as low status.
Education	n =14 2.61%	Participants reported either basing their responses on their existing knowledge and education or, associated social status with behaviors that either indicated higher levels of education or were the types of behaviors that highly educated people would engage in.	"those who take these actions have access to education/information about the possible benefits to the environment"

Responses suggested that cost was the most common factor associated with social status, followed by environmental impact, and what other people do and other people approve of (i.e., social norms). Effort and visibility, the other variables assessed quantitatively, were also commonly reported factors. Interestingly, effort and cost were sometimes conflated, with several participants listing them together inferring that they were similar constructs, for example, "[I rated status] based on [a] combination of cost/effort to the person vs contribution to the common good."

The other important characteristic for many participants was the extent to which a behavior was seen to make a genuine positive environmental impact. For a behavior to be perceived as having a genuine environmental impact, the impact of the behavior needed to be measurable, for example, "Signing a petition online doesn't require much effort, I'm just not sure of the impact it has." Participants also indicated that the behavior needed to have actual impact as opposed to perceived impact, for example, "Behaviors that are not supported by science and only perceived as environmentally beneficial without knowing it's true complexity [*sic*] (shopping organic) I scored lower as it's not necessarily a reflection of true thought going into being environmentally aware." Finally, participants described that in

addition to PEBs being truly environmental, behaviors which signalled that the actor is committed to environmental causes attracted social status. Indications that an actor had engaged in preplanning and research before executing a behavior was described as an indication of social status. For example, one participant stated, "planning your grey water [*sic*] reuse in your house would demonstrate you have always held these things as a priority, and others would see you are more 'committed' to your environmentalism (which would be admired)." Others described that commitment could be shown financially, through physical effort, or time used, for example, "someone who is more environmentally conscious is probably more willing to bear extra costs/time burdens e.g., collecting water during a shower to use elsewhere etc."

Discussion

With PEBs becoming increasingly socially acceptable, social status is emerging as an important variable in studies of PEBs (Brooks & Wilson, 2015; De Nardo et al., 2017; Sturman, Dufford, Bremser, & Chantel, 2017). Given that behaviors that are perceived to hold high social status are more likely to be adopted, it is important to understand the factors that contribute to the social status of PEBs. Results from our study illustrate that status and PEBs are complex multifaceted phenomena. As hypothesized, PEBs were rated as conferring more social status when they were costly, effortful, and visible. Efficiency behaviors were rated as having higher social status than curtailment behaviors and activism behaviors. Furthermore, environmental identities accounted for significant variance in social status ratings.

Financial cost emerged as the key factor influencing the perceived social status of PEBs in both the qualitative and quantitative components of the study. Although we did not hypothesize interaction effects, we found a number of interaction effects which should be interpreted with caution given their post hoc nature. Effort and financial cost were the only two variables that did not interact in predicting social status. This might be because these can both be thought of as costs (Zahavi, 1975). The conflation of cost and effort is also reflected in the qualitative results. Future research should aim to investigate the interaction of the factors predicting social status by replicating this design. Consumption in dominant Western culture is a marker of success and a "good life," and traditionally, financially costly items have been associated with social status (Wilhite & Lutzenhiser, 1999). The same appears to be true for PEBs. Individuals in Western societies are continually exposed to

cultural values that promote the acquisition of wealth and the attainment of material possessions (Gatersleben et al., 2014).

To encourage uptake of low-cost behaviors, we suggest that these behaviors could be reframed as altruistic, effortful, or savvy, as suggested by (Welte & Anastasio, 2010). There is evidence of scrimping practices being associated with pride (Hards, 2013), and there are communities where conservation practices have positive social meanings, for example, voluntary simplicity movements, minimalism, and zero-waste movements (Ball, 2016). With the rise of these grassroots movements, it is possible that there will be a shift to see low-cost behaviors as holding greater social approval in the coming decades (Ball, 2016; Pravet & Holmlund, 2018).

With regard to particular types of PEB, our findings partially mirror the findings of De Nardo et al. (2017) who found that efficiency behaviors including solar panels and environmentally friendly car purchasing had the highest social status. Similarly, we found efficiency behaviors to be the highest rated behaviors. This is concerning, as several have argued that efficiency gains and technological advancement are insufficient for reaching long-term sustainability goals as there are concerns of rebound and substitution effects (Gillingham, Rapson, & Wagner, 2016; Santarius & Soland, 2018). There is evidence that when people adopt an efficiency technology they may subsequently use more of a resource; for example, after installing solar panels, people tend to use more energy as they are better able to justify using heating and cooling (Deng & Newton, 2017). Another issue is that efficiency behaviors are usually costly one-off behaviors; it seems that the most social status is associated with "buying yourself green."

It has also been argued that for PEBs to communicate social status, there needs to be a clear signal that the behavior entailed personal costs and collective benefits (De Nardo et al., 2017). All PEBs involve sacrificing personal resources in the short term for long-term collective benefit and can be viewed as altruistic. Activism behaviors can be argued as being particularly altruistic, as are less likely to bring any secondary benefits to the actor (i.e., they usually have minimal personal gain and arguably, great potential for societal gain through decision makers and political actors). For example, many PEB behaviors have direct, personal benefits to health (e.g., adopting a plant-based diet) and/or finances (e.g., lower long-term electricity costs after installing solar panels). The largely negative perception of activism behaviors is somewhat inconsistent with the conclusions that curtailment and efficiency behaviors are viewed favorably because of their altruistic characteristics.

De Nardo et al. (2017) found that curtailment behaviors were tricky because it was not clear whether the behavior was being acted on out of financial need or environmental concern. This suggests that for behaviors to be perceived as holding social status, actors need to appear genuine in their concern for the environment. However, our findings here suggest that behaviors with clear personal costs and collective benefits (e.g., buying carbon offsets, taking part in a political campaign) are among the lowest in social status.

As a category, activism behaviors are perceived as the lowest in social status. Similar to the findings of Castro et al. (2017), efficiency and curtailment behaviors were seen to be more effective than activism behaviors. Our qualitative findings indicate that signing petitions was afforded the lowest social status, because of the lack of clear collective benefits. The lack of social status associated with activism behaviors reflects research findings that environmentalists increasingly distance themselves from activist behaviors (Tranter, 2010), and environmental citizens distance themselves from the label of "environmental activist" (Uren, Dzidic, et al., 2019). The open-ended responses suggest that activism behaviors are seen to be unappealing because they do not have a measurable impact. For example, when buying an electric car it is possible to fairly accurately estimate the reduction in carbon emissions compared with a previous vehicle, whereas the outcomes of activism behaviors are often ambiguous and hard to measure. In addition, the open-ended results suggested a significant proportion of respondents viewed people exhibiting activism behaviors negatively, describing people who engage in them as "pushy" or a "blowhard." Unsurprisingly, it has been shown that when environmentalists are perceived negatively, there is less willingness to be affiliated with them (Bashir et al., 2013). However, collective action is what shapes governmental policy and in turn shapes individual actions (Lakoff, 2010). When encouraging collective action, emphasis should be on the possible positive outcomes, and that together groups can create large-scale environmental change.

While visible behaviors were afforded higher social status than behaviors that were not visible, visibility was the poorest predictor of the perceived social status of PEB. Our categorization of visibility was based on pilot testing where we asked people to rate the public visibility of PEBs; however, behavior might not need to be publicly visible in a physical sense. In particular, with the advent of social media there is a blurring of public and private behavior; behaviors need not be seen in real life to be visible. Qualitative responses suggest that this may be due to the complexity of public visibility in the digital age; people can now digitally show others that they are going to events, interested in particular issues, and

engaging in PEBs, without physically seeing anyone. Social media may present as a new realm in which people can passively communicate their environmentalism, and hence future measurement of visibility could be improved by taking this into account.

We suggest that to increase the visibility of PEB, organizations should make effort to highlight their customers' environmental credentials. For example, the non-visible behavior of buying carbon offsets could be made visible through providing people who have paid carbon offsets with a different colored boarding pass. This would need to occur in combination with a campaign encouraging the purchase of carbon offsets and featuring the colored boarding pass, so that time these distinct boarding passes will become associated with carbon offsets. The same principle of increasing visibility is applied to the sale of organic bananas in Australia. Organic bananas are dipped in red wax to signal to grocery shop workers that they should charge the organic price, and to members of the public that people are buying organic. In addition, donating money would be more successful in a public setting, with the use of stickers and buttons to indicate that a donation has been made. Future research could also examine the impact of social status in online communities; for example, the role of Facebook groups and Instagram pages dedicated to sustainable living, environmental causes, and voluntary simplicity have the potential to enhance the social status associated with PEBs.

The measurement of environmental identities and their contribution to perceived social status showed that together, environmental self-identity and public identity accounted for 18% to 19% of the variance in social status ratings. This suggests that the extent to which people see themselves, and would like to be seen by others, as an environmental citizen does impact perceptions of the social status of PEBs. The finding that in addition to shared variance, each type of identity predicted unique variance in social status ratings, suggesting that it is important to measure both personal and public dimensions of environmental identity. In particular, it appears that public identity might be important for predicting the perceived social status of activism behaviors, with public identity uniquely accounting for 5% of the total 19%. It may be that as Choi and Seo (2017) suggest, people with low environmental identity are likely to be surrounded by other people with a low environmental identity, and therefore are unable to witness or experience the social rewards associated with engaging in PEBs.

The qualitative short answer findings indicated some additional points of interest. Participants reported behaviors as having higher status when they are passively rather than explicitly communicated (i.e., that the behavior is truly altruistic and not being engaged in for

show). This follows the conclusions of Berman, Levine, Barasch, and Small (2015) who showed that bragging about altruistic behavior is counterproductive as it undermines the motives of the behavior (i.e., selflessness). Our participants stated that perceived social status was diminished if the participant was acting with the intention to gain social status, or if the individual communicated the behavior with a sense of moral superiority. Status was diminished when the actor might be perceived as "pushy," "invasive," or being "wanky" or "a brag." It has been argued that the criticism environmentalists receive is because of a perceived sense of moral superiority that portrays regular people as mindlessly consuming (Soron, 2010; Uren, Dzidic, et al., 2019). These results suggest there may also be merit in examining how engagement in behaviors could be communicated without being seen to be bragging. This might be done by investigating the impact of various communication strategies (e.g., verbal, visual, social media) on how the behaviors are perceived by an audience.

Qualitative findings highlight differences between individuals to the extent they believe their ratings of the social status of PEBs were influenced by social norms. While some participants reported social norms as a factor influencing ratings of social status, referring explicitly to what others do or value, other participants reported that none of the PEBs had social status. Social psychologists have highlighted that people tend to underestimate the extent to which they are influenced by other people's values and behavior (i.e., social norms; Goldstein, Cialdini, & Griskevicius, 2008). Furthermore, it has been suggested some people may not need or value reputation (Barclay, 2011, 2012; Rege & Telle, 2004), and therefore reputational incentives will not work on them. It is possible that for some people, social status is not a factor that influences their choice to engage in PEBs.

High-status behaviors with low engagement rates, such as electric cars, suggest that removing barriers to adoption would be especially effective in promoting greater engagement with these behaviors (Amatulli, De Angelis, Korschun, & Romani, 2018). Conversely, engagement in low-status PEBs can be bolstered by highlighting the physical, cognitive, and financial resources that are involved in a behavior and providing evidence of the positive impact a behavior will have on the natural environment.

Limitations and Future Directions

A key limitation of this study is the use of a convenience sample. It would be useful to replicate this study using a nationally representative sample. In addition, given the cross-sectional design of this study we cannot make any definitive claims about the causal

relationships between the variables of interest. For example, it is plausible that positive assessments about the social status of particular PEBs may have implications for people's own sense of environmental identity, depending on their own engagement with highly valued PEBs. Further research incorporating longitudinal designs could shed further light on these potential dynamics. In addition, future researchers should be careful in their definition of public visibility, as what is visible is appears to be rapidly changing.

Although the survey was advertised as a PhD student seeking geographically specific participants (i.e., Perth residents needed for PhD project survey), it is likely that given the research topic, people with favorable environmental attitudes were more likely to have completed the survey, and conversely, people with negative environmental attitudes may have answered in a way which presented themselves in a more favorable light. The use of the student sample, who were likely to complete the survey for course credit rather than an inherent interest in the survey topic, provided an opportunity to obtain participants with a wider variety of views than was obtained through the self-selected population sample. Despite this, it is reasonable to assume that the participants in this research were "greener" than the average Australian resident, and therefore the findings may not be generalizable to groups with low environmental identity. In addition, the use of self-reports as an indicator of engagement in PEBs is potentially problematic (Kormos & Gifford, 2014). Participants may have over-reported their engagement in an effort to appear pro-environmental, or may not have had the self-insight to be able to accurately report their public- and self-identities (Brügger, Kaiser, & Roczen, 2011).

The measures used in this research provide conscious self-ratings of social status. It is unclear, however, whether the behaviors people say hold social status are the same as those that genuinely hold social status for them. There may be a social stigma surrounding social status, and participants may have been motivated to report that social status does not matter for them. There may be value in measuring social status using an implicit association test, or using a scenario design whereby levels of social status can be manipulated. Social status is also thought to depend on cultural and temporal contexts; that is, what is status appraising in one context might not be in another (Peterson, 1997; Sovacool, 2009b). Given this, there will be a need to continually track and measure the perceived social status of environmental behaviors (Brooks & Wilson, 2015).

Grouping of high and low effort, cost, and visibility categories could be more nuanced in future research, using geographical and temporally specific PEBs measured using a

continuous or ordinal scale. It would also be useful to investigate the perceived environmental impact of various types of PEBs. Past research has found that efficiency behaviors are perceived as having a more significant environmental impact than curtailment behaviors (Karlin et al., 2014). This is not always the case: Curtailment behaviors such as having shorter showers might outweigh installing a water-saving shower head, or installing a water tank. In addition, our qualitative short answer findings suggest that efficiency behaviors were perceived to be high social status not only because they were costly but also because they were seen to be effective. Finally, there is a need to further unpack why even those who see themselves as environmental citizens see visible markers of consumption as holding the most respect in regard to PEBs.

Conclusion

This article has contributed to understandings of the characteristics of PEBs that make them socially valued, or not. Our research suggests that holding a pro-environmental identity enhances the perceived level of social status and that behaviors with the highest social status conform to traditional notions of status (i.e., high-cost consumer behaviors that show that the actor has the resources to engage in PEBs). It is useful to measure both personal and public dimensions of environmental identity when aiming to predict perceived social status. Currently, social status is perceived to be gained from efficiency behaviors. While the behaviors themselves are pro-environmental compared with the status quo, they retain the characteristics of behaviors traditionally associated with social status. Efficiency behaviors require people to change little about their lifestyle and may lead to people overestimating their contribution to environmental causes. Activism behaviors were rated as having the lowest social status; this is problematic as they are the behaviors that can potentially create wide-scale transformative change. Therefore, attempts to change only consumerist behaviors on an individual level with the goal of promoting PEBs are unlikely to be adequate in addressing a future of environmental challenges. Further work is needed to understand the psychological underpinnings of social censure and disapproval surrounding collective community action toward PEB.

Chapter Seven: Pro-environmental behavioural engagement, barriers and motivations of Greens Party and traditional voters

Abstract

There is an urgent need to understand the contextual and psychological mechanisms that influence pro-environmental engagement. Here we report on and examine differences between Greens Party voters and voters supporting 'traditional' parties on their engagement in pro-environmental behaviours across 26 behavioural domains. A community sample of 228 self-reported Australian Greens voters and 227 voters from the major two Australian political parties completed an online survey. We compare the two groups on reported behavioural engagement, motivation for engaging in pro-environmental behaviours, perceived barriers to adoption, and proposed future behaviours. The findings demonstrate that the views and behavioural engagement of green voters differ from traditional voters only for particular types of pro-environmental behaviour. Consistent amongst voters was the appeal of costly visible pro-environmental behaviours and the social stigma around activism behaviours.

Keywords: pro-environmental behaviour; Australia; voting behaviour, green political parties

Human behaviours are a significant contributor to environmental destruction (Allen et al., 2019). There is undeniable evidence that anthropogenic climate change is impacting the state of the natural environment, as well as human health (Barrett, Charles, & Temte, 2015; Watts et al., 2017) and livelihoods (Tanner et al., 2015). Human impact on the environment is projected to worsen as the human population and affluence increases (Ferrara & Serret, 2008). For human and animal life on earth to be sustained, human behaviour must shift quickly and radically towards lower impact lifestyles.

Over the last two decades, anthropogenic climate change has become a thoroughly politicized issue in the US, UK, Canada and Australia, in large part due to substantial and sometimes organised climate change denial, and the construction of climate change as a debate (McCright, Dunlap, & Marquart-Pyatt, 2016; Oreskes & Conway, 2011; Pidgeon, 2012; Tranter, 2013). We might expect that people who associate themselves with environmental movements to lead the way towards sustainable lifestyles by engaging in more pro-environmental behaviours than most. After all, engagement in pro-environmental behaviour is associated with identifying as pro-environmental (van der Werff et al., 2013b) and endorsing environmental values (Steg et al., 2014). However, there has been contention over how 'green' environmentalists are (Alcock et al., 2017; Balmford et al., 2017). Recent research has shown negligible differences in the ecological footprints of green and non-green consumers (Balmford et al., 2017). Several academics have also questioned the carbon footprints of environmental scientists, with evidence that professionals from the sustainability and environmental sciences often producing carbon footprints higher than the average citizen due (Burian, 2018; Grant, 2018).

Political alignment has shown to be one of the most significant influences on public engagement with climate change (e.g., Hornsey et al., 2016; Clayton et al., 2015; McCright and Dunlap, 2011). People with more conservative (right-of-centre) political views shown to be less concerned, more sceptical, and correspondingly less receptive to messages about climate change than those with left-of-centre views (Leiserowitz et al., 2015; Leviston et al., 2015; Whitmarsh, 2011). There is evidence that people's scepticism toward climate change is influenced by cues from political leaders (McCrea, Leviston, & Walker, 2016). As such, the actions of political entities have the potential to both influence attitudes toward climate change, and to make broad-scale transformative change that ameliorates environmental degradation at a faster rate than people working at an individual and household level can achieve (Dietz, Frank, Whitley, Kelly, & Kelly, 2015).

As highlighted in the paragraph above, research on the relationship between political views and pro-environmental action has tended to focus on climate sceptics. There is little research exploring the extent of climate action of those voting for a party that supports climate action. We suggest that there is merit in understanding the perceived motivations, perceived barriers, and pro-environmental desires of people who vote for green parties, and how these differ from those people who vote for the more traditional parties (i.e., the major parties of the two-party system in Australia). Understanding how voters understand pro-environmental engagement has implications for policy and campaign design. It can also help us to understand the cultural and systemic barriers and motivations for voters to engage in pro-environmental behaviour. In this article, we first outline what pro-environmental behaviour is, discuss the motivations and barriers to pro-environmental behaviour, explain why there is concern about the pro-environmental engagement of greens voters, provide context for our Australian sample and describe the aims of the study. Then we describe the methods and results of an online survey study we conducted looking at motivations, engagement, and barriers to engagement in pro-environmental behaviour by Greens Party and traditional party voters.

What is pro-environmental behaviour?

Pro-environmental behaviour is behaviour where the aim is to minimise any adverse effects of an activity on the natural environment (e.g. walking instead of driving), or maximise positive impacts (e.g., planting trees) (Kollmuss & Agyeman, 2002). While individual pro-environmental behaviours may involve using non-renewable resources when compared to their traditional counterparts they have a lower environmental impact. For example, catching public transport is generally considered more environmentally friendly than driving. Pro-environmental behaviours can take a variety of forms; they could be curtailment behaviours such as switching off a light when leaving a room, efficiency behaviours, such as installing solar panels, or collective activism behaviours such as joining an environmental group (Stern, 2000; Uren, Roberts, Dzidic, & Leviston, 2019).

The environmental impact of individual and household behaviour are challenging to measure as choices are constrained by the social, economic, political and environmental forces of a particular place (Council, 2005; Uren, Dzidic, et al., 2019). These may include the availability of goods and services, physical infrastructure, cultural norms, policy, and local climate (Council, 2005). Despite these constraints, meaningful change is possible. For example, a

recent meta-analysis showed that dietary behaviours, such as reducing meat and dairy consumption, have enormous potential to reduce resource use (Hallström, Carlsson-Kanyama, & Börjesson, 2015). In an Australian urban context where the majority of commuters use a personal vehicle, changes to personal transport use also have great potential to reduce greenhouse gas emissions (Ferguson, 2016).

Several social scientists have acknowledged the importance of encouraging pro-environmental behaviour beyond the individual level (Ando, Ohnuma, Blöbaum, Matthies, & Sugiura, 2010; Batel et al., 2016; Uzzell & Räthzel, 2009). However, there has been a distinct lack of empirical work showing the effects of activist and political behaviour on environmental outcomes and their potential to lead to systemic social change. This lack of attention might be because behaviours such as activism and other citizenship behaviours are challenging to track, and their impact difficult to measure. Despite the difficulty of measuring the impact of collective level behaviour, there is a consensus of their importance (Thomas & Louis, 2013; Uzzell & Räthzel, 2009), and there is a need to understand engagement in these behaviours as well as perceived barriers and motivations to engage.

What are the motivations and barriers to pro-environmental behaviour?

One way to classify motivations to engage in pro-environmental behaviour is to consider intrinsic and extrinsic motivations (Ryan & Deci, 2000). Extrinsic motivation exists when a person engages in pro-environmental behaviour to receive rewards; this might include social status (De Nardo et al., 2017), improved personal health, or and financial reasons (Byerly et al., 2018). For example, people have been shown to buy organic food, not for environmental reasons, but for improved taste and to avoid pesticides in their food (Rana & Paul, 2017). People may also engage in pro-environmental behaviour to feel good about themselves; this is known as the 'warm glow effect' (van der Linden, 2018). For example, De Young (1986) found people engaged in recycling for the 'feeling that I am doing something'. Intrinsic motivations, on the other hand, are motivations to engage in pro-environmental behaviour for pro-environmental reasons; for example, recycling because it will reduce the need for virgin plastic production.

Self-reported environmental concern often does not translate to objective pro-environmental behaviour (Kollmuss & Agyeman, 2002). This incongruence is known as the value action gap, whereby people value the environment but fail to act (Blake, 1999). Quasi-

experimental studies comparing the ecological footprints of green and non-green groups have provided evidence for the value action gap. For example, Balmford et al. (2017) compared the carbon footprints of members of environmental organisations with medics and economists. Members of environmental groups were found to take fewer flights, have lower domestic energy use, eat less meat and recycle more than medics and economists. However, there was not found to be a difference between commuting behaviours or pet ownership. Similarly, Csutora (2012) found that there was no significant difference in the ecological footprint of green and non-green consumers. This gap between concern and behaviour occurs partly because there are a host of barriers to behaviour change. These include time, money, lack of information, and societal pressures that favour consumption over conservation (Gifford, 2011; Pruneau et al., 2006), as well as individual-level psychological factors such as fear, anxiety, pessimism and perceptions of helplessness (Ryland, 2000).

It is also important to consider structural barriers to pro-environmental behaviour. For example, if there is not adequate cycling or public transport infrastructure, people are left with little option but to use a car to commute to work. Or if locally grown pineapples are three times more expensive than imported pineapples, there will be few who are able to afford the pro-environmental option. Another concern is that people who consider themselves “green”, find it difficult to define what a green lifestyle is (Uren, Dzidic, et al., 2019). There have been concerns that the dominant social paradigm encourages the adoption of green lifestyles through the consumption of environmentally friendly goods, whereby people replace conventional purchasing decisions with ‘green’ alternatives rather than reducing purchasing behaviours, hence ‘buying themselves green’ (Uren, Roberts, Dzidic, & Leviston, Under-Review).

While engaging in green consumption behaviours and household level pro-environmental behaviour has been shown to be socially respected and esteemed (De Nardo et al., 2017; Griskevicius et al., 2010), those engaging in political and social movements to protect or improve the state of the environment (i.e., environmentalists) have often attracted negative stereotypes. Environmentalists have been described as difficult (Klas et al., 2018), highly eccentric (Franklin & Dunkley, 2017), extreme (Stuart, Thomas, & Donaghue, 2018), misanthropic, irrational, and sexually deviant (Hutchings, 2005), uncompromising and unwilling to negotiate (Sarkki & Heikkinen, 2015), and anti-progress or anti-technology (Pickerill, 2001).

Australian Context

Australia has some of the highest carbon emissions person in the world, has high levels of solid waste and land clearing, and is losing biodiversity at a rapid rate. It is unsurprising then that Australia rates poorly on climate change goals and clean energy (UN, 2017). Not only is Australia trailing in environmental action, but the country is also much more vulnerable to climate change than most comparable countries including the US, UK, Canada and New Zealand, because of high fire risk and existing pressures on water supply (Paun, Acton, & Chan, 2018).

There is evidence that environmental concern in Australia is increasing. Identifying as 'green' in Australia has gained traction and popularity in recent years. A nationally representative survey sample of Australian adults in 2017 found that 63% of respondents agreed that "they are an environmentalist at heart" (compared to 55% in March 2000 and 57% in March 2013) (WWF, 2018). Other sources have found fluctuating levels of environmental concern. According to Australian Bureau of Statistics data, environmental concern has shown a U-shaped trend in the last decade, with 82% in 2008 (ABS, 2008), 62% in 2012 (ABS, 2012), and most recently it has risen again to 82% in 2018 (WWF, 2018).

However, the type of 'green' behaviour that is predominantly adopted has caused concern. While consuming environmentally-friendly consumer products is associated with prestige and social status (De Nardo et al., 2017; Griskevicius et al., 2010), people are often hesitant to be explicitly aligned with green organisations and movements (Klas et al., 2018; Uren, Dzidic, et al., 2019). Australians also appear to have a poor understanding of how 'green' their lifestyles are. In a survey of over 5000 Australians, (Leviston & Uren, accepted 28 Oct 2019) found that Australians' think they are more 'green' than they are. People were asked to report their engagement in pro-environmental engagement. It was found that 90% of participants believed that they were doing equal to, or more than the average citizen. Similarly, in a 2012 National Geographic survey of 17,000 people from 17 countries, Australians were shown to be the least environmentally concerned and engaged in the fewest pro-environmental behaviours (Malmqvist & Whan, 2014). Despite this, 53% of Australians reported that they thought of themselves as 'green', with a further 24% agreeing that they are not 'green' now, but plan to be in the next five years (Malmqvist & Whan, 2014). This suggests that while Australians like to think of themselves as 'green', they are seldom as 'green' as they believe.

In Australia, the political party aligned with pro-environmental activity is the Australian Greens. The Australian Greens grew out of the United Tasmania Group, an activist group who led several successful environmental campaigns in the late 1970s and early 1980s (Jackson, 2016; Tranter, 2014). They were the first group of Australian parliamentary candidates to contest an election based on environmental policy in 1972. However, it took many years before they successfully gained representation in the federal parliament in 1992. In the 2000s, the Australian Greens' popularity grew due to concern about climate change (Brent, 2015) and the party's stand to represent those with interest in protecting the environment. In 1993, the Australian Greens received 1.9% of the vote in the House of Representatives, increasing to 10.2% of the vote in 2016, with 23 elected representatives across State and Territory parliaments. It was not until 2001 that The Australian Greens gained seats in the senate.

Since then, The Australian Greens Party has undergone a transformation from movement politics to a professional, parliamentary party of opposition (Jackson, 2016). Australian Greens Party voters are the wealthiest group of voters in Australian politics, drawing disproportionate support from voters on higher incomes (Simms, 2013). This is inconsistent with traditional voting behaviours in Australia, where the voter is seen to further their economic interests. Support for the Australian Greens Party is often attributed to the growth of post-materialist values among the economically secure. It has been argued that as quality of life increases, focus shifts from economic affluence to post-materialistic values such as environmental issues. The Australians Greens Party voters tend to be aged under 40, university educated, identify as professionals, and live in gentrifying high-density inner-city suburbs (Simms, 2013).

Aims

This paper aims to explore the behavioural engagement, motivations and justifications of behavioural inaction amongst Australian Greens party (will be referred to as the Greens Party from now) and traditional party voters. Traditional party voters are those who reported voting for the two major Australia political parties: the Australian Liberal Party (centre-right) or the Australian Labor Party (centre-left). Understanding the differences in the 1) behavioural engagement, 2) perceived barriers and, 3) motivations of pro-environmental engagement between Greens Party and traditional party voters. This will help to uppack the types of behaviours that are seen to be desirable by voters, and those that are actually

engaged in. This will allow us to explore trends and misconceptions in pro-environmental behaviour and perceptions of the effectiveness of behaviours. In particular, we are interested in examining the types of pro-environmental behaviours Greens Party, and traditional party voters engage in, as well as the types of pro-environmental behaviours which are desired, but not currently undertaken.

Methods

We adopted a mixed-methods approach, with a cross-sectional correlational design, and open coding of online survey short-answer responses. Background socio-economic questions including gender, income, highest education and age were also asked.

Participants and Procedure

This study was approved by the University human research ethics committee before the commencement of the research. A convenience sample of Australian residents 18 years and older were recruited via social media (Facebook) and by posting a link to the survey on the Reddit page associated with each Australian capital city (Brisbane, Sydney, Melbourne, Hobart, Adelaide, Darwin, Perth, Canberra) asking for residents of each city to participate in a PhD study. A link from social media took them to a Qualtrics.com landing page with an information sheet. Upon providing consent, participants completed the online survey comprising the measures detailed below. The median completion time was 16 minutes. At the end of the survey, participants were entered into the draw to win one of two $100 visa gift vouchers. Data were downloaded into SPSS v25 for analysis. A total of 228 Greens Party voters and 227 traditional party voters were included; traditional parties included The Australian Liberal Party and National Party Coalition (*n* = 125) and The Australian Labor Party (*n* = 102). Participants who did not vote, or chose not to disclose their voting behaviour, were not included in the statistical analysis.

Table 1

Demographic Characteristics of survey respondents, Percentage and Count

	Variables	Greens Party Voters (*n* = 228)		Traditional Party Voters (*n* =227)	
		Count	%	Count	%
Highest Completed Education	Equivalent of Year 11 or below	8	3.5	14	6.2
	Year 12 (High School)	31	13.6	37	16.3
	Vocational Education/Training	22	9.6	35	15.4
	Undergraduate degree	99	43.4	90	39.6
	Postgraduate degree	68	29.8	51	22.5
Household Weekly Income (after tax)	Less than $499	14	6.1	18	7.9
	$500-$999	43	18.9	25	11.0
	$1000-$1499	58	25.4	44	19.4
	$1500-$1999	42	18.4	45	19.8
	More than $2000	44	19.3	70	30.8
	Prefer not to say	27	11.8	25	11.0
Current living situation	Currently renting	88	38.6	68	30.0
	Currently living with family	34	14.9	53	23.3
	Home owner	95	41.7	101	44.5
Gender	Female	155	68.0	103	45.4

The mean age of Greens Party voters was 33.00 years (*SD* = 11.20), while for traditional party voters this was 34.90 years (*SD* = 14.28). The demographics are in line with previous reports of Greens, Liberal and Labour Party voters, with Greens Party voters having greater numbers of females and higher levels of education (Vromen, 2005). Contrary to past research, Greens Party voters had a lower median weekly household income than traditional party voters. The sample was slightly younger than the average Australian at 38 years (Gauja & Jackson, 2016).

Measures

Pro-environmental Behavioural Engagement

A 26-item behavioural index of PEB was created to represent a broad range of behaviours that were appropriate for the climate and lifestyles of Australian residents. These were informed by the 12 headline behaviours identified by (DEFRA, 2008) shown to have the most environmental impact and were categorised according to whether they represented diet, water, transport, waste, energy and activism domains (Table 2). Items were divided into three time-frame categories: past week, past year and ever. Examples of each timeframe and corresponding behaviour are “In the past week have you recycled household waste?”, “In the past year, have you donated money to an environmental organisation?”, and “Have you

ever installed insulation in your home?" Participants rated whether they had engaged in the behaviour, or whether the behaviour was not applicable.

Table 2

Pro-environmental behaviours and behaviour type

Behavioural Category	Pro-environmental Behaviour
Diet	Chosen to shop at an organic grocer? (past week)
	Changed your diet for environmental reasons? (e.g., vegetarian, vegan, less meat, seasonal food) (ever)
	Grown some of your own vegetables? (past year)
Water	Installed a water efficient shower head at home? (ever)
	Installed a rain water tank on your property? (ever)
	Installed a grey water recycling system at home? (ever)
	Collected excess water from the shower to use elsewhere (e.g., in the garden) (past week)
Transport	Taken public transport instead of driving? (past week)
	Bought an electric car? (ever)
	Made a special effort to walk or ride instead of driving? (past week)
	Bought carbon offsets when purchasing flights? (past year)
Waste	Composted your household food waste? (past week)
	Tried to repair things rather than replacing them? (past year)
	Refused plastic bags when shopping? (past week)
	Recycled household waste? (past week)
	Brought your own cup to a café when ordering takeaway? (past week)
Energy	Switched to green power electricity? (ever)
	Replaced conventional light globes with low energy fluorescent or LED bulbs? (ever)
	Switched lights off when leaving a room? (past week)
	Installed insulation in your home? (ever)
	Installed solar panels on the roof of the home? (ever)
Activism	Signed an online petition regarding an environmental issue? (past year)
	Discussed environmental issues with family and friends? (past week)
	Donated money to an environmental organisation? (past year)
	Contacted an elected government member about an environmental issue? (past year)
	Taken part in a political campaign about an environmental issue? (past year)

Open-ended Questions

Participants were asked, “Are there any pro-environmental behaviours or action which you do not currently engage in but would like to?” If participants answered yes, they were then directed to answer three open-ended questions as follows: 1) Please describe the pro-environmental behaviour/s or action/s which you would like to engage in. 2) Why would you like to engage in these behaviours?, 3) What stops you from engaging in these behaviours?.

Analysis

We conducted a summative content analysis using NVivo 11, on the data from the three open-ended questions. Responses could be coded to more than one category, and coding resembled an iterative process where categories of behaviours were created and then collapsed to represent distinct environmental qualities. Codes were discussed with the research team, and definitions were agreed upon. SPSS was used to run descriptive and comparative statistics.

Results

A total of 609 participants completed the online survey, 228 Greens Party Voters, 227 traditional party voters (Labor Party [125], Liberal Party [102]). The remaining 154 voted for Independents, did not vote, or did not report who they voted for, and were therefore not included in the analyses presented in this paper. Participants completed the pro-environmental behaviour measure in full, and as such there were no missing values for the quantitative analysis.

Behavioural Engagement

The range of scores for pro-environmental behavioural engagement was 0-26. Greens Party voters engaged in significantly more pro-environmental behaviours (M = 12.27, SD = 4.13) than traditional party voters (M = 9.80, SD = 4.25), t(453 =-2.47, p<.001, d = 0.59. Figure one shows the frequency of engagement in pro-environmental behaviours, as a proportion of respondents. At the top of the figure, there are behaviours which were seldom engaged in by either Greens Party or traditional party voters. These include installing greywater systems and buying electric cars. At the bottom of the figure are four pro-environmental behaviours almost universally engaged in, including recycling household waste and switching lights off

when leaving a room. In the middle section of the figure, there is more variance between groups, with Greens Party voters more likely to engage in several behaviours. These include refusing plastic bags while shopping, purchasing carbon offsets when flying, and bringing one's own cup to a café. Greens Party voters were also more likely to engage in activism behaviours than voters for traditional parties. However, activism behaviours were not particularly popular amongst either group. On the other hand, there were similarities between voting groups for several efficiency behaviours, such as installing a water-efficient showerhead or installing solar panels. Differences in behavioural engagement between the two groups was also tested, however should be interpreted with caution given the number of tests conducted.

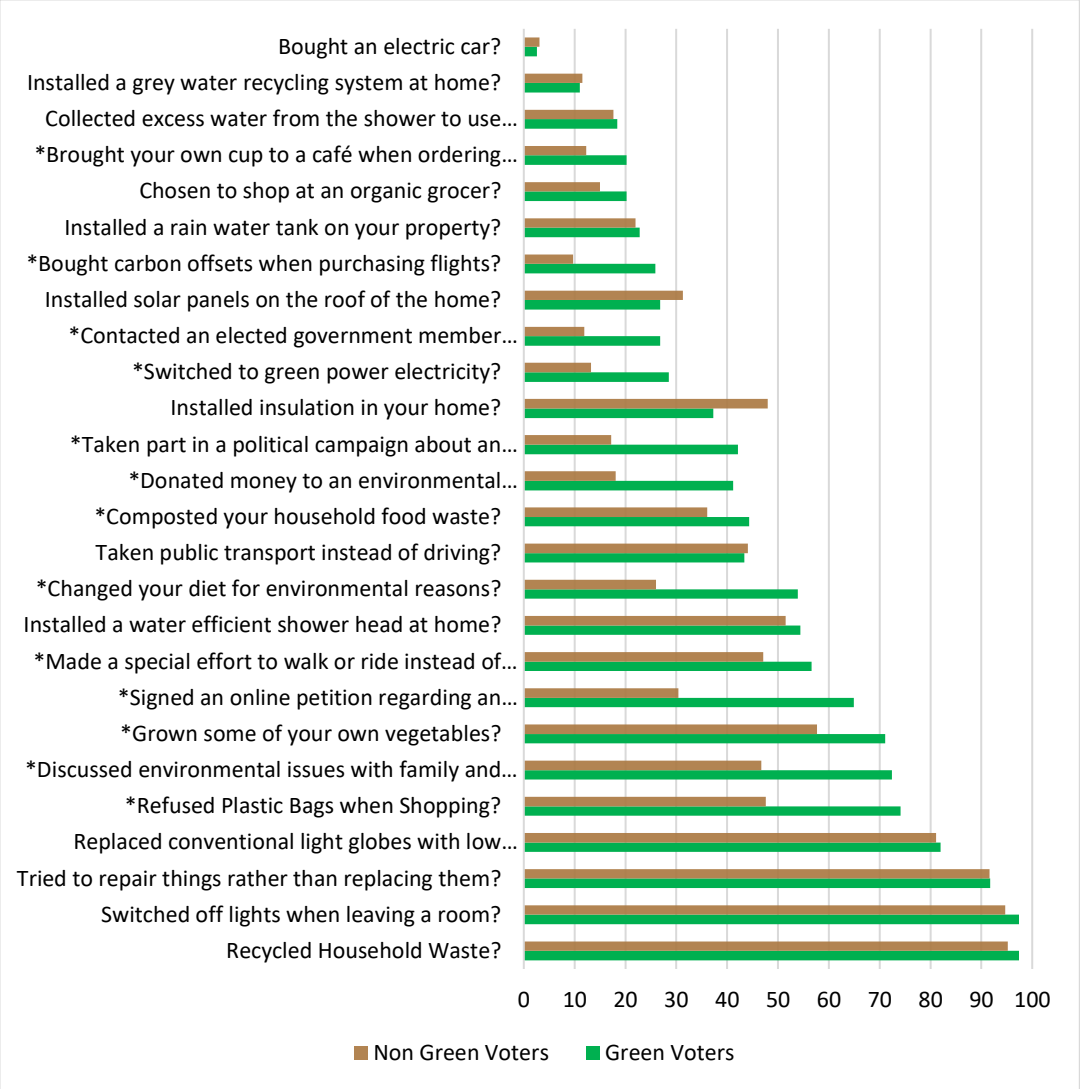

Figure 1. *Reported pro-environmental behavioural engagement (%) amongst Greens Party voters (n = 228), and traditional voters (n = 227) in 2016*

Short Answer Responses

In Table 3, we present the top behaviours participants reported they hope to engage in but do not currently. Some participants chose not to answer these questions, which resulted in a sample size for this analysis of 221 Greens Party voters and 206 traditional voters.

Table 3

Top cited desired behaviours by Australian Greens Party voters (n = 221) and traditional party voters (n = 206)

	Green % (*n* = 221)	Traditional parties % (*n* = 206)
Solar Panels	29.40 (65)	23.79 (49)
Change Diet	28.50 (63)	16.02 (33)
Grow Food	21.27 (47)	10.68 (22)
Grey Water Recycling	16.29 (36)	8.74 (18)
Electric Car	14.03 (31)	7.77 (16)
Activism	13.57 (30)	4.85 (10)
Rain Water	12.22 (27)	8.25 (17)
Compost	10.86 (24)	6.31 (13)
Buy Green Products	7.69 (17)	3.88 (8)
Cycle	5.88 (13)	2.91 (6)
Public Transport	4.98 (11)	1.94 (4)

Behaviours which participants wished to engage in were similar amongst the Australian Greens Party and traditional party voters. The key types of behaviour change people wished to engage in were food-related behaviours, (i.e., changing their diet, growing food, composting), and expensive household resource efficiency behaviours (i.e., solar panels, electric car, greywater recycling). An unexpected finding was the popularity of environmentally friendly dietary behaviours. A large number of people wanted to change their diet as well as grow food for themselves.

"the agriculture industry, with respect to animals, has a huge carbon foot imprint. If I choose to eat less meat, perhaps become vegetarian and occasionally source from local farms, I can be a role model for somebody else and show that "hey, yeah you can do it too" (Greens Party voter).

Reasons for Engagement In Pro-environmental Behaviour

Table 4 shows the top-cited reasons for engaging in pro-environmental behaviour. Reported motivations were similar between Greens Party and traditional party voters, with both groups holding the same top three motivations. Environmental protection was the top reason voters reported engaging in pro-environmental behaviours. Interestingly, money was an important influence for both Greens Party and traditional party voters.

Table 4

Top cited reasons for engaging in pro-environmental behaviours by Australian Greens Party voters (n = 221) and traditional party voters (n = 206)

	Greens % (*n* = 221)	Traditional Parties % (*n* = 206)
Environment	44.34 (98)	32.04 (66)
Save Money	14.03 (31)	16.02 (33)
Be part of a movement	8.14 (18)	9.71 (20)
Personal Health	3.62 (8)	5.34 (11)
Moral or ethical	4.07 (9)	5.34 (11)
Warm Glow	5.43 (12)	2.43 (5)

In Table 5 the top-cited barriers to engagement in pro-environmental behaviour are presented. Participants described the cost of living as the primary barrier to pro-environmental engagement. Engaging in pro-environmental action is seen as a luxury when basic needs are met, as living green is perceived as buying green products. This is involving financial sacrifice for lower quality goods:

"Money. Unless you want to live like a dirty hippy, it is actually very expensive to achieve near complete sustainability in Australia on a middle income." (Labor Party voter).

Table 5

Top cited barriers to engagement in pro-environmental behaviours Australian Greens Party voters (n = 221) and traditional party voters (n = 206)

	Greens Voters % (*n* = 221)	Traditional voters % (*n* = 206)
Cost	38.91 (86)	28.16 (58)
Living Situation	21.27 (47)	14.56 (30)
Time	20.36 (45)	13.11 (27)
Laziness	13.57 (30)	4.37 (9)
Do not know about an alternative	8.60 (19)	3.88 (8)

Participants also described several structural barriers to engagement in pro-environmental behaviour, especially concerning transport. People did not feel safe riding their bicycles and felt their city was not designed for cyclists. For example, one Greens Party voter said,

"[I have] fears for my own safety, and simple tiredness. For instance, there is a fortnightly weekend event I often drive to, instead of taking public transport or cycling. This is because the drive takes 10 minutes, while PT takes an hour, and cycling takes 25 minutes, around half of which is spent on very dangerous 60-70km/hr roads, or on footpaths trying to avoid cars backing out of drive ways. I just can't face cycling in those conditions when I have a family I want to come home to and spending two hours on buses during my precious weekends is just too frustrating and exhausting."

The presence of structural barriers may help to explain why there was only a marginal difference between Greens Party and traditional party voters on transport behaviours, and why Balmford et al. (2017) found that conservationists, economists and medics do not differ on how they commute to work. As one Liberal Party voter stated, they would be hesitant to switch to a more fuel-efficient or electric vehicle because, *"Very poor economic payback, would comply if mandated, no value in just me changing to smaller lighter car when everybody else is driving heavy and highly powered 4x4's"*

Another structural barrier for many participants was their living situation. Those who rented reported that they were not able to engage in behaviours that involved altering their house:

"I move every year due to the whims of landlords so even if I could afford to rent a house with a garden there would be no point in planting vegetables, or starting a compost bin or worm farm because I would just move again soon and not be able to take my garden with me. While renting many of the home alterations are impossible." (Greens Party voter).

Having a family also presented as an added pressure, with parents commenting that environmental issues were forgotten about after completing necessary daily tasks, *"At the end of my busy day with kids, work, etc., I forget all about it."* (Liberal Party voter). A commonly reported barrier to dietary changes were unwilling family members, for example, *"my family very much likes to eat meat and fish, so trying to change their diet will be difficult"* (Greens Party voter). Reported barriers to compost and growing food were laziness and a lack of space.

Discussion

As expected Greens Party to show greater engagement in pro-environmental behaviours than voters of traditional parties, and report more environmentally focused barriers and motivations for behavioural engagement. Results from this study indicate that Greens Party voters do indeed engage in more pro-environmental behaviours than traditional party voters, but only when the behaviour is engaged in for specific environmental reasons and did not have potential to provide economic or health benefits for the individual. Recycling, switching off lights and trying to repair things rather than replacing them were universally engaged in, while installing greywater systems and buying electric cars were seldom engaged in by either Greens Party or traditional party voters.

The top reasons for engaging in pro-environmental behaviours were the same amongst both Greens Party and traditional party voters. The environment ranked at number one, followed by financial and health concerns. Barriers to pro-environmental behaviour were also the same for both groups with cost and living situations most commonly reported. Given that broadly, the barriers, motivations and desired pro-environmental behaviours were similar, there is little need for targeted "audience-specific" interventions, as suggested by Balmford et al. (2017).

In the short-term, environmental campaigns would be best targeted at behaviours which have the most environmental significance and that people would like to engage in. Following the most recent ICCP report (Allen et al., 2019) which suggests a radical change in dietary

behaviours is needed, interventions should be designed to promote the reduction of meat and dairy consumption, as well as reducing food waste, buying from local food sources, and composting food waste.

It appears that changing one's diet is an area with great potential to change; changing diet has the potential to reduce greenhouse gas emissions by 50% (Hallström et al., 2015). There is evidence that people have reported that they are considering changing, with 2019 even labelled by Forbes and The Economist "Year of the Vegan" (Ehgartner, 2019). Dietary intakes account for 20–30% of total annual greenhouse gas emissions, with the most significant contributions coming from high consumption of meat and dairy products (Macdiarmid, 2013). It would be tempting to suggest that pro-environmental behaviours could be promoted using non-environmental reasoning, however, using financial or hedonic motivations can be detrimental in the long run (Kasser & Crompton, 2011; Lindenberg & Steg, 2007).

Food waste is the most significant material stream sent to landfills and has the lowest recovery rate (Department of the Environment and Energy, 2018). The decomposition of food waste generates 11% of greenhouse gas emissions, and therefore reducing organic matter to landfills can considerably reduce greenhouse gas emissions.

Our results suggest a potential change in the motivations of Greens Party voters compared with previous research. In the past environmentalists have been described as anti-technology (Pickerill, 2001). The reported desire of Greens Party voters to buy solar panels and drive electric vehicles suggests that those voting for the Greens have a desire to reduce their environmental impact by adopting technological solutions.

While some types of choice, such as decisions to purchase automobiles and major household appliances such as grey water systems or social panels, do indeed have the potential to have significant environmental impact (Hawken, 2017), they are often not engaged in for pro-environmental reasons. For example when a survey of Prius owners were asked by the New York Times why they had purchased their hybrid vehicle, they did not state environmental motivations, rather they stated that it "Makes a statement about me" (Maynard et al., 2007). When people engage in pro-environmental behaviour out of self-interest (i.e., to gain personal or social rewards) pro-environmental behaviour is more likely to lead to negative spill over, that is a reduction in engagement in other pro-environmental behaviours (Evans et al., 2013; Thøgersen & Crompton, 2009). Similarly, seeking to use resources more

efficiently, rather than reducing the level of use of the same equipment may result in Jevon's paradox (Alcott, 2005); when savings in energy due to transition to more efficient technology, acts as an incentive to increase consumption. For example, it has been shown that when consumers install solar panels, their power usage increases (Qiu, Kahn, & Xing, 2019; Roy, 2000). Efficiency behaviours should be implemented when they are shown to lead to a reduction in resource use.

Our findings suggest that voters of both Greens and traditional parties would like to choose the environmentally friendly option when making expensive household decisions, but are often unable to due to financial constraints. The enthusiasm of respondents to install solar panels is in line with other recent research which found that support for renewable energy, and in particular solar power is high (Tranter, 2014). Solar panels have come down in price significantly in the past few years and are seen to be very appealing across voting groups (Bondio, Shahnazari, & McHugh, 2018). This desire for technological solutions highlights the opportunity to promote the uptake of solar panels. In Western Australia, the installed capacity of rooftop solar photovoltaic grew by 37% in the 18 months between January 2016 and July 2017 (Cassells, Duncan, & Tarverdi, 2017). As of June 2019, 26.1% of suitable Australian dwellings were fitted with solar panels (Institute, 2019). Uptake has shown to be particularly active in low-income Australia (Abeliotis, Koniari, & Sardianou, 2010), and there appears a need for incentives for landlords to install solar panels on their property. In the long-term, the promotion of pro-environmental behaviours using individualistic motivations will not be adequate given they can lead to rebound and substitution effects (Moss et al., 2010), instead there is a need to encourage engagement in pro-environmental behaviour by intrinsic motivations, this might be done by highlighting a moral obligation to the natural environment (van der Werff, Steg, & Keizer, 2013a) or boosting environmental self-identity (van der Werff, Steg, & Keizer, 2014).

A related finding was the lack of interest in behaviours that seek to reduce resources (i.e., curtailment behaviours) rather than use resources more efficiently. The most commonly reported barrier to pro-environmental engagement for both voting groups was cost. Given that acting pro-environmentally requires using fewer resources, and in many instances results in reduced cost of living, this is an interesting finding. There appears to be a perception that the types of behaviours worth engaging in, or perhaps the types of behaviours that are valued by society as green, are costly.

Findings suggest that Greens Party and traditional party voters alike had a preference for engaging in individual-level actions to reduce resource use, rather than collective level activism behaviours. This is an interesting finding given that the Greens Party has often been described as the activist party (Jackson, 2016). While individual actions to reduce resource use will always be valuable, collective level action has the potential for more wide-spread impact (Quimby & Angelique, 2011). Recent examples suggest massive potential for change, for example, after the first three months of the Australian Plastic Bag Ban, 1.5 billion plastic bags were prevented from entering into use (Khalil, 2019). Hence, rather than the promotion of consumption behaviours (e.g., solar panels, electric cars), there is a need to understand how individual action aimed at implementing change at a collective organisational level such as lobbying, engaging in civil disobedience and voting behaviour could be made more appealing. One possible way to do this would be though promoting the warm glow (Taufik, Bolderdijk, & Steg, 2015; van der Linden, 2018) effect of engaging in pro-environmental behaviour. Participants in this research expressed that they would like to be part of something meaningful and saw the importance of reducing their environmental footprint, however, the term "environmentalist" was described as holding negative connotations. Therefore, there appears a need to make people feel like they are contributing to the positive health of the planet, without feeling like they are a non-conforming citizen. There is a need to challenge social norms regarding activist and other collective pro-environmental behaviours, and longer-term, work needs to be done to shift the cultural stigma of activism behaviours.

This study also highlights the opportunity for re-education. Specific to the Australian context, there appears to be a myth around the efficacy of rainwater tanks. In several Australian capital cities including Perth, Adelaide and Sydney, weather patterns mean that tanks are full half the year and empty the other half making them not a particularly viable option for the majority of households. Government and the water service provider do not promote the use of rainwater tanks, because of their relative inefficiency (*The cost effectiveness of residential rainwater tanks in Perth*, 2009). Despite no recommendations by water authorities nor government, the general perception by participants was that rainwater tanks are efficient and therefore desirable.

Limitations

While the survey was not advertised as an environmental behaviour questionnaire, likely, a non-random subset of those who saw the invitation to participate did so. While we did try to make behaviours easy to answer by asking about specific behaviour within a time frame, reporting of engagement also relied on self-report, which may have led to biases in reporting due to social desirability or normative beliefs (Levine & Strube, 2012). This survey used 26 common pro-environmental behaviours. However, this is a crude measure of behavioural engagement as answers were dichotomous.

Conclusion

The findings of this study indicate similar engagement in pro-environmental behaviour by Australian Greens Party voters and traditional party voters. However, engagement does differ when behaviours are explicitly environmental. Our findings show that Greens Party voters hold the same preferences for the types of behaviours they would like to engage in as voters for traditional parties, indicating that voters all desire to engage in high-cost technological solutions. The key barriers to engaging in these pro-environment behaviours appear to be structural and financial challenges. Given the potential wide-scale changes activism could bring, there is a need to understand how they could be better accepted, and such that they can be promoted to both Greens Party as well as traditional party voters.

Chapter Eight: Discussion

In this final discussion chapter, I recap and integrate the major findings of the empirical chapters that comprise the body of my PhD research. I then outline implications of the findings in three areas: conceptual, methodological and practical applications. Embedded in these implications are limitations and suggestions for future research that can build on the findings presented in this thesis.

Recap and Integration of Major Findings

The starting point for this thesis was the research question, "What does it mean to be green?" To begin addressing this research question, a series of in-depth face-to-face interviews were conducted with people who see themselves as pro-environmental citizens. During these interviews, participants were asked to describe how they understood what living a pro-environmental lifestyle means. This allowed for the exploration of worldviews, myths, metaphors and social structures, seemingly shaping and perpetuating participants' understanding of a pro-environmental lifestyle. The major finding of this study, presented in **Chapter Three**, was that while there was often confusion as to what being a sustainable citizen entails practically, engaging in pro-environmental behaviour was a source of pride and feelings of moral superiority. It appeared that the types of pro-environmental behaviours engaged in were informed by the perception of the social status of those behaviours. These findings were used to design a pilot test, pre and post-test measuring envrionmenal identities and social status. The findings from these questionnaires were presented in **Chapters Five, Six and Seven**.

In **Chapter Five**, I presented a paper outlining the development and validation of a broad measure of environmental identity that encompasses self-identity, public-identity and negative public-identity. In this chapter, I explored whether environmental public-identity could be empirically distinguished from environmental self-identity. The findings demonstrate that public-identity, self-identity and negative public-identity can be considered a part of the higher-order construct of environmental identity. Each of the three sub-scales I developed had acceptable internal reliability and test-retest reliability over a 6-month period. Of these three facets of identity, self-identity was the strongest predictor of engagement in pro-environmental behaviour and was more strongly predictive of curtailment type behaviours than efficiency or activism behaviours.

In **Chapter Six,** I explored the factors which influence the social status of pro-environmental behaviours. I found that perceptions of social status of a pro-environmental behaviour can be predicted using the cost, effort, and visibility of that behaviour. Behaviours with high cost, high effort, and high visibility were most likely to be rated as conferring high social status. Overall, activism behaviours were rated as conferring the least social status while efficiency behaviours were rated as having the highest social status. In addition to these three predictors, the findings of the short answer qualitative responses suggested that measurable environmental impact and the inferred level of education of a person being observed were perceived by participants as important factors influencing social status. It also highlighted that for some people, social status is not perceived to be an influencing factor in their decision making.

Finally, in **Chapter Seven** I investigated how The Australian Greens (centre-left green political party) voters differ from the dominant two parties: the Australian Liberal-National Coalition (centre-right) and the Australian Labor Party (centre-left). Voters were compared on their motivations and perceived barriers to engagement in pro-environmental action. I found that the Greens voters and traditional voters engaged similarly when behaviours were either very common (e.g., turning off lights) or very uncommon (e.g., buying an electric car) or where behaviours had a clear financial pay-off (e.g., taking public transport or installing a water-efficient showerhead). The types of behaviours that the Greens voters engaged in more than traditional party voters are those where there was no alternative motivation for engaging in the behaviour (e.g., talking to friends and family about environmental issues). Across voting groups, the types of behaviours that people wanted to engage with in the future were the same, with installing solar panels topping the list. Similarly, commonly cited barriers to action - money, living situation, and lack of time - were comparable across groups.

This is the first piece of research to explore and develop measures of the public dimension of environmental identity and use these to predict engagement in pro-environmental behaviour. When taken together, these findings highlight the need to go beyond looking at consumption behaviours, and consider the societal context, in particular, to consider the social rewards associated with acting in an environmentally friendly manner. Specifically, the findings of this research show that both environmental self-identity and public-identity contribute to engagement in pro-environmental behaviours; however, environmental self-identity is the stronger predictor. Findings also build upon that of Welte and Anastasio (2010)

and Brooks and Wilson (2015) to show that pro-environmental behaviours were rated as higher status when they were publicly visible, financially costly, and involved personal effort.

It was also shown that environmental self-identity was a better predictor of social status ratings than environmental public-identities. This suggests that the magnitude of a status rating is dependent on identity, but the ranking of those behaviours is not dependent on the type of environmental identity measured. In light of the apparent motivation to engage in pro-environmental behaviours for social rewards, similarities and differences between the Australian Greens voters and traditional party voters in motivation and perceived barriers to engaging in pro-environmental behaviour were identified. For example, if a behaviour had the potential to provide financial rewards, it was similarly engaged in by the Greens and traditional party voters. However, if the strongest motivation for engaging in behaviour is for environmental reasons, then Green voters are more likely to engage. These findings also illustrate that when environmental improvement is the key outcome of pro-environmental behaviour, then both Green and traditional voters were less likely to engage in it. This suggests that promoting pro-environmental behaviours with non-environmental benefits may be a starting point for people to adopt environmental behaviours.

Based on these empirical findings, in the next section, I raise research implications and pose suggestions for future research.

Research Implications and Recommendations

Contributions of my research to knowledge cover three distinct areas: conceptual, methodological and practical applications. The conceptual section refers to contributions to theory, which involves the development or improvement of concepts and definitions. Methodological contributions entail the deployment of new scales and the application of new methods. Finally, applied implications are considered, whereby the practical application of the findings are proposed.

Conceptual Contributions

Findings from this body of research have theoretical implications relating to three areas: environmental identity, social status signals, and voting and pro-environmental behaviour.

Environmental Identity

There are four key theoretical implications for environmental identity. First, social science research investigating the promotion of pro-environmental behaviour (including environmental psychology) may find benefit in moving further beyond exploring narrow aspects of individual behaviour (e.g., personal values and environmental beliefs) to the study of individual lifestyles embedded in socio-cultural systems. In **Chapter Two**, I argued that the majority of pro-environmental behaviour research has employed theoretical models that emphasise individual-level variables and neglect the role of sociocultural context. There is some recognition of the role of values in predicting environmental behaviours (Steg & Vlek, 2009) but research has often failed to look at the intersection of broader social structures and ideological frameworks that perpetuate the status quo, leading to ever greater environmental degradation (Swim et al., 2011; Winkel, Saegert, & Evans, 2009). The dominant individualistic perspective combined with shallow understandings of consumption choices are not sufficient to deal with the sheer magnitude of environmental issues (Elliott, 2013). As such, this thesis explores both narrow aspects of individual behaviour (e.g., personal values and environmental beliefs) as well as the study of individual lifestyles embedded in socio-cultural systems.

The papers presented in **Chapters Three** and **Seven** provide a much-needed in-depth exploration of the socio-cultural structures that limit and shape what identifying as a pro-environmental citizen mean. These findings further the work of Roy et al. (2015) by contributing knowledge about what it means to live a sustainable lifestyle from the perspective of people who consider themselves to be living environmentally friendly lifestyles, and those who engage in pro-environmental behaviour for non-environmental reasons, and people who do not engage in pro-environmental behaviour at all. In particular, these findings contribute to a better understanding of the interplay between individual actions embedded in socio-cultural systems, metaphors and world views.

The second theoretical implication for environmental identity is that for many people, *individual pro-environmental behaviours, but not activist behaviours, provide social and personal rewards*. In **Chapter Three**, participants described themselves as pro-environmental citizens, yet they were confused by what sustainability entails. Despite this, adopting a pro-environmental identity was a source of pride, and some participants expressed a sense of moral superiority over those who did not live a pro-environmental lifestyle. I also found that participants were motivated to engage in pro-environmental behaviour as they felt it was

contributing to a purpose other than or bigger than themselves. Additionally, the types of behaviours participants were excited to engage in involved self-development, but not necessarily long-term environmental outcomes. I observed that many participants described engaging in a sustainable "journey", this was framed as an individual process whereby an actor would arrive at an endpoint, of "being sustainable".

There is a tension here, as participants avoided being associated with collective behaviours, environmental activism or being labelled as an environmentalist. There was perceived social stigma in being an environmentalist, yet people wished to be seen as someone who cared for the environment and to be part of something bigger than themselves. This suggests that gaining social and personal rewards from engaging in pro-environmental behaviours only applies to particular types of behaviour. At some level, all pro-environmental behaviours are collective behaviours, as individual actions affect others and the environment, yet for pro-environmental behaviours to be deemed appropriate by society it appears that they must adhere to rules about what is normal and pro-social. Similar to the findings of Klas et al. (2018), being individually active is seen to be positive, however collective level activism is not desirable as it goes against the status quo. Activist behaviours remain stigmatised by much of Australian society. This fits with the values of Western consumer societies whereby people have come to depend less on one another and focus on developing the self rather than the collective. At the same time while people are less dependent on one another there is an increased need to be approved of by others (Piskóti, 2015). Modern culture has been described as "the age of entitlement" (Canavan, 2017). Sub-clinical narcissism has reached epidemic proportions (Campbell & Campbell, 2009; Twenge & Foster, 2010). Levels of greed, arrogance, vanity, and superficial relationships are increasing, along with common mental health problems including depression and anxiety, especially amongst young people (Canavan, 2017). There is, therefore, a need to explore the tension between environmental activism, need for social approval, and social status.

Since I started this thesis, the culture around environmental activism has altered significantly. In particular, the rise of youth climate movements initiated by 16-year-old Swedish activist Greta Thunberg. Thunberg has been described by Mohammed Barkindo, the secretary-general of the Organization of the Petroleum Exporting Countries (OPEC), as "the biggest threat to the fossil fuel industry" (Watts, 2019). While this is great news for the social acceptance of activism in the environmental movement, activist behaviours are still viewed negatively by many. Thunberg, for example, has been continually ridiculed and mocked

(Chakrabortty, 2019). I suggest that in order to create more rapid and wide-scale movement towards sustainable lifestyles, there is a need to encourage an understanding of sustainability that extends beyond individual consumption and embraces collective environmental action. For example seeing oneself, and humankind as a part of nature rather than separate from it, and recognising how the interdependency of planetary systems.

The third theoretical implication for environmental identity is that environmental identity can be reconceptualised as comprising both personal and public elements, and these are differentially related to motivations to engage in pro-environmental behaviour. The findings presented in **Chapter Five** contributed to identity theory by offering insights into the factor structure of environmental identity. I tested whether wanting to be seen as pro-environmental and seeing oneself as pro-environmental were separate constructs. The need to explore the concept of public-identity came out of a number of recent pieces of research where people have been shown to engage in pro-environmental behaviour when it brings them social reward (e.g., Griskevicius et al., 2010; Sexton & Sexton, 2014; Zhou & Heckelei, 2015). Qualitative work has shown that there is a typology of people who consider themselves pro-environmental, predominantly through engaging in public pro-environmental actions (Garnelo-Gomez, 2017). Publicly sustainable people are thought to create an ideal image of themselves through their publicly visible pro-environmental behaviour and have goals including being part of a sustainable community and being seen as sustainable (Garnelo-Gomez, 2017). It is important to highlight that the construct of "public identity" is different from social identity. Public identity does not require group membership, rather refers to how people would like to be perceived by others (Garnelo-Gomez, 2017). It has been proposed that those who are publicly sustainable are driven mainly by personal interest and self-enhancement rather than an intrinsic desire to protect the state of the environment (Garnelo-Gomez, 2017). Those who are publicly sustainable are also thought to have a desire to be seen to be "doing my bit" and avoid guilt. I compared environmental self-identity and public-identity, in their ability to predict engagement in different types of pro-environmental behaviour. My findings show that public-identity and self-identity are not discrete constructs, instead, they are part of the higher order construct of environmental identity. This may be because how we perceive ourselves is in part based on how we perceive others view us. Our behaviour can serve as a signal to ourselves. For example, it has been shown that people engage in consumption behaviours to bolster their sense of self (Burroughs & Rindfleisch, 1997; Karanika & Hogg, 2016).

For the first time, the utility of environmental identity as a predictor of different types of pro-environmental behaviour was considered: efficiency, curtailment and activism behaviours was investigated, as well as publicly visible and private household behaviours. It was not found that people who wanted to be seen as pro-environmental were more inclined to engage in public pro-environmental behaviour. Instead, I found that environmental self-identity was the best predictor of all types of pro-environmental behaviour. This might be because those who hold a strong environmental self-identity are likely to engage in pro-environmental behaviour regardless of how visible the behaviour is. My findings also suggest some interesting nuances in the differences between people who hold strong self versus public identities. When measuring environmental identity, results showed that those who do not wish to be seen as a pro-environmental citizen (high negative public-identity) were also more likely to be motivated to consume for social status and hold materialistic values. Brewer (1979) suggests that people's motivations may be on a spectrum from being motivated for personal benefit, to being motivated to serve as an extrinsic common good. Similarly, van der Werff et al. (2014) found that reminding people of their past pro-environmental behaviours served not only to boost future pro-environmental action but also enhanced environmental self-identity. Public identity is a useful concept for understanding the underlying motivations for engaging in pro-environmental behaviour. Additionally, identifying individuals and groups who hold strong public-identity allows interventions to be designed, where engagement in pro-environmental behaviour can be increased and pushed towards a more extrinsic motivation. While extrinsic motivations are not ideal, this may be a starting point for those where an instrinsic motivation will not be effective. I suggest there is a need for future research to further explore not only how identity is related to behaviour, but also how environmental identity develops and is maintained (Gatersleben et al., 2014).

I also found that people who do not wish to be seen as pro-environmental are more likely to endorse materialistic values and engage in the consumption of goods to attain social status. In contrast, strong environmental public identity was not related to materialistic values or consumption for social status. Further, high pro-environmental self-identity was negatively related to material values and consumption for social status. Additionally, people who hold a strong environmental public-identity are more likely to need social approval. This suggests that people are differently motivated to engage in pro-environmental behaviour depending on their environmental identity. There is no consensus on the structure of environmental identity or their relative predictive utility; future research could also further separate out which environmental identities (e.g., Me, We or Place) have the strongest relationship with

engagement in pro-environmental behaviour across geographical and cultural contexts. Additionally, there is more research needed to understand whether the antecedents to environmental identities are different depending on type of identity. Finally, there is a need to further test the effectiveness of highlighting environmental identities to promote pro-environmental behaviour.

The fourth theoretical implication for environmental identity is that *self-identity is a stronger predictor than public-identity of engaging in pro-environmental behaviour.* The correlational findings presented in **Chapter Five** provide further evidence for the utility of the use of self-identity in predicting pro-environmental behavioural engagement. Self-identity was shown to be the best predictor of all types of pro-environmental behaviour, whether it be efficiency, curtailment, or activism behaviours, or in public or private settings. It has been suggested that self-identity predicts pro-environmental behaviour regardless of visibility because people are consistent with their identities and beliefs across contexts (Burke & Reitzes, 1991; Oyserman, 2009). Further supporting this, my results indicate that environmental self-identity appears to be stable over a 6-month period, whereas public environmental identity was less stable. While public-identity was a poorer predictor of engagement in pro-environmental behaviour than self-identity, the differences in the relationship between public and self-identities with materialistic, status seeking, and environmental values suggest that there are subtle differences in the values and motivational drives of individuals with differing environmental identities. Future research should look to further test the utility of public-identity in a variety of settings.

Social Status Signals

The findings in this thesis also contribute to Costly Signalling Theory (CST; Zahavi, 1975) through identifying the predictors of the perceived social status of pro-environmental behaviours. In **Chapter Three** I found there was a sense of moral superiority attached to holding a pro-environmental identity. This led me to further investigate the indicators of social status in the context of pro-environmental behavioural engagement. For the first time, it was shown that types of environmental identity were differentially related to social status. Efficiency behaviours were most strongly related to social status and are the behaviour type which is least related to self-identity. Activism behaviours held the least social status.

Secondly, I confirmed that cost, effort, and visibility are important determinants of social status ratings (i.e., behaviours high in cost, effort and visibility are more likely to be

associated with social status). This is consistent with Griskevicius et al. (2010), who found that when status motives were elicited, people were shown to have a preference for high cost pro-environmental products over low-cost pro-environmental products. Financial cost was found to be the key factor which predicted social status across behaviours, this suggests that the theory of conspicuous consumption (Veblen, 1899) is important to consider when promoting pro-environmental behaviour. I also explored short answer responses from participants, where I learnt that education and environmental impact were also perceived as important to the social status of pro-environmental behaviours. To the best of my knowledge, a comparison of the strength of cost types has not previously been looked at. Therefore an explicit comparison of mental energy, physical effort, and financial cost would be a useful next step in understanding the relative contribution each type of effort plays in perceptions of social status.

Taken together, these findings contribute to the small body of knowledge of the predictors of the perceived social status of pro-environmental behaviour (Brooks & Wilson, 2015; De Nardo et al., 2017; Sadalla & Krull, 1995; Welte & Anastasio, 2010). Taken together, these findings contribute to the small body of knowledge of the predictors of the perceived social status of pro-environmental behaviour (Brooks & Wilson, 2015; De Nardo et al., 2017; Sadalla & Krull, 1995; Welte & Anastasio, 2010). The use of social status remains a new and under-researched area in the realm of pro-environmental behavioural promotion. It should not be treated as the only important variable to consider. Until there is more empirical research on the efficacy of social status, the concept should be used tentatively within behaviour change interventions, and current best practice should be followed.

The short-answer qualitative findings of my research provide some starting points for future research, for example, to look further at the perceived education level associated with pro-environmental behaviour and understand its relationship to social status. Additionally, it would be useful to understand whether some people are really unaffected by status motivations, or whether they think that they are not. This could be done by manipulating social status motives similar to the work of Griskevicius et al. (2010), and see whether perceptions of influence are related to actual influence.

Voting and Pro-environmental Behaviour

A major finding emerging from **Chapter Seven** is that *many pro-environmental behaviours are engaged in equally by the Greens voters and traditional voters*. This finding suggests that

some pro-environmental behaviours are not shaped by individual factors but are rather shaped by their ease, difficulty, or social acceptance. This is in line with the findings of Balmford et al. (2017) who found that the carbon footprint of work commutes by economists and medics were not significantly different for behaviours with structural barriers such as commuting to work. My results showed that among voters of all persuasions, high cost efficiency behaviours were the most desired actions people wanted to take. This suggests that across society the types of pro-environmental behaviours that are seen as desirable are those centred on individual action rather than collective action, and consumption rather than conservation. These types of behaviours involve little change in the quality of life of the performers, do not subvert the status quo, and avoid confrontation and difficult conversations with others.

Methodological Advancements

In this thesis I tested and built upon existing theory on environmental identity and social status; here I comment on the methodological and conceptual contributions of this thesis.

Development and Validation of a Measure of Pro-Environmental Identity that Incorporates Public-identity

The main methodological contribution of this thesis is *the development and validation of a measure of pro-environmental identity that incorporates environmental public identity*. Exploratory and confirmatory factor analysis was used to examine the factor structure of environmental identity items relating to self and public-identity. Both factor analyses supported a three-factor model, with the confirmatory model supporting a higher-order model with three sub-factors: environmental self-identity, public-identity, and negative public-identity. Convergent validity was shown, with the self and public-identity sub-scales related to Clayton's Environmental Identity Scale (Clayton, 2003a), and environmental values (Dunlap et al., 2000). Divergent validity was shown as self-identity sub scales were shown to be negatively related to material values (Richins, 2004) and need for status consumption (Eastman, Goldsmith, & Flynn, 1999).

Despite environmental public-identity not showing predictive utility beyond that of environmental self-identity, it still remains a useful concept for social scientists and behaviour change practitioners to keep in their toolbox. When wanting to measure the full breadth of environmental identity, items measuring public-identity and negative public-

identity should be used. When wanting a concise measure of environmental identity, or wanting to predict pro-environmental behavioural engagement, then environmental self-identity items alone can be used.

Causal Layered Analysis in a Pro-environmental Behavioural Context

A key methodological advancement presented by this dissertation was the first known application of Causal Layered Analysis (CLA), to consider factors outside the individual when looking to understand how to promote general pro-environmental behaviour. CLA allowed me to understand how systemic level influences such as myths, metaphors, and worldviews may underpin engagement in pro-environmental behaviour and shape what it means to identify as a pro-environmental citizen. This helped me to identify the root of the issue; pro-environmental behaviour is being adopted using the same system which was used to create environmental issues in the first place; Overconsumption of the Earth's resources are leading to a breakdown of the Earth's natural systems, and yet a consumption based solution is posed that encourages consumption, provided it is green. Instead of reducing consumption, dominant approaches to pro-environmental behaviour encourage consumption of alternative resources. Adoption of CLA also allowed me to identify links between the broader social context and current approaches to understanding pro-environmental behaviour. For example, the Theory of Planned Behaviour posits that behaviour can be predicted using social norms, attitudes, and behavioural intentions. It is well established however that there is a gap between environmental attitudes and engagement in pro-environmental behaviour. CLA allowed me to identify some of the barriers to pro-environmental engagement, for example, the emphasis on individual behaviour and the dominant cultural emphasis of materialistic values. This research is one of the first to use a critical systems perspective to understand the drivers of pro-environmental behaviour. This research provides a catalyst for future enquiry into the contextual drivers and barriers of pro-environmental behaviour. I suggest that future research could adopt the use of Futures Workshops (Inayatullah, 2004), to explore the alternatives of green consumption and how activism behaviour could be more socially acceptable.

Defining and Measuring Pro-environmental Behaviour, Cost and Visibility

Findings from **Chapter Three** suggest that there is confusion around what sustainability means, and there is need to provide clear operational definitions with examples of what is

meant by sustainability and pro-environmental behaviour when looking to design interventions and understand the promotion of pro-environmental behaviour. This confusion is reflected in the lack of clear definitions of sustainability in the pro-environmental literature, which has resulted in a diverse range of pro-environmental behavioural indices. There is a lot of variability in the proportion of PEB engagement that can be accounted for by environmental identity in past research. While it would be ideal to create a standardised measure of pro-environmental behaviour, to compare behaviour across geograpghical and cultural settings, this is not possible due to the changing nature of what is environmentally friendly across time and place. Further, what constitutes a PEB in one setting might not be pro-environmental in another (e.g., water conservation in Australia is a much more serious issue than it is in the Netherlands). There are also vast differences in the frequency of engagement in PEBs across geographical locations (e.g., uptake of electric vehicles in Australia is far lower than other parts of the developed world).

Despite the issues raised above, there are actions that can be taken to improve the measurement of pro-environmental behaviour. Firstly, it is important for general pro-environmental behaviour indexes to include a wider range of behaviours than they do currently. For example the Australian Bureau of Statistics, in surveying environmental attitudes and practices, reports on energy, waste, water, and conservation but does not collect data on actions that involve acting on the system or working in a collective (ABS, 2012). Further, the 2011 OECE Greening Household Behaviour survey included measures of waste, transport, energy and water use, but no measures of engagement in community-level or collective action to reduce environmental impact (Kriström, 2013). There is a need to measure more behaviours around reducing waste in the home apart from recycling; for example, behaviours such as maintaining goods such as cars, white goods and appliances, mending clothes, and buying second-hand. Additionally, there is a lack of research looking into the barriers and drivers of collective pro-environmental behaviours. While I used a selection of activism behaviours in my research, in future research it would be useful to have more nuanced categories of activism behaviours; These might include citizenship, community, and political behaviours. Secondly, when putting together an index of pro-environmental behaviour, I noticed that many existing indexes included only yes or no options. I recommend that pro-environmental behaviour indexes should endeavour to include a ‘not applicable’ option. It is possible that people do not engage in a pro-environmental behaviour because they do not engage in that behaviour at all; for example, people do not take their own cup when buying takeaway coffee because they do not drink

coffee or tea. Thirdly, to capture the full range of pro-environmental behaviours, it is important to include a range of frequencies of behaviour; including behaviours that are engaged in daily as well as yearly, and behaviours that are likely to be engaged in by almost everyone as well as behaviours only engaged in by a few.

The characteristics predicting social status of pro-environment behaviours could also benefit from tighter definition and operationalisation. Costly Signalling Theory (CST; Zahavi, 1975) defines cost as any type of resources exertion: this could be financial cost, or mental effort. My findings suggest that when measuring cost in relation to the social status of pro-environmental behaviours, cost should be measured according to physical effort and financial cost along with measuring the level of education of the performer. The quantitative results indicated that effort and money had differential impacts on social status, and the qualitative finding indicated that education level of the performer was an important factor to consider. Additionally, the visibility of engaging in pro-environmental action should be carefully operationally defined. In particular, the audience should be defined, and consideration of whether the behaviour is visible offline, online and to particular groups of people should be made.

Applied Implications

There is now recognition from government, businesses, public institutions, and NGOs of the importance of understanding the determinants of pro-environmental behaviour (Amran, Ooi, Wong, & Hashim, 2016; Diesendorf, 2010; Elijido-Ten, 2017; Leviston et al., 2015). In this section, I present practical implications of the findings across the empirical chapters for consideration by researchers, program developers, and policymakers. These have been presented as three suggestions for short-term behaviour change and long-term behaviour change. Short-term behaviour change suggestions involve first-order change (Watzlawick, Weakland, & Fisch, 1974). First-order change is change that works within the existing societal structure; it can be thought of as surface level change that does not assume the system itself needs to change. Radical changes to behaviour, whereby an underpinning social system needs to be redesigned is referred to as second-order change (Watzlawick et al., 1974). Second-order change disrupts the system and can be thought of as transformational change.

Short-term Encouragement of Pro-environmental Action

Target the Low Hanging Fruit

My qualitative and quantitative findings suggest that pro-environmental behaviour needs to be both personally and socially desirable to encourage engagement. Additionally, thought needs to be given to the long term outcome of behaviour, and the consideration of the potential of rebound effects. Behaviours that are financially costly, physically and mentally effortful, and visible to the public tend to be rated as having high levels of respect and admiration (i.e., social status). Examples of these seen in the current studies are solar panels and electric cars. These, however, are not realistic purchases for many households.

Examples of accessible categories are dietary and food waste related pro-environmental behaviours. Dietary behaviours such as reducing meat and dairy, buying local and composting were commonly reported as pro-environmental behaviours that people wished to engage in. These present as potential low hanging fruit for policy and educational programs to achieve early success. Food waste in Australia is thought to make up almost 40% of total rubbish in household bins, most of which ends up in landfill (Government, 2010). Once food is in landfill, it breaks down and emits greenhouse gases, including carbon dioxide (CO_2) and more critically, methane (CH_4) -which is 25 times more potent than CO_2 (Solomon, 2007). Additionally, the large amount of fossil energy associated with the transportation of food, especially by air and road, is a major contribution to climate change (Caputo, Nayga Jr, & Scarpa, 2013). Therefore, encouraging the minimisation of food waste and appropriate composting procedures could have a significant impact in a number of areas.

Moving towards vegetarian and vegan lifestyles were also reported as areas people were interested in. It has been estimated that livestock farming contributes to somewhere between 18% - 51% of human produced greenhouse gases (Goodland & Anhang, 2009; Steinfeld et al., 2006). This is more than ships, planes, trains, cars and all other transport put together (Bailey, Froggatt, & Wellesley, 2014). It has also been estimated by that 30% of the Earth's landmass now goes into meat, dairy and egg production (Herrero et al., 2013). Meat free diets therefore have huge potential to reduce human impact on the Earth.

Make Pro-environmental Behaviour Visible

My research showed that in order for behaviours to portray social status, they need to be publicly visible. This is in line with van der Werff (2013) who suggested that behaviours

performed in private may not influence self-identity as they do not signal to others the kind of person they are. There are a number of ways in which to increase the visibility of pro-environmental behaviour. One strategy would be to provide confirmation of private behaviour in a way that can be publicly displayed; this might include stickers, signage, or lapel pins. For example, in a number of countries, people receive an "I voted sticker" after voting in elections. This means that behaviours that are otherwise very private behaviours can be made more public. Another strategy is to highlight people's behaviour compared with their peers, neighbours, and friends; for example, providing homeowners with feedback about how much energy they use relative to others (Allcott, 2011). Research on feedback on household energy use has shown that when people are provided with feedback that their energy use is higher than average, they decrease their use. When feedback indicates that their use is lower than average, they increase their use.

Highlight Pro-environmental Behaviour Already Engaged in to Strengthen Environmental Self-identity

Self-identity was found to be the best predictor of engagement in all types of pro-environmental behaviour: public, private, activism, curtailment, and efficiency. This is similar to the findings of van der Werff et al. (2014) who found that enhancing self-identity has been shown to enhance action across all types of pro-environmental behaviour. This suggests that self-identity may be an important starting point for policy interventions. Given that self-identity is a stable and relatively strong predictor of self-identity, policies aiming to promote pro-environmental behaviour should aim to strengthen environmental self-identity. Consistent with van der Werff et al. (2014) findings, highlighting previous pro-environmental action can be a way to bolster future action. This is likely to be longer lasting, and therefore a more economical approach than emphasising external incentives such as penalties or financial rewards.

Kasser and Crompton (2011) outline a number of limitations of environmental campaigning based on social status. They suggest that campaigns that present pro-environmental behaviours as promoting social status and prestige might be effective in the short term but fail to target the root cause of environmentally degrading actions. Problematically, changing consumption to green consumption is inherently supporting the ideology of consumerism, and it is known that in the long run, it is not efficient to encourage pro-environmental action with financial rewards (Kasser & Crompton, 2011). Lasting change in human behaviour

requires deeper and broader shifts in the way society conceptualises the world. There is a need to highlight to consumers and policymakers alike that simply changing consumption from one type of environmentally damaging resource to another type of less environmentally damaging resource, still involves using up valuable resources. In order to create long term change, there needs to be more transformative system level changes to basic values. It is therefore important to identify specific roadblocks for inaction. These might include examining variables at a social group level such as social norms and at a societal level understanding how government policy and cultural traditions influence engagement in pro-environmental behaviour.

That said, it is also important to consider that sometimes, first order change will be the only available starting point for change. Environmental issues have become increasingly politically polarised (Dunlap et al., 2016; Fielding et al., 2012; McCright et al., 2014), and those who do not wish to be seen as pro-environmental (negative public-identity) have been shown to be threatened by environmentalists and their desire for social change (Hoffarth & Hodson, 2016). Therefore, tapping into individualistic values might be a necessary starting point for some. My research has demonstrated that those with a negative public-identity are likely to hold more materialistic values, and reject environmental values. This suggests that these types of people are most likely to accept pro-environmental behaviours that align with their materialistic values, and a foot-in-the-door for pro-environmental engagement might be to engage them in behaviours which align with their current consumption practices. This might include promotion of consumer goods which have less environmental impact compared to their counterparts. I suggest that involving negative public-identity holders in costly efficiency behaviours, such as installing solar panels, which align with the dominant social paradigm are most likely to be successful.

Long-term Encouragement of Pro-environmental Behaviour

Rebrand and Encourage Environmental Activism Behaviours

In order to create more rapid and wide scale movement towards sustainable lifestyles, there is a need to encourage an understanding of living sustainably that extends beyond individual consumption behaviour, and the status quo. Similar to previous research (e.g., Bashir et al., 2013; Castro et al., 2017), I found that environmental activists and activist behaviours were perceived negatively. In my qualitative work, I found that people who regard themselves as pro-environmental citizens distanced themselves from activism behaviours and did not want

to be associated with the term environmentalist. Yet, it appears that identifying as an environmentalist could be an important determinant of pro-environmental behaviour, as I found that identification as an environmentalist activist predicted engagement in pro-environmental behaviour better than pro-environmental identities.

One way in which collective and activism behaviour could be promoted is to tap into the idea of serving a higher purpose. Participants in the qualitative interviews suggested that engaging in pro-environmental behaviour served as a type of life philosophy that gave their life meaning and a purpose outside of themselves. Eliciting a sense of purpose could be tested as a way to promote engagement in a range of pro-environmental behaviours including activism behaviours. Given that government can implement policies that direct the choices available to millions of people and organisations, including incentivising and mandating behaviours, activism behaviours such as lobbying government have great potential to create wide scale social change. While the actions of pro-environmental individuals are important, for broader collective change, activism behaviours might in fact be more effective.

There appears to be a mismatch between perceptions of activism type behaviours and the ability for an activism identity to be useful in promoting pro-environmental behaviour. I suggest that there needs to be an overhaul or rebranding of activism behaviours such that it is viewed as personally and socially desirable. This might include highlighting the non-violent activism behaviours people can engage in within their community, and emphasising that people do not need to look like 'tree-hugging hippies' to engage in activism behaviours. Commonly perceived barriers to pro-environmental behaviours in my research were: 1) not owning a home, 2) not being able to afford pro-environmental action. These barriers suggest that people perceive pro-environmental behaviour to consist of costly behaviours in their home (i.e., efficiency behaviours). There is an opportunity to encourage pro-environmental behaviour outside the home, by encouraging citizenship and activism behaviours.

In particular, it is important to consider how activism behaviours should be framed. There are suggestions that people think that environmental activism behaviour is more stigmatised than it actually is. Therefore, it is important to highlight injunctive and descriptive norms showing that people approve of and do engage in pro-environmental behaviour. Additionally, extreme and disruptive behaviours participants described in the qualitative interviews can be reframed as altruistic and beneficial to future generations (Bashir et al., 2013). As people did not want to be seen as an 'environmentalist' it is possible to highlight other groups that people are likely to be willing to belong to. This is thought to be particularly effective where

group norms are already pro-environmental or can be changed to be more pro-environmental (Batalha & Reynolds, 2012; Fielding & Hornsey, 2016).

Finally, I acknowledge that the grouping of curtailment, efficiency and activism behaviours are superficial categories, and it is possible to argue that a pro-environmental behaviour can fit into more than one category. Future research should look to develop alternative classifications of pro-environmental behaviour that are more discrete.

Highlight Non-financial Contributions to Social Status

In the qualitative phase, I found that people want to engage in the types of behaviours that hold social status. My findings showed social status appears to have a lot to do with financial resources needed to engage in a behaviour. In the section above I advised avoiding financial incentives to promote pro-environmental behaviours when possible, and my findings show there are some lesser-used criteria of social status which could be boosted in order to improve status driven environmentalism. This includes highlighting the physical effort and time which goes into performing a behaviour, providing specific information about the environmental benefits of behaviour and providing scientific evidence of the claims.

Look Beyond the Individual

In addition to exploring how to promote collective action towards pro-environmental outcomes, this research also highlights the power of looking beyond the individual. I found that factors including living situation, transport infrastructure, policy, and politics, shape the pro-environmental behaviours that individuals engage in and the context in which social status is constructed. When designing programs and policy to promote pro-environmental behaviour, it is important to consider factors outside the individual. When conducting research with an aim to promote pro-environmental action, it is valuable to build in consideration of the social, cultural, and structural factors that influence pro-environmental engagement.

Limitations and Suggestions for Future Research

Finally, three key limitations of the methods used and suggestions for future research are laid out below: 1) Flip the measurement of pro-environmental behaviour, 2) Move beyond the individual and 3) Need for replication and extension of results.

Flip the Measurement of Pro-environmental Behaviour

In this thesis, I broadened the measurement of pro-environmental beyond individual household level consumption behaviour to include conservation and activism behaviours. While this was an important step in capturing the breath of pro-environmental behaviour, on reflection, there are further advancements that could be made. Given that there is concern that green consumer products allow consumers to feel green without reducing their overall consumption (Elliott, 2013), and that pro-environmental identity has been linked to higher income and education (Facchini, Gaeta, & Michallet, 2017; Jones & Dunlap, 1992), restricting enquiry to green consumption practices may normalise such behaviour and perpetuate the status quo. I suggest that there may be utility in measuring the consumption of resources rather than the conservation of resources. For example, green consumption allows consumers to replace virgin plastic furniture with recycled plastic furniture, but the same consumer may also own a fleet of Hummers and eat fillet steak for every meal. It may therefore be more effective to measure consumption rather than conservation. Current methods of measurement suggest that people may be pro-environmental because they have the ability to consume more green products, rather than consuming fewer products overall. Therefore, I suggest that questions such as how many electronic devices and cars are owned, how much food is wasted, how often clothes are purchased, how far a bin is filled, how often meat is eaten might be useful. Flipping the measurement of environmental behaviour from what is conserved via green consumption, to what is consumed, redirects the question in recognition that it is not possible to be pro-environmental and consume a large amount of resources at the same time.

Move Beyond Individual Behaviours and Individual Values

The research presented in this thesis is also novel in its examination of activism behaviour. Social science would benefit from investigating the drivers of collective level pro-environmental behaviour. In future qualitative research, it would be useful to explicitly ask people who identify as pro-environmental to explain their stance on collective action, it would be useful to explore the characteristics of activist behaviours that are respected such that more effective activist campaigns can be designed. Given that types of collective participation in promoting pro-environmental outcomes vary instrumentally (Farrer, 2016), future research should also look to examine the basis of different types of activism behaviours. There is also a need to look at stigma of pro-environmental behaviours.

Behaviours low in social status are not necessarily stigmatised, although they might be. Take for example turning off a light when leaving a room, this is a relatively low status behaviour, however this is because it is low effort, low cost and performed by almost everyone. This is a behaviour that does not hold social stigma. Engaging in an environmental rally may hold similar levels of social status but hold much higher levels of social stigma. I recommend that there is a need to investigate the relationship between status and stigma, such that thresholds of stigma can be understood.

Need for Replication and Extension of Results

Given that environmental identity has been established as an important predictor of pro-environmental behaviour, there is a need to better understand how various measures of pro-environmental identity are related to one another, and the extent to which they predict pro-environmental behaviour. I suggest that a comprehensive review of the predictive value of different types of environmental identity needs to be conducted. Environmental self-identity and public-identities could be compared with environmental social identities and a systematic review of the predictive value and recommendations for the best application of the various types of identity conducted. As there are usually multiple competing identities at play at any one time, there is a need to investigate the roles of multiple identities across multiple contexts. This might be especially important in corporate roles that have traditionally have been associated with values opposing the environment. Brügger et al. (2011) suggested that a weakness of measures of environmental identity is that they require the exercise of psychological introspection that is difficult to achieve.

Conclusion

The design and functions of social systems are shaped by what is seen to be desirable by society at any one time. Currently, human exceptionalism has come to be defined through the ideology of progress. Here, progress is defined as growth of human knowledge, power and material wealth. These ambitions advance the mastery of humans over the natural world. While dominant worldviews continue to prioritise these types of growth, consumption patterns are likely to continue until a point where threats and tensions are too proximal in time and space, that there will be no other choice than to act (Kilbourne, 2004). In the past, research in environmental psychology has predominately focused on individual level household consumption behaviours. This suggests that if individuals replace one type of

consumption with another type of consumption, the world will be free from environmental degradation. There is a need to move towards research, interventions, and policy that act to change broader social systems, and highlight the paradoxes of green consumption behaviours.

Understanding the relationship between pro-environmental behaviour engagement and social status presents social scientists with a powerful tool for motivating pro-environmental action. While understanding individual drivers of action is important, it does not tell the full story. This thesis goes beyond individual level consumption behaviour and looks at the barriers and social and cultural drivers of environmental action. The studies offered a much-needed in-depth exploration of the personal and social meanings, as well as the motivations and barriers, of what it means to be a pro-environmental citizen. Key barriers to consuming in sustainable or socially responsible ways are the design of the systems in which we live. The values of the dominant social paradigm are antithetical to what is needed to create sustainable societies. In order to create meaningful change, it is necessary to work to change the underlying societal systems by making collective level pro-environmental behaviour appealing and rewarding, while still working to change everyday behaviours at a household and individual level.

References

Abeliotis, K., Koniari, C., & Sardianou, E. (2010). The profile of the green consumer in Greece. *International Journal of Consumer Studies, 34*, 153-160. doi:10.1111/j.1470-6431.2009.00833.x

ABS. (2008). Environmental views and behaviour, 2007-2008 Retrieved from https://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/B57399463910E882CA2575D800193617?opendocument

ABS. (2012). Environmental views and behaviour. Retrieved from https://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/4626.0.55.001

ABS. (2013). *Waste account, Australia, experimental estimates* (4602.0.55.005). Retrieved from http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/CFBA5C80F706EE86CA257B16000E1922/$File/4602055005_2013.pdf

ABS. (2016). Greater Perth number of cars per household. Retrieved from http://profile.id.com.au/australia/car-ownership?WebID=290

Adger, W. N., Arnell, N. W., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change, 15*, 77-86. doi:10.1016/j.gloenvcha.2004.12.005

AEC. (2019). Summary of donations reported by donors - By party - 2017-18. https://periodicdisclosures.aec.gov.au/SummaryDonor.aspx

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211. doi:10.1016/0749-5978(91)90020-T

Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production, 63*, 13-23. doi:10.1016/j.jclepro.2013.05.022

Alcock, I., White, M. P., Taylor, T., Coldwell, D. F., Gribble, M. O., Evans, K. L., . . . Fleming, L. E. (2017). 'Green'on the ground but not in the air: Pro-environmental attitudes are related to household behaviours but not discretionary air travel. *Global Environmental Change, 42*, 136-147.

Alcott, B. (2005). Jevons' paradox. *Ecological Economics, 54*, 9-21. doi:10.1016/j.ecolecon.2005.03.020

Alexander, S. (2019). Extinction Rebellion protesters might be annoying. But they have a point. *The Conversation*. Retrieved from https://theconversation.com/extinction-rebellion-protesters-might-be-annoying-but-they-have-a-point-124490

Allen, M., Antwi-Agyei, P., Aragon-Durand, F., Babiker, M., Bertoldi, P., Bind, M., . . . Cartwright, A. (2019). Technical Summary: Global warming of 1.5° C. 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.

Amatulli, C., De Angelis, M., Korschun, D., & Romani, S. (2018). Consumers' perceptions of luxury brands' CSR initiatives: An investigation of the role of status and conspicuous consumption. *Journal of Cleaner Production, 194*, 277-287. doi:10.1016/j.jclepro.2018.05.111

Amran, A., Ooi, S. K., Wong, C. Y., & Hashim, F. (2016). Business strategy for climate change: An ASEAN perspective. *Corporate Social Responsibility and Environmental Management, 23*, 213-227. doi:10.1002/csr.1371

Anderson, C., Hildreth, J. A. D., & Howland, L. (2015). Is the desire for status a fundamental human motive? A review of the empirical literature. *Psychological Bulletin, 141*, 574. doi:10.1037/a0038781

Anderson, C., John, O. P., Keltner, D., & Kring, A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of Personality and Social Psychology, 81*, 116. doi:10.1037//0022-3514.81.1.116

Ando, K., Ohnuma, S., Blöbaum, A., Matthies, E., & Sugiura, J. (2010). Determinants of individual and collective pro-environmental behaviors: Comparing Germany and Japan. *Journal of Environmental Information Science, 38*(5), 21-32.

Ariely, D., Bracha, A., & Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review, 99*, 544-555. doi:10.1257/Aer.99.1.544

Atieno, O. P. (2009). An analysis of the strengths and limitation of qualitative and quantitative research paradigms. *Problems of Education in the 21st Century, 13*, 13-38.

Autio, M., Heiskanen, E., & Heinonen, V. (2009). Narratives of 'green' consumers- the antihero, the environmental hero and the anarachist. *Journal of Consumer Behaviour, 8*, 40-53. doi:10.1002/cb.272

Babutsidze, Z., & Chai, A. (2018). Look at me saving the planet! the imitation of visible green behavior and its impact on the climate value-action gap. *Ecological Economics, 146*, 290-303. doi:10.1016/j.ecolecon.2017.10.017

Bailey, R., Froggatt, A., & Wellesley, L. (2014). *Livestock–climate change's forgotten sector*. Retrieved from https://www.chathamhouse.org/sites/default/files/field/field_document/20141203LivestockClimateChangeForgottenSectorBaileyFroggattWellesleyFinal.pdf

Bain, P. G., Milfont, T. L., Kashima, Y., Bilewicz, M., Doron, G., Garðarsdóttir, R. B., . . . Pasquali, C. (2016). Co-benefits of addressing climate change can motivate action around the world. *Nature Climate Change, 6*, 154. doi:10.1038/nclimate2814

Ball, A. L. (2016). Less Than Zero. *New York Times*. Retrieved from https://www.nytimes.com/2016/03/14/t-magazine/food/precycling-food-packaging.html

Balmford, A., Cole, L., Sandbrook, C., & Fisher, B. (2017). The environmental footprints of conservationists, economists and medics compared. *Biological Conservation, 214*, 260-269. doi:j.biocon.2017.07.035

Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of environmental psychology*, *27*(1), 14-25. https://doi.org/10.1016/j.jenvp.2006.12.002

Barclay, P. (2011). The evolution of charitable behaviour and the power of reputation. *Applied evolutionary psychology*, 149-172.

Barclay, P. (2012). Harnessing the power of reputation: Strengths and limits for promoting cooperative behaviors. *Evolutionary Psychology, 10*(5), 147470491201000509. doi:10.1177/147470491201000509

Barnhart, M., & Mish, J. (2016). Hippies, hummer owners, and people like me stereotyping as a means of reconciling ethical consumption values with the DSP. *Journal of Macromarketing, 37*, 57-71. doi:10.1177/0276146715627493

Barr, S., Gilg, A., & Shaw, G. (2011). 'Helping people make better choices': Exploring the behaviour change agenda for environmental sustainability. *Applied Geography, 31*, 712-720. doi:10.1016/j.apgeog.2010.12.003

Barrett, B., Charles, J. W., & Temte, J. L. (2015). Climate change, human health, and epidemiological transition. *Preventive medicine, 70*, 69-75. doi:10.1016/j.ypmed.2014.11.013

Bashir, N. Y., Lockwood, P., Chasteen, A. L., Nadolny, D., & Noyes, I. (2013). The ironic impact of activists: Negative stereotypes reduce social change influence. *European Journal of Social Psychology, 43*, 614-626. doi:0.1002/ejsp.1983

Batalha, L., & Reynolds, K. J. (2012). ASPIRing to mitigate climate change: Superordinate identity in global climate negotiations. *Political psychology, 33*, 743-760. doi:10.1111/j.l 467-9221.2012.00896.x

Batel, S., Castro, P., Devine-Wright, P., & Howarth, C. (2016). Developing a critical agenda to understand pro-environmental actions: contributions from Social Representations and Social Practices Theories. *Wiley Interdisciplinary Reviews: Climate Change, 7*, 727-745. doi:10.1002/wcc.417

Baumeister, R. F. (1982). Self-esteem, self-presentation, and future interaction: A dilemma of reputation. *Journal of Personality, 50*, 29-45. doi:10.1111/j.1467-6494.1982.tb00743.x

Beattie, G. S., L. (2011). Shopping to save the planet? Implicit rather than explicit attitudes predict low carbon footprint consumer choice. *The International Journal of Environmental, Cultural, Economic & Social Sustainability, 7*(4). doi:10.18848/1832-2077/CGP/v07i04/54948

Becchetti, L. (2012). Voting with the wallet. *International Review of Economics, 59*(3), 245-268. doi:10.1007/s12232-012-0166-9

Bennett, A., & Chakravarti, A. (2011). Self and Social Signaling Explanations For Consumption of Csr-Products. *ACR North American Advances*.

Berger, J. (2017). Are luxury brand labels and “green” labels costly signals of social status? An extended replication. *Plos One, 12*, 1-17. doi:10.1371/journal.pone.0170216

Berger, J., & Ward, M. (2010). Subtle signals of inconspicuous consumption. *Journal of Consumer Research, 37*, 555-569. doi:10.1086/655445

Berman, J. Z., Levine, E. E., Barasch, A., & Small, D. A. (2015). The braggart's dilemma: On the social rewards and penalties of advertising prosocial behavior. *Journal of Marketing Research, 52*, 90-104. doi:10.1509/jmr.14.0002

Bishop, B. J., & Dzidic, P. L. (2014). Dealing with wicked problems: Conducting a Causal Layered Analysis of complex social psychological issues. *American Journal of Community Psychology, 53*, 13-24. doi:10.1007/s10464-013-9611-5

Black, I. R., & Cherrier, H. (2010). Anti-consumption as part of living a sustainable lifestyle: daily practices, contextual motivations and subjective values. *Journal of Consumer Behaviour, 9*, 437-453.

Bird, R. B., & Smith, E. A. (2005). Signaling Theory. *Strategic Interaction, and Symbolic*.

Bondio, S., Shahnazari, M., & McHugh, A. (2018). The technology of the middle class: Understanding the fulfilment of adoption intentions in Queensland's rapid uptake

residential solar photovoltaics market. *Renewable and Sustainable Energy Reviews, 93*, 642-651. doi:10.1016/j.rser.2018.05.035

Bragg, E. A. (1996). Towards ecological self: Deep ecology meets constructionist self-theory. *Journal of Environmental Psychology, 16*, 93-108. doi:10.1006/jevp.1996.0008

Braun, V., & Clarke, V. (2014). What can "thematic analysis" offer health and wellbeing researchers? *International journal of qualitative studies on health and well-being, 9*. doi:10.3402/qhw.v9.26152

Breen, L. J., & Darlaston-Jones, D. (2010). Moving beyond the enduring dominance of positivism in psychological research: Implications for psychology in Australia. *Australian Psychologist, 45*, 67-76. doi:10.1080/00050060903127481

Brewer, M. B. (1979). In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological Bulletin, 86*, 307.

Brick, C. (2015). *Social visibility and identity signaling behaviors.* (Doctor of Philosophy), Univeristy of California, Santa Barbara.

Brick, C., & Lai, C. K. (2018). Explicit (but not implicit) environmentalist identity predicts pro-environmental behavior and policy preferences. *Journal of Environmental Psychology, 58*, 8-17. doi:10.1016/j.jenvp.2018.07.003

Brick, C., Sherman, D. K., & Kim, H. S. (2017). "Green to be seen" and "brown to keep down": Visibility moderates the effect of identity on pro-environmental behavior. *Journal of Environmental Psychology, 51*, 226-238. doi:10.1016/j.jenvp.2017.04.004

Bronfenbrenner, U. (1977). Toward an experimental ecology of human-development. *American Psychologist, 32*, 513-531. doi:10.1037/0003-066x.32.7.513

Brooks, J. S., & Wilson, C. (2015). The influence of contextual cues on the perceived status of consumption-reducing behavior. *Ecological Economics, 117*, 108-117. doi:10.1016/j.ecolecon.2015.06.015

Brown, P. (2017). Narrative: An ontology, epistemology and methodology for pro-environmental psychology research. *Energy Research & Social Science, 31*, 215-222. doi:10.1016/j.erss.2017.06.006

Browne, A. L., & Bishop, B. J. (2011). Chasing our tails: Psychological, institutional and societal paradoxes in natural resource management, sustainability, and climate change in australia. *American Journal of Community Psychology, 47*, 354-361. doi:10.1007/s10464-010-9390-1

Brügger, A., Kaiser, F. G., & Roczen, N. (2011). One for all? *European Psychologist, 16*, 324-333. doi:10.1027/1016-9040/a000032

Brulle, R. J. (2010). From environmental campaigns to advancing the public dialog: Environmental communication for civic engagement. *Environmental Communication, 4*, 82-98. doi:10.1080/17524030903522397

Burck, J., Franziska Marten, Christoph Bals, Niklas Höhne, Carolin Frisch, Niklas Clement, & Szu-C, K. (2018). *Climate Change Performance Index*. Retrieved from http://germanwatch.org/de/download/20503.pdf

Burke, P. J., & Reitzes, D. C. (1991). An identity theory approach to commitment. *Social Psychology Quarterly*, 239-251. doi:10.2307/2786653

Byerly, H., Balmford, A., Ferraro, P. J., Hammond Wagner, C., Palchak, E., Polasky, S., . . . Fisher, B. (2018). Nudging pro-environmental behavior: evidence and opportunities. *Frontiers in Ecology and the Environment, 16*, 159-168. doi:10.1002/fee.1777

Byrch, C., Kearins, K., Milne, M., & Morgan, R. (2007). Sustainable "what"? A cognitive approach to understanding sustainable development. *Qualitative Research in Accounting & Management, 4*, 26-52. doi:10.1108/11766090710732497

Cai, W.-g., & Zhou, X.-l. (2014). On the drivers of eco-innovation: empirical evidence from China. *Journal of Cleaner Production, 79*, 239-248. doi:10.1016/j.jclepro.2014.05.035

Campbell, W. K., & Campbell, S. M. (2009). On the self-regulatory dynamics created by the peculiar benefits and costs of narcissism: A contextual reinforcement model and examination of leadership. *Self and Identity, 8*, 214-232. doi:10.1080/15298860802505129

Canavan, B. (2017). Narcissism normalisation: tourism influences and sustainability implications. *Journal of Sustainable Tourism, 25*, 1322-1337. doi:10.1080/09669582.2016.1263309

Caputo, V., Nayga Jr, R. M., & Scarpa, R. (2013). Food miles or carbon emissions? Exploring labelling preference for food transport footprint with a stated choice study. *Australian Journal of Agricultural and Resource Economics, 57*, 465-482. doi:10.1111/1467-8489.12014

Cassells, R., Duncan, A., & Tarverdi, Y. (2017). WA bathes in sunshine but the poorest households lack solar panels – that needs to change. *The Conversation*. Retrieved from https://theconversation.com/wa-bathes-in-sunshine-but-the-poorest-households-lack-solar-panels-that-needs-to-change-82983

Castro, P., al i Uzelgun, M., & Bertoldo, R. (2016). Climate change activism between weak and strong environmentalism. *The social psychology of everyday politics*, 146.

Castro, P., Uzelgun, M., & Bertoldo, R. (2017). Climate change activism between weak and strong environmentalism: Advocating social change with moderate argumentation strategies? In *The social psychology of everyday politics*. Oxon: Routledge.

Chakrabortty, A. (2019). The hounding of Greta Thunberg is proof that the right has run out of ideas. *The Guardian*. Retrieved from https://www.theguardian.com/commentisfree/2019/may/01/greta-thunberg-right-environmental-activist-attacks

Choi, J., & Seo, S. (2017). Goodwill intended for whom? Examining factors influencing conspicuous prosocial behavior on social media. *International Journal of Hospitality Management, 60*, 23-32. doi:10.1016/j.ijhm.2016.09.0140278-4319/

Christen, M., & Schmidt, S. (2012). A formal framework for conceptions of sustainability - A theoretical contribution to the discourse in sustainable development. *Sustainable Development, 20*, 400-410. doi:10.1002/sd.518

Clayton, S. (2003a). Environmental identity: A conceptual and an operational definition. In *Identity and the natural environment: The psychological significance of nature* (pp. 45-65): MIT Press.

Clayton, S. (2003b). *Identity and the natural environment: The psychological significance of nature*. Cambridge, Massachusetts: Mit Press.

Clayton, S., Devine-Wright, P., Stern, P. C., Whitmarsh, L., Carrico, A., Steg, L., . . . Bonnes, M. (2015). Psychological research and global climate change. *Nature Climate Change, 5*, 640-646. doi:10.1038/NCLIMATE2622

Clayton, S., Devine-Wright, P., Swim, J., Bonnes, M., Steg, L., Whitmarsh, L., & Carrico, A. (2016). Expanding the role for psychology in addressing environmental challenges. *American Psychologist, 71*, 199.

Clean Energy Australia Report 2019. (2019). Retrieved from https://assets.cleanenergycouncil.org.au/documents/resources/reports/clean-energy-australia/clean-energy-australia-report-2019.pdf

Cock, J. (2011). 'Green capitalism' or environmental justice? A critique of the sustainability discourse. *Focus*(63), 43-51.

Colarelli, S. M., & Dettmann, J. R. (2003). Intuitive evolutionary perspectives in marketing practices *Psychology & Marketing, 20*, 837-865. doi:10.1002/mar.10099

Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behavior: A review and avenues for further research. *Journal of Applied Social Psychology, 28*, 1429-1464. doi:10.1111/j.1559-1816.1998.tb01685.x

Connolly, J., & Prothero, A. (2008). 10.1177/1469540507086422. *Journal of Consumer Culture, 8*, 117-145. doi:10.1177/1469540507086422

Cook, A. J., Kerr, G. N., & Moore, K. (2002). Attitudes and intentions towards purchasing GM food. *Journal of Economic Psychology, 23*(5), 557-572.

Cook, J., Nuccitelli, D., Green, S. A., Richardson, M., Winkler, B., Painting, R., . . . Skuce, A. (2013). Quantifying the consensus on anthropogenic global warming in the scientific literature. *Environmental Research Letters, 8*(2). doi:10.1088/1748-9326/8/2/024024

Cook, J., Oreskes, N., Doran, P. T., Anderegg, W. R., Verheggen, B., Maibach, E. W., . . . Green, S. A. (2016). Consensus on consensus: a synthesis of consensus estimates on human-caused global warming. *Environmental Research Letters, 11*(4). doi:10.1088/1748-9326/11/4/048002

Cooper, G., Green, N., Burningham, K., Evans, D., & Jackson, T. (2012). Unravelling the threads: Discourses of sustainability and consumption in an online forum. *Environmental Communication, 6*, 101-118. doi:10.1080/17524032.2011.642080

The cost effectiveness of residential rainwater tanks in Perth. (2009). Retrieved from https://www.water.wa.gov.au/__data/assets/pdf_file/0012/3612/85820.pdf

Côté, J. E. (1996). Identity: A multidimensional analysis.

Council, N. R. (2005). *Decision making for the environment: Social and behavioral science research priorities*: Author.

Cox, L. (2019). Adani cleared to start Carmichael coalmine work as groundwater plans approved. *The Guardian* Retrieved from https://www.theguardian.com/business/2019/jun/13/adani-cleared-to-start-carmichael-coalmine-work-as-groundwater-plans-approved

Coyne, I. T. (1997). Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries? *Journal of advanced nursing, 26*, 623-630. doi:10.1046/j.1365-2648.1997.t01-25-00999.x

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*: Sage Publications.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. *Handbook of mixed methods in social and behavioral research, 209*, 240.

Crompton, T., & Kasser, T. (2010). Human Identity: A Missing Link in Environmental Campaigning. *Environment, 52*(4), 23-33.

Cronk, Q. C. B. (2005). Plant eco-devo: the potential of poplar as a model organism. *New Phytologist*, *166*(1), 39-48.

Currie, G., & Delbosc, A. (2011). Mobility vs. affordability as motivations for car-ownership choice in urban fringe, low-income Australia. In *Auto Motives: Understanding Car Use Behaviours* (pp. 193-208): Emerald Group Publishing Limited.

Cvetkovich, G., & Wener, R. (1994). *How can psychology help save the planet?: A research agenda on environmental problems.* . Washington, DC.

Darley, J. M., & Shultz, T. R. (1990). Moral rules: Their content and acquisition. *Annual review of psychology, 41*, 525-556.

De Nardo, M., Brooks, J. S., Klinsky, S., & Wilson, C. (2017). Social signals and sustainability: Ambiguity about motivations can affect status perceptions of efficiency and curtailment behaviors. *Environment Systems and Decisions, 37*, 184-197. doi:10.1007/s10669-017-9624-y

De Young, R. (1986). Some psychological aspects of recycling: the structure of conservation-satisfactions. *Environment and Behavior, 18*(4), 435-449.

DEFRA, A. (2008). Framework for pro-environmental behaviours. *Department for Environment, Food and Rural Affairs, London*.

DeLaure, M. (2011). Environmental comedy: No impact man and the performance of green identity. *Environmental Communication, 5*, 447-466. doi:10.1080/17524032.2011.614952

Delgado, M. S., Harriger, J. L., & Khanna, N. (2015). The value of environmental status signaling. *Ecological Economics, 111*, 1-11. doi:10.1016/j.ecolecon.2014.12.021

Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review, 54*, 64-87. doi:10.1525/cmr.2011.54.1.64

Deng, G., & Newton, P. (2017). Assessing the impact of solar PV on domestic electricity consumption: Exploring the prospect of rebound effects. *Energy Policy, 110*, 313-324. doi:10.1016/j.enpol.2017.08.035

Department of the Environment and Energy. (2018). *National Waste Report 2018*. Retrieved from https://www.environment.gov.au/system/files/resources/7381c1de-31d0-429b-912c-91a6dbc83af7/files/national-waste-report-2018.pdf

Dermody, J., Hanmer-Lloyd, S., Koenig-Lewis, N., & Zhao, A. L. (2015). Advancing sustainable consumption in the UK and China: the mediating effect of pro-environmental self-identity. *Journal of Marketing Management, 31*, 1472-1502. doi:10.1080/0267257X.2015.1061039

Devine-Wright, P., & Clayton, S. (2010). Introduction to the special issue: Place, identity and environmental behaviour. *Journal of Environmental Psychology, 30*, 267-270. doi:10.1016/S0272-4944(10)00078-2

Díaz, S., Settele, J., Brondízio, E., Ngo, H. T., Guèze, M., Agard, J., . . . Zayas, C. (2019). *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. Retrieved from https://www.ipbes.net/system/tdf/spm_global_unedited_advance.pdf?file=1&type=node&id=35245

Diesendorf, M. (2010). The climate action movement in Australia. *Social Alternatives, 29*(3), 56.

Dietz, T., Frank, K. A., Whitley, C. T., Kelly, J., & Kelly, R. (2015). Political influences on greenhouse gas emissions from US states. *Proceedings of the National Academy of Sciences*, 201417806. doi:10.1073/pnas.1417806112

Doherty, K. L., & Webler, T. N. (2016). Social norms and efficacy beliefs drive the alarmed segment's public-sphere climate actions. *Nature Climate Change, 6*, 879–884. doi:10.1038/nclimate3025

Dono, J., Webb, J., & Richardson, B. (2010). The relationship between environmental activism, pro-environmental behaviour and social identity. *Journal of Environmental Psychology, 30*, 178-186. doi:10.1016/j.jenvp.2009.11.006

Dubois, D., Rucker, D. D., & Galinsky, A. D. (2015). Social class, power, and selfishness: When and why upper and lower class individuals behave unethically. *Journal of Personality and Social Psychology, 108*, 436. doi:10.1037/pspi0000008

Dunlap, R. E., & McCright, A. M. (2008). Social movement identity: Validating a measure of identification with the environmental movement. *Social Science Quarterly, 89*, 1045-1065. doi:10.1111/j.1540-6237.2008.00573.x

Dunlap, R. E., & Mertig, A. G. (2014). *American Environmentalism: The US Environmental Movement, 1970-1990*: Taylor & Francis.

Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New trends in measuring environmental attitudes: measuring endorsement of the new ecological paradigm: a revised NEP scale. *Journal of Social Issues, 56*, 425-442. doi:10.1111/0022-4537.00176

Duroy, Q. (2011). The path to a sustainable economy: Sustainable consumption, social identity and ecological citizenship. *International Journal of Green Economics, 5*, 1-14. doi:10.1504/IJGE.2011.039725

Dütschke, E., Frondel, M., Schleich, J., & Vance, C. (2018). Moral Licensing—Another Source of Rebound? *Frontiers in Energy Research, 6*, 38.

Eastman, J. K., Goldsmith, R. E., & Flynn, L. R. (1999). Status consumption in consumer behavior: Scale development and validation. *Journal of Marketing Theory and Practice, 7*, 41-52. doi:10.1080/10696679.1999.11501839

Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Farahani, E., Kadner, S., Seyboth, K., . . . Eickemeier, P. (2014). *IPCC, 2014: Summary for policymakers*. Retrieved from Cambridge, United Kingdom and New York, NY, USA: https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf

Elijido-Ten, E. O. (2017). Does recognition of climate change related risks and opportunities determine sustainability performance? *Journal of Cleaner Production, 141*, 956-966. doi:10.1016/j.jclepro.2016.09.136

Elliott, R. (2013). The taste for green: The possibilities and dynamics of status differentiation through “green” consumption. *Poetics, 41*, 294-322. doi:10.1016/j.poetic.2013.03.003

Emanuel, R., & Adams, J. (2011). College students' perceptions of campus sustainability. *International Journal of Sustainability in Higher Education, 12*, 79-92. doi:10.1108/14676371111098320

England, M. H., Ummenhofer, C. C., & Santoso, A. (2006). Interannual rainfall extremes over southwest Western Australia linked to Indian Ocean climate variability. *Journal of Climate, 19*, 1948-1969. doi:10.1175/JCLI3700.1

Evans, L., Maio, G. R., Corner, A., Hodgetts, C. J., Ahmed, S., & Hahn, U. (2013). Self-interest and pro-environmental behaviour. *Nature Climate Change, 3*, 122-125. doi:10.1038/NCLIMATE1662

Facchini, F., Gaeta, G. L., & Michallet, B. (2017). Who cares about the environment? An empirical analysis of the evolution of political parties’ environmental concern in European countries (1970–2008). *Land Use Policy, 64*, 200-211. doi:10.1016/j.landusepol.2017.02.017

Farbotko, C. (2018). Climate change and national security: an agenda for geography. *Australian Geographer, 49*(2), 247-253.

Farrer, B. (2016). An experiment assessing how different forms of utility inform the choices of environmental activists. *Environment and Behavior, 48*, 885-904. doi:10.1177/0013916515572696

Ferguson, C. (2016). Managing and motivating sustainable travel behaviour change. In.

Ferrara, I., & Serret, Y. (2008). Household behaviour and the environment, reviewing the evidence. *Organization for Economic Cooperation and Development: Paris, France*, 153-180.

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. doi:10.3389/fpsyg.2016.00121

Fischer, R., & Boer, D. (2011). What is more important for national well-being: money or autonomy? A meta-analysis of well-being, burnout, and anxiety across 63 societies. *Journal of Personality and Social Psychology, 101*, 164. doi:10.1037/a0023663

Fitzgerald, J. (2010). *Emerald cities: Urban sustainability and economic development*. New York: Oxford University Press.

Franklin, A., & Dunkley, R. (2017). Becoming a (green) identity entrepreneur: Learning to negotiate situated identities to nurture community environmental practice. *Environment and Planning A*, 0308518X17699610. doi:10.1177/0308518X17699610

Franzen, A., & Meyer, R. (2010). Environmental Attitudes in Cross-National Perspective: A Multilevel Analysis of the ISSP 1993 and 2000. *European Sociological Review, 26*, 219-234. doi:10.1093/Esr/Jcp018

Freeman, R., Yearworth, M., & Preist, C. (2016). Revisiting Jevons' paradox with system dynamics: Systemic causes and potential cures. *Journal of Industrial Ecology, 20*(2), 341-353. doi:10.1177/0308518X17699610

Friedrichsen, J., & Engelmann, D. (2014). *Who Cares for Social Image*. Retrieved from http://www.diw.de/documents/publikationen/73/diw_01.c.550891.de/dp1634.pdf

Gallup, I. (2016). Environment. Retrieved September 15, 2019, from http://www.gallup.com/poll/1615/Environment.aspx.

Gamson, W. A., & Ryan, C. (2005). Thinking about elephants. *The Public Eye, 19*(2).

Gardner, G. T., & Stern, P. C. (1996). *Environmental problems and human behavior*: Allyn & Bacon.

Garnelo-Gomez, I. (2017). *'I Live Sustainably': exploring sustainable narratives through the lens of identity expression and motivational drives.* ((Doctoral dissertation)), University of Reading, Retrieved from http://centaur.reading.ac.uk/74414/1/21821191_Garnelo-Gomez_thesis.pdf

Gatersleben, B. (2012). The psychology of sustainable transport. *Psychologist, 25*, 676-679.

Gatersleben, B., Murtagh, N., & Abrahamse, W. (2014). Values, identity and pro-environmental behaviour. *Contemporary Social Science, 9*, 374-392. doi:10.1080/21582041.2012.682086

Gauja, A., & Jackson, S. (2016). Australian Greens party members and supporters: their profiles and activities. *Environmental Politics, 25*, 359-379. doi:10.1080/09644016.2015.1104803

Gergen, K. J. (1985). The social constructionist movement in modern psychology. *American Psychologist, 40*, 266.

Gifford, R. (2011). The dragons of inaction psychological barriers that limit climate change mitigation and adaptation. *American Psychologist, 66*, 290-302. doi:10.1037/A0023566

Gifford, R. (2014). Environmental psychology matters. *Annual review of psychology, 65*. doi:10.1146/annurev-psych-010213-115048

Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International Journal of Psychology, 49*, 141-157. doi:10.1002/ijop.12034

Gillingham, K., Rapson, D., & Wagner, G. (2016). The rebound effect and energy efficiency policy. *Review of Environmental Economics and Policy, 10*, 68-88. doi:10.1093/reep/rev017

Glazer, A., & Konrad, K. A. (1996). A signaling explanation for charity. *The American Economic Review, 86*, 1019-1028.

Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research, 35*, 472-482. doi:10.1086/586910

Goodland, R., & Anhang, J. (2009). Livestock and climate change: What if the key actors in climate change are... cows, pigs, and chickens?

Gough, B., & Lyons, A. (2016). The future of qualitative research in psychology: Accentuating the positive. *Integrative Psychological and Behavioral Science, 50*, 234-243. doi:10.1007/s12124-015-9320-8

Gough, I. (2015). Climate change and sustainable welfare: the centrality of human needs. *Cambridge Journal of Economics, 39*, 1191-1214. doi:10.1093/cje/bev039

Government, A. (2010). National Waste Report. In: Department of the Environment, Water, Heritage and the Arts Canberra.

Greenwald, A. G., Poehlman, T. A., Uhlmann, E. L., & Banaji, M. R. (2009). Understanding and using the implicit association test: Iii. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology, 97*, 17-41. doi:10.1037/A0015575

Gregory, P. J., Ingram, J. S., & Brklacich, M. (2005). Climate change and food security. *Philosophical Transactions of the Royal Society B: Biological Sciences, 360*, 2139-2148. doi:10.1098/rstb.2005.1745

Grigg, T. (Producer). (2008, 16th May 2019). Health & Hygiene in Nineteenth Century England Retrieved from https://collections.museumvictoria.com.au/articles/1615

Griskevicius, V. (2008). *Conspicuous conservation: Pro-environmental consumption and status competition.* (PhD Dissertation

Empirical Study; Quantitative Study), Arizon State University, Retrieved from http://link.lis.curtin.edu.au/cgi-bin/ezproxy/ezpgateway.cgi?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=psyc6&AN=2008-99160-389 Available from Ovid Technologies PsycINFO database.

Griskevicius, V., & Kenrick, D. T. (2013). Fundamental motives: How evolutionary needs influence consumer behavior. *Journal of Consumer Psychology, 23*, 372-386. doi:10.1016/j.jcps.2013.03.003

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*, 392-404. doi:10.1037/a0017346

Grooten, M., Almond, R., & McLellan, R. (2012). Living Planet Report 2012: biodiversity, biocapacity and better choices (WWF). In.

Hagmann, D., Ho, E. H., & Loewenstein, G. (2019). Nudging out support for a carbon tax. *Nature Climate Change*, 1.

Haines, A., & Ebi, K. (2019). The imperative for climate action to protect health. *New England Journal of Medicine, 380*, 263-273. doi:10.1056/NEJMra1807873

Hallström, E., Carlsson-Kanyama, A., & Börjesson, P. (2015). Environmental impact of dietary change: a systematic review. *Journal of Cleaner Production, 91*, 1-11. doi:10.1016/j.jclepro.2014.12.008

Han, Y. J., Nunes, J. C., & Drèze, X. (2010). Signaling status with luxury goods: The role of brand prominence. *Journal of Marketing, 74*(4), 15-30.

Hansen, J., Sato, M., Ruedy, R., Lo, K., Lea, D. W., & Medina-Elizade, M. (2006). Global temperature change. *Proceedings of the National Academy of Sciences, 103*, 14288-14293. doi:10.1073/pnas.0606291103

Hardin, G. (1968). The tragedy of the commons. The population problem has no technical solution; it requires a fundamental extension in morality. *Science, 162*, 1243-1248.

Hards, S. K. (2013). Status, stigma and energy practices in the home. *Local Environment, 18*, 438-454. doi:10.1080/13549839.2012.748731

Hardy, C. L., & Van Vugt, M. (2006). Nice guys finish first: The competitive altruism hypothesis. *Personality and Social Psychology Bulletin, 32*, 1402-1413. doi:10.1177/0146167206291006

Hassan, R., & Valenzuela, F. (2016). Customer perception of green advertising in the context of eco-friendly FMCGs. *Contemporary Management Research, 12*, 169. doi:10.7903/cmr.14796

Hatfield, J. L., & Prueger, J. H. (2015). Temperature extremes: Effect on plant growth and development. *Weather and Climate Extremes, 10*, 4-10. doi:10.1016/j.wace.2015.08.001

Hawcroft, L. J., & Milfont, T. L. (2010). The use (and abuse) of the new environmental paradigm scale over the last 30 years: A meta-analysis. *Journal of Environmental Psychology, 30*, 143-158. doi:10.1016/j.jenvp.2009.10.003

Hawken, P. (2017). *Drawdown: The most comprehensive plan ever proposed to reverse global warming*. New York: Penguin.

Head, L., Adams, M., McGregor, H. V., & Toole, S. (2014). Climate change and Australia. *Wiley Interdisciplinary Reviews: Climate Change, 5*, 175-197. doi:10.1002/wcc.255

Hedlund-de Witt, A. (2014). Rethinking sustainable development: Considering how different worldviews envision “development” and “quality of life”. *Sustainability, 6*, 8310-8328. doi:10.3390/su6118310

Heffetz, O. (2004). *Conspicuous consumption and the visibility of consumer expenditures*.

Hennes, E. P., Ruisch, B. C., Feygina, I., Monteiro, C. A., & Jost, J. T. (2016). Motivated recall in the service of the economic system: The case of anthropogenic climate change. *Journal of Experimental Psychology: General, 145*(6), 755. doi:10.1037/xge0000148

Herrero, M., Havlík, P., Valin, H., Notenbaert, A., Rufino, M. C., Thornton, P. K., . . . Obersteiner, M. (2013). Biomass use, production, feed efficiencies, and greenhouse gas emissions from global livestock systems. *Proceedings of the National Academy of Sciences, 110*, 20888-20893. doi:10.1073/pnas.1308149110

Higgins, C., Milne, M. J., & van Gramberg, B. (2015). The uptake of sustainability reporting in Australia. *Journal of Business Ethics, 129*, 445-468. doi:10.1007/s10551-014-2171-2

Hill Announces New Greenhouse Chief. (1998). [Press release]. Retrieved from https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id:%22media/pressrel/7V505%22

Hoffman, A. J., & Bazerman, M. H. (2007). *Changing practice on sustainability: Understanding and overcoming the organizational and psychological barriers to action*. Cletenham: Edward Elgar Publishing.

Hofmeister-Toth, A., Kelemen, K., & Piskóti, M. (2012). Segmentation of the Hungarian consumers using the new ecological paradigm (NEP) scale. *Interdisciplinary Environmental Review, 13*, 21-41. doi:10.1504/IER.2012.046098

Holmes, D., & Star, C. (2018). Climate change communication in australia: The politics, mainstream media and fossil fuel industry nexus. In *Handbook of Climate Change Communication: Vol. 1* (pp. 151-170). Cham, Switzerland: Springer.

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*, 622. doi:10.1038/NCLIMATE2943

Hsu, A., & Zomer, A. (2016). Environmental performance index. *Wiley StatsRef: Statistics Reference Online*. doi:10.1002/9781118445112.stat03789.pub2

Hurst, M., Dittmar, H., Bond, R., & Kasser, T. (2013). The relationship between materialistic values and environmental attitudes and behaviors: A meta-analysis. *Journal of Environmental Psychology, 36*, 257-269. doi:10.1016/j.jenvp.2013.09.003

Hutchings, K. (2005). Don't call me a tree hugger!: Sticks, stones, and stereotypes in ecocriticism. *Interdisciplinary Literary Studies, 7*, 5-26.

Inayatullah, S. (2004). Causal layered analysis: Theory, historical context, and case studies. In *The causal layered analysis reader* (pp. 1-52). Taipei: Tamkang Univeristy Press.

Institute, A. P. (2019). Mapping Australian Photovoltaic Installations. Retrieved from http://pvmap.apvi.org.au/historical#4/-26.67/134.12

IPCC. (2014). *Climate Change 2014: Impacts, Adaptation and Vulnerability Summary for policymakers*. Retrieved from Cambridge, United Kingdom and New York, NY, USA: http://ipcc-wg2.gov/AR5/images/uploads/WG2AR5_SPM_FINAL.pdf

Ives, C. D., Lentini, P. E., Threlfall, C. G., Ikin, K., Shanahan, D. F., Garrard, G. E., . . . Rayner, L. (2016). Cities are hotspots for threatened species. *Global Ecology and Biogeography, 25*, 117-126. doi:10.1111/geb.12404

Jackson, A. (2011). *Prosperity without growth: Economics for a finite planet*. London: Earthscan.

Jackson, S. (2016). *The Australian Greens: From Activism to Australia's Third Party*. Melbourne: Melbourne University Publishing.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research, 1*(2), 112-133.

Jones, R. E., & Dunlap, R. E. (1992). The social bases of environmental concern: Have they changed over time? *Rural Sociology, 57*, 28-47. doi:10.1111/j.1549-0831.1992.tb00455.x

Jost, J. T. (2015). Meeting Moscovici: My encounters with the grand theorist of social representations. *European Bulletin of Social Psychology, 27*(1), 49-52.

Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of false consciousness. *British journal of social psychology, 33*(1), 1-27.

Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political psychology, 25*, 881-919. doi:10.1111/j.1467-9221.2004.00402.x

Jost, J. T., & Hunyady, O. (2003). The psychology of system justification and the palliative function of ideology. *European review of social psychology, 13*, 111-153. doi:10.1080/10463280240000046

Kafashan, S., Sparks, A., Griskevicius, V., & Barclay, P. (2014). Prosocial behavior and social status. In J. T. Cheng, J. L. Tracy, & C. Anderson (Eds.), *The Psychology of Social Status* (pp. 139-158). New York, NY: Springer.

Kagawa, F. (2007). Dissonance in students' perceptions of sustainable development and sustainability: Implications for curriculum change. *International Journal of Sustainability in Higher Education, 8*, 317-338. doi:10.1108/14676371111098320

Karlin, B., Davis, N., Sanguinetti, A., Gamble, K., Kirkby, D., & Stokols, D. (2014). Dimensions of conservation: Exploring differences among energy behaviors. *Environment and Behavior, 46*, 423-452. doi:10.1177/0013916512467532

Kashima, Y., Paladino, A., & Margetts, E. A. (2014). Environmentalist identity and environmental striving. *Journal of Environmental Psychology, 38*, 64-75. doi:10.1016/j.jenvp.2013.12.014

Kasser, T., & Crompton, T. (2011). Limitations of Environmental Campaigning Based on Values, Money, Image and Status: eight psychologists reflect on the disagreement between the Value modes and Common Cause approaches. Common Cause briefing paper; 2011. In.

Kastanakis, M. N., & Balabanis, G. (2012). Between the mass and the class: Antecedents of the “bandwagon” luxury consumption behavior. *Journal of Business Research, 65*, 1399-1407. doi:10.1016/j.jbusres.2011.10.005

Kennedy, E. H., & Hauslik, D. (2018). The practice of green consumption. In *Environment and Society* (pp. 187-206): Palgrave Macmillan.

Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the pyramid of needs: Contemporary extensions built upon ancient foundations. *Perspectives on Psychological Science, 5*, 292-314. doi:10.1177/1745691610369469

Khalil, S. (2019). Australia-wide bag ban leads to 1.5 billion fewer plastic bags in the environment. *news.com.au*. Retrieved from https://www.news.com.au/lifestyle/real-life/news-life/australiawide-bag-ban-leads-to-15-billion-fewer-plastic-bags-in-the-environment/news-story/678f21eb838fb6706baa370bc3b3ec29

Khan, A. (2008). The industrial revolution and the demographic transition. *Business Review, 1*, 9-15.

Khan, S. Y. (2017). *Anti-consumption and materialism in consumer behaviour: A value orientation perspective.* Cardiff University,

Kilbourne, W., & Pickett, G. (2008). How materialism affects environmental beliefs, concern, and environmentally responsible behavior. *Journal of Business Research, 61*, 885-893. doi:10.1016/j.jbusres.2007.09.016

Kilbourne, W. E. (2004). Sustainable communication and the dominant social paradigm: can they be integrated? *Marketing Theory, 4*(3), 187-208. doi:10.1177/1470593104045536

Klas, A. (2016). *Pro-environmentalism: environmentalist social identity, environmentalist stereotypes, and green consumerism engagement*. Retrieved from http://dro.deakin.edu.au/eserv/DU:30102817/klas-pro-environmentalism-2017.pdf

Klas, A., Zinkiewicz, L., Zhou, J., & Clarke, E. (2018). "Not all environmentalists are like that…": Unpacking the negative and positive outgroup stereotypes of environmentalists. *Environmental Communication*, 1-15. doi:10.1080/17524032.2018.1488755

Klocker, N., Gibson, C., & Borger, E. (2012). Living together but apart: material geographies of everyday sustainability in extended family households. *Environment and Planning A, 44*, 2240-2259. doi:10.1068/a44594

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*, 239-260. doi:10.1080/13504620220145401

Kormos, C., & Gifford, R. (2014). The validity of self-report measures of proenvironmental behavior: A meta-analytic review. *Journal of Environmental Psychology, 40*, 359-371. doi:10.1016/j.jenvp.2014.09.003

Kriström, B. (2013). Greening Household Behaviour: Overview from the 2011 Survey, chapter Household behaviour and energy use. In: OECD Publishing.

Kroll, C. (2015). *Sustainable Development Goals: Are the rich countries ready?* Retrieved from http://www.sgi-network.org/docs/studies/SDGs_Are-the-rich-countries-ready_2015.pdf

Lakoff, G. (2010). Why it matters how we frame the environment. *Environmental Communication, 4*, 70-81. doi:10.1080/17524030903529749

Layard, R. (2011). *Happiness: Lessons from a new science*: Penguin UK.

Lazarus, R. J. (2008). Super wicked problems and climate change: Restraining the present to liberate the future. *Cornell L. Rev.*, *94*, 1153.

Lee, J., Ko, E., & Megehee, C. M. (2015). Social benefits of brand logos in presentation of self in cross and same gender influence contexts. *Journal of Business Research, 68*, 1341-1349. doi:10.1016/j.jbusres.2014.12.004

Leiserowitz, A., Maibach, E., Roser-Renouf, C., Feinberg, G., & Rosenthal, S. (2015). Climate change in the American mind: March, 2015. *Yale Project on Climate Change Communication (Yale University and George Mason University, New Haven, CT)*.

Leonidou, C. N., & Skarmeas, D. (2015). Gray shades of green: Causes and consequences of green skepticism. *Journal of Business Ethics, 114*, 1-15. doi:10.1007/s10551-015-2829-4

Lerner, M. J. (1980). The belief in a just world. In (pp. 9-30). New York: Springer.

Levine, D. S., & Strube, M. J. (2012). Environmental attitudes, knowledge, intentions and behaviors among college students. *The Journal of Social Psychology, 152*(3), 308-326. doi:10.1080/00224545.2011.604363

Leviston, Z. (2014). Most of us overestimate how 'green' we really are. *ECOS, 2014*(192).

Leviston, Z., Greenhill, M., & Walker, I. (2015). *Australian attitudes to climate change: 2010-2014*. Retrieved from

Leviston, Z., Price, J., Malkin, S., & McCrea, R. (2014). *Fourth annual survey of Australian attitudes to climate change: Interim report*. Retrieved from Perth, Australia: file:///C:/Users/14265903/Desktop/2013%20Fourth%20survey%20of%20Australian%20attitudes%20to%20climate%20change.pdf

Leviston, Z., & Uren, H. V. (2020). Overestimating one's "green" behavior: Better-than-average bias may function to reduce perceived personal threat from climate change. *Journal of Social Issues, 76*(1), 70-85.

Lewis, T., & Potter, E. (2011). *Ethical consumption: A critical introduction*. Oxon: Routledge.

Light, A. (2000). What is an ecological identity? *Environmental Politics, 9*, 59-81. doi:10.1080/09644010008414551

Lin, C., & Tyan, J. (2019). The relationship between Social Progress Index and GDP: The mediating role of national intellectual capital. Academy of Management Global Proceedings(2019), 220.

Lin, J., Lobo, A., & Leckie, C. (2017). Green brand benefits and their influence on brand loyalty. *Marketing Intelligence & Planning, 35*(3).

Lindenberg, S., & Steg, L. (2007). Normative, gain and hedonic goal frames guiding environmental behavior. *Journal of Social Issues, 63*, 117-137. doi:10.1111/j.1540-4560.2007.00499.x

Lindenmayer, D. B., Lane, P., Westgate, M., Scheele, B. C., Foster, C., Sato, C., . . . Florance, D. (2018). Tests of predictions associated with temporal changes in Australian bird populations. *Biological Conservation, 222*, 212-221. https://doi.org/10.1016/j.biocon.2018.04.007

Lucio, R. (2020). Cadbury, Kellogg's revise palm oil policies. https://insidefmcg.com.au/2020/02/12/cadbury-kelloggs-revise-palm-oil-policie/

Maki, A., Carrico, A. R., Raimi, K. T., Truelove, H. B., Araujo, B., & Yeung, K. L. (2019). Meta-analysis of pro-environmental behaviour spillover. *Nature Sustainability*(4), 307. doi:10.1038/s41893-019-0263-9

Malmqvist, T., & Whan, E. (2014). *Greendex 2014: Consumer Choice and the Environment – A Worldwide Tracking Survey*. Retrieved from Toronto, Canada: http://images.nationalgeographic.com/wpf/media-content/file/NGS_2014_Greendex_Highlights_FINAL-cb1411689730.pdf

Mansvelt, J. (2010). *Green consumerism: An A-to-Z guide*. Thousand Oaks, CA: Sage Publications.

Masson-Delmotte, V., Zhai, P., Pörtner, H., Roberts, D., Skea, J., Shukla, P., . . . Pidcock, R. (2018). IPCC, 2018: Summary for Policymakers. *Global warming of, 1*.

Maynard, M., Bunkley, N., & Chapman, M. (2007). Say 'hybrid'and many people will hear 'Prius'. *The New York Times, 4*.

Mazar, N., & Zhong, C. B. (2010). Do green products make us better people? *Psychological Science, 21*, 494-498. doi:10.1177/0956797610363538

McAdams, D. P. (1995). What do we know when we know a person? *Journal of Personality, 63*(3), 365-396. doi:10.1111/j.1467-6494.1995.tb00500.x

McCrea, R., Leviston, Z., & Walker, I. A. (2016). Climate change skepticism and voting behavior: What causes what? *Environment and Behavior, 48*, 1309-1334. doi:10.1177/0013916515599571

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*, 338-358. doi:10.1080/09644016.2015.1090371

McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica, 22*(3), 276-282.

Meadows, D. H. (1972). Club of Rome. The Limits to Growth; a Report for the Club of Rome's Project on the Predicament of Mankind. *Universe, New York*.

Meng, S., Siriwardana, M., & McNeill, J. (2014). The impact of the Australian carbon tax on industries and households. *Margin: The Journal of Applied Economic Research, 8*, 15-37. doi:10.1177/0973801013506399

Millar, C., Hind, P., Cherrier, H., Russell, S. V., & Fielding, K. (2012). Corporate environmentalism and top management identity negotiation. *Journal of Organizational Change Management, 25*, 518-534. doi:10.1108/09534811211239209

Milman, O. (2014). Australia records biggest emissions drop in a decade as carbon tax kicks in. *The Guardian*. Retrieved from https://www.theguardian.com/environment/2014/dec/24/australia-records-biggest-emissions-drop-in-a-decade-as-carbon-tax-kicks-in

Moisander, J., & Pesonen, S. (2002). Narratives of sustainable ways of living: constructing the self and the other as a green consumer. *Management decision, 40*, 329-342. doi:10.1108/00251740210426321

Moloney, S., Horne, R. E., & Fien, J. (2010). Transitioning to low carbon communities—from behaviour change to systemic change: Lessons from Australia. *Energy Policy, 38*, 7614-7623. doi:10.1016/j.enpol.2009.06.058

Morelli, J. (2013). Environmental sustainability: A definition for environmental professionals. *Journal of Environmental Sustainability, 1*, 2. doi:10.14448/jes.01.0002

Morgan, D. L. (2013). Integrating qualitative and quantitative methods: A pragmatic approach: Sage publications.

Moser, A. K. (2015). Thinking green, buying green? Drivers of pro-environmental purchasing behavior. *Journal of consumer marketing, 32*, 167-175. doi:10.1108/JCM-10-2014-1179

Moser, S., & Kleinhückelkotten, S. (2018). Good intents, but low impacts: diverging importance of motivational and socioeconomic determinants explaining pro-environmental behavior, energy use, and carbon footprint. *Environment and Behavior, 50*, 626-656. doi:10.1177/0013916517710685

Moss, R. H., Edmonds, J. A., Hibbard, K. A., Manning, M. R., Rose, S. K., Van Vuuren, D. P., . . . Kram, T. (2010). The next generation of scenarios for climate change research and assessment. *Nature, 463*, 747-756. doi:10.1038/nature08823

NDEVR. (2018). *Tracking 2 degrees*. Retrieved from http://ndevr.com.au/images/content-environment/PDF/FY-2018-Q1-vA.0.pdf

Nelissen, R. M., & Meijers, M. H. (2011). Social benefits of luxury brands as costly signals of wealth and status. *Evolution and Human Behavior, 32*, 343-355. doi:10.1016/j.evolhumbehav.2010.12.002

Nettle, D., Harper, Z., Kidson, A., Stone, R., Penton-Voak, I. S., & Bateson, M. (2013). The watching eyes effect in the Dictator Game: it's not how much you give, it's being seen to give something. *Evolution and Human Behavior, 34*, 35-40. doi:10.1016/j.evolhumbehav.2012.08.004

Newton, P., & Meyer, D. (2013). Exploring the attitudes-action gap in household resource consumption: Does “environmental lifestyle” segmentation align with consumer behaviour? *Sustainability, 5*, 1211-1233. doi:10.3390/su5031211

Nielsen. (2015). *The sustainability imperitive: New insights on consumer expectations*. Retrieved from http://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2015-reports/global-sustainability-report-oct-2015.pdf

Nigbur, D., Lyons, E., & Uzzell, D. (2010). Attitudes, norms, identity and environmental behaviour: Using an expanded theory of planned behaviour to predict participation in a kerbside recycling programme. *British journal of social psychology, 49*, 259-284. doi:10.1348/014466609x449395

North, L. (2009). Rejecting the ‘F-word’ How ‘feminism’and ‘feminists’ are understood in the newsroom. *Journalism, 10*, 739-757. doi:10.1177/1464884909344479

Northover, S. B., Pedersen, W. C., Cohen, A. B., & Andrews, P. W. (2017). Artificial surveillance cues do not increase generosity: Two meta-analyses. *Evolution and Human Behavior, 38*, 144-153. doi:10.1016/j.evolhumbehav.2016.07.001

O'Rourke, D., & Lollo, N. (2015). Transforming consumption: from decoupling, to behavior change, to system changes for sustainable consumption. *Annual review of environment and resources, 40*, 233-259. doi:10.1146/annurev-environ-102014-021224

Oreskes, N., & Conway, E. M. (2011). *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*: Bloomsbury Publishing USA.

Osbaldiston, R., & Schott, J. P. (2012). Environmental sustainability and behavioral science: Meta-analysis of proenvironmental behavior experiments. *Environment and Behavior, 44*, 257-299. doi:10.1177/0013916511402673

Owens, S. (2000). 'Engaging the public': Information and deliberation in environmental policy. *Environment and Planning A, 32*, 1141-1148. doi:10.1068/a3330

Oyserman, D. (2009). Identity-based motivation: Implications for action-readiness, procedural-readiness, and consumer behavior. *Journal of Consumer Psychology, 19*, 250-260. doi:10.1016/j.jcps.2009.05.008

Oyserman, D., Elmore, K., Smith, G., Leary, M. R., & Tangney, J. P. (2012). Handbook of self and identity. *Self, self-concept and identity*, 69-104.

Pachauri, R. K., Allen, M., Barros, V., Broome, J., Cramer, W., Christ, R., . . . Dasgupta, P. (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (9291691437). Retrieved from Geneva, Switzerland:

Pakulski, J., Tranter, B., & Crook, S. (1998). The dynamics of environmental issues in Australia: Concerns, clusters and carriers. *Australian Journal of Political Science, 33*, 235-252. doi:10.1080/10361149850633

Park, K., & Lee, K. (2016). Is green product purchasing an innovative or conspicuous behavior? *Social Behavior and Personality, 44*, 29-44. doi:10.2224/sbp.2016.44.1.29

Parmesan, C., & Hanley, M. E. (2015). Plants and climate change: complexities and surprises. *Annals of Botany, 116*, 849-864. doi:10.1093/aob/mcv169

Paul, S., & Guilbert, D. (2013). Income-happiness paradox in Australia: Testing the theories of adaptation and social comparison. *Economic Modelling, 30*, 900-910. doi:10.1016/j.econmod.2012.08.034

Paun, A., Acton, L., & Chan, W.-S. (2018). Fragile Planet.

Pearce, M., Willis, E., Mamerow, L., Jorgensen, B., & Martin, J. (2014). The prestige of sustainable living: implications for water use in Australia. *The Geographical Journal, 180*, 161-174. doi:10.1111/geoj.12016

Pelletier, L. G., Lavergne, K. J., & Sharp, E. C. (2008). Environmental psychology and sustainability: Comments on topics important for our future. *Canadian Psychology, 49*, 304. doi:10.1037/a0013658

Peterson, R. A. (1997). The rise and fall of highbrow snobbery as a status marker. *Poetics, 25*, 75-92. doi:10.1016/S0304-422X(97)00013-2

Pickerill, J. (2001). Environmental internet activism in Britain. *Peace Review, 13*, 365-370. doi:10.1080/13668800120079063

Pidgeon, N. (2012). Public understanding of, and attitudes to, climate change: UK and international perspectives and policy. *Climate Policy, 12*, S85-S106. doi:10.1080/14693062.2012.702982

Piskóti, M. (2015). *The Role of Environmental Identity in the Development of Environmentally Conscious Behaviour.* Budapesti Corvinus Egyetem, Budapest.

Pooley, J. A., & O'Connor, M. (2000). Environmental education and attitudes: Emotions and beliefs are what is needed. *Environment and Behavior, 32*, 711-723. doi:10.1177/0013916500325007

Pörtner, H., Roberts, D., Masson-Delmotte, V., Zhai, P., Tignor, M., Poloczanska, E., Mintenbeck, K., Nicolai, M., Okem, A., & Petzold, J. (2019). IPCC Special Report on the Ocean and Cryosphere in a Changing Climate. *IPCC Intergovernmental Panel on Climate Change: Geneva, Switzerland*.

Pravet, I., & Holmlund, M. (2018). Signing up for voluntary simplicity–consumer motives and effects. *Society and Business Review, 13*, 80-99. doi:10.1108/SBR-10-2017-0075

Premier's Circular. (2018). Reducing the use of disposable plastic [Press release]. Retrieved from https://www.dpc.wa.gov.au/GuidelinesAndPolicies/PremiersCirculars/Documents/PC%20Reducing%20the%20Use%20of%20Disposable%20Plastic.pdf

Prilleltensky, I. (1989). Psychology and the status quo. *American Psychologist, 44*, 795. doi:10.1037/0003-066X.44.5.795

Proshansky, H. M. (1978). The city and self-identity. *Environment and Behavior, 10*, 147-169. doi:10.1177/0013916578102002

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology, 3*, 57-83. doi:10.1016/S0272-4944(83)80021-8

Pruneau, D., Doyon, A., Langis, J., Vasseur, L., Ouellet, E., McLaughlin, E., . . . Martin, G. (2006). When teachers adopt environmental behaviors in the aim of protecting the climate. *The Journal of Environmental Education, 37*, 3-12. doi:10.3200/JOEE.37.3.3-12

Puska, P. (2019). Organic is the new black: Sending and interpreting reputational signals in the context of organic food choices.

Puska, P., Kurki, S., Lähdesmäki, M., Siltaoja, M., & Luomala, H. (2016). Male–male status signaling through favoring organic foods: Is the signaler perceived and treated as a friend or a foe? *Psychology & Marketing, 33*, 843-855. doi:10.1002/mar.20922

Qiu, Y. L., Kahn, M. E., & Xing, B. (2019). Quantifying the rebound effects of residential solar panel adoption. *Journal of Environmental Economics and Management, 96*, 310-341. doi:10.1016/j.jeem.2019.06.003

Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s (9241507691). (2014). Retrieved from

Quiggin, J. (2010). *Drought, climate change and food prices in Australia*. Retrieved from https://d3n8a8pro7vhmx.cloudfront.net/auscon/pages/1345/attachments/original/1474000113/Climate_change_and_food_prices_in_Australia.pdf

Quimby, C. C., & Angelique, H. (2011). Identifying barriers and catalysts to fostering pro-environmental behavior: Opportunities and challenges for community psychology. *American Journal of Community Psychology, 47*, 388-396. doi:10.1007/s10464-010-9389-7

Rana, J., & Paul, J. (2017). Consumer behavior and purchase intention for organic food: A review and research agenda. *Journal of Retailing and Consumer Services, 38*, 157-165. doi:10.1016/j.jretconser.2017.06.004

Reed, A., Forehand, M. R., Puntoni, S., & Warlop, L. (2012). Identity-based consumer behavior. *International Journal of Research in Marketing, 29*, 310-321. doi:10.1016/j.ijresmar.2012.08.002

Rege, M., & Telle, K. (2004). The impact of social approval and framing on cooperation in public good situations. *Journal of Public Economics, 88*, 1625-1644. doi:10.1016/S0047-2727(03)00021-5

Richins, M. L. (2004). The material values scale: Measurement properties and development of a short form. *Journal of Consumer Research, 31*, 209-219. doi:10.1086/383436

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy sciences, 4*, 155-169. doi:10.1007/BF01405730

Roy, D., Verplanken, B., & Griffin, C. (2015). Making sense of sustainability: Exploring the subjective meaning of sustainable consumption. *Applied Environmental Education & Communication, 14*, 187-195. doi:10.1080/1533015X.2015.1067581

Roy, J. (2000). The rebound effect: some empirical evidence from India. *Energy Policy, 28*, 433-438. doi:10.1016/S0301-4215(00)00027-6

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology, 25*, 54-67. doi:10.1006/ceps.1999.1020

Ryland, E. (2000). Gaia rising: A Jungian look at environmental consciousness and sustainable organizations. *Organization & Environment, 13*, 381-402. doi:10.1177/1086026600134001

Saad, G. (2007). *The evolutionary bases of consumption*. London: Psychology Press.

Saad, G. (2013). Evolutionary consumption. *Journal of Consumer Psychology, 23*, 351-371. doi:10.1016/j.jcps.2013.03.002

Sachdeva, S., Jordan, J., & Mazar, N. (2015). Green consumerism: moral motivations to a sustainable future. *Current Opinion in Psychology, 6*, 60-65. doi:10.1016/j.copsyc.2015.03.029

Sadalla, E. K., & Krull, J. L. (1995). Self-presentational barriers to resource conservation. *Environment and Behavior, 27*, 328-353. doi:10.1177/0013916595273004

Sánchez-Bayo, F., & Wyckhuys, K. A. (2019). Worldwide decline of the entomofauna: A review of its drivers. *Biological Conservation, 232*, 8-27. doi:10.1016/j.biocon.2019.01.020

Sanne, C. (2002). Willing consumers—or locked-in? Policies for a sustainable consumption. *Ecological economics*, *42*(1-2), 273-287.

Santarius, T., & Soland, M. (2018). How technological efficiency improvements change consumer preferences: Towards a psychological theory of rebound effects. *Ecological Economics, 146*, 414-424. doi:10.1016/j.ecolecon.2017.12.009

Sarason, S. B. (1982). *Psychology and social action: Selected papers*: Praeger Publishers.

Sarkki, S., & Heikkinen, H. I. (2015). Why do environmentalists not consider compromises as legitimate?: Combining value-and process-based explanations from Finnish forest controversies. *Forest Policy and Economics, 50*, 110-117. doi:10.1016/j.forpol.2014.08.004

Schimelpfenig, R. (2017). The Drama of the Anthropocene: Can Deep Ecology, Romanticism, and Renaissance Science Rebalance Nature and Culture? *American Journal of Economics and Sociology, 76*, 821-1081. doi:10.1111/ajes.12196

Schmidt, A., Ivanova, A., & Schäfer, M. S. (2013). Media attention for climate change around the world: A comparative analysis of newspaper coverage in 27 countries. *Global Environmental Change, 23*, 1233-1248. doi:10.1177/1748048513504169

Schultz, P. W. (2002). Inclusion with nature: The psychology of human-nature relations. In *Psychology of sustainable development* (pp. 61-78). Springer.

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*, 429-434. doi:10.1111/j.1467-9280.2007.01917.x

Schultz, P. W., & Tabanico, J. (2007). Self, identity, and the natural environment: Exploring implicit connections with nature. *Journal of Applied Social Psychology, 37*, 1219-1247. doi:10.1111/j.1559-1816.2007.00210.x

Seamon, D., & Gill, H. K. (2016). Qualitative approaches to environment-behavior research. In R. Gifford (Ed.), *Research methods for environmental psychology*. New York: Blackwell.

Sexton, S. E., & Sexton, A. L. (2014). Conspicuous conservation: The Prius halo and willingness to pay for environmental bona fides. *Journal of Environmental Economics and Management, 67*, 303-317. doi:10.1016/j.jeem.2013.11.004

Sharples, J. J., Cary, G. J., Fox-Hughes, P., Mooney, S., Evans, J. P., Fletcher, M.-S., . . . Baker, P. (2016). Natural hazards in Australia: extreme bushfire. *Climatic Change, 139*, 85-99. doi:10.1007/s10584-016-1811-1

Sheth, J. N., Sethia, N. K., & Srinivas, S. (2011). Mindful consumption: a customer-centric approach to sustainability. *Journal of the Academy of Marketing Science, 39*, 21-39. doi:10.1007/s11747-010-0216-3

Simms, R. (2013). The Australian Greens and the moral middle class.

Smith, T. F., Thomsen, D. C., & Keys, N. (2011). The Australian experience. In *Climate Change Adaptation in Developed Nations* (pp. 69-84). Springer, Dordrecht.

Snyder-Beattie, A. E., Ord, T., & Bonsall, M. B. (2019). An upper bound for the background rate of human extinction. *Scientific reports, 9*, 11054. doi:10.1038/s41598-019-47540-7

Solomon, S. (2007). The physical science basis: Contribution of Working Group I to the fourth assessment report of the Intergovernmental Panel on Climate Change. *Intergovernmental Panel on Climate Change (IPCC), Climate change 2007*.

Soron, D. (2010). Sustainability, self-Identity and the sociology of consumption. *Sustainable Development, 18*, 172-181. doi:10.1002/Sd.457

Sörqvist, P. (2016). Grand challenges in environmental psychology. *Frontiers in psychology, 7*, 583. doi:10.3389/fpsyg.2016.00583

Sovacool, B. K. (2009a). The cultural barriers to renewable energy and energy efficiency in the United States. *Technology in Society, 31*, 365-373. doi:10.1016/j.techsoc.2009.10.009

Sovacool, B. K. (2009b). The intermittency of wind, solar, and renewable electricity generators: Technical barrier or rhetorical excuse? *Utilities Policy, 17*, 288-296. doi:10.1016/j.jup.2008.07.001

Sparks, P., & Shepherd, R. (1992). Self-identity and the theory of planned behavior: Assesing the role of identification with "green consumerism". *Social Psychology Quarterly, 55*, 388-399. doi:10.2307/2786955

State of the Environment Committee. (2011). *Australia state of the environment 2011. Independent report to the Australian Government Minister for Sustainability, Environment, Water*. Retrieved from http://155.187.2.69/soe/2011/report/index.html

Steffen, W., Persson, A., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., . . . Svedin, U. (2011). The anthropocene: from global change to planetary stewardship. *Ambio, 40*, 739-761. doi:10.1007/s13280-011-0185-x

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. doi:10.1016/j.jenvp.2014.01.002

Steg, L., Perlaviciute, G., van der Werff, E., & Lurvink, J. (2012). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behavior, 46*, 163-192. doi:10.1177/0013916512454730

Steg, L., van den Berg, A. E., & De Groot, J. I. (2012). *Environmental psychology: An introduction*: John Wiley & Sons.

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology, 29*, 309-317. doi:10.1016/j.jenvp.2008.10.004

Steinfeld, H., Gerber, P., Wassenaar, T., Castel, V., Rosales, M., Rosales, M., & de Haan, C. (2006). *Livestock's long shadow: environmental issues and options*: Food & Agriculture Org.

Stern, P. C. (1992). What psychology knows about energy conservation. *American Psychologist, 47*, 1224. doi:10.1037/0003-066X.47.10.1224

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*, 407-424. doi:10.1111/0022-4537.00175

Stern, P. C. (2011). Contributions of Psychology to Limiting Climate Change. *American Psychologist, 66*(4), 303-314. doi:10.1037/A0023235

Stern, P. C., & Gardner, G. T. (1981). Psychological research and energy policy. *American Psychologist, 36*, 329. doi:10.1037/0003-066X.36.4.329

Stets, J., & Burke, P. (2002). A Sociological Approach to Self and Identity.

Stock, A. (2014). *Australia's electricity sector: Ageing inefficient and unprepared*. Retrieved from Australia: http://www.climatecouncil.org.au/uploads/f9ba30356f697f238d0ae54e913b3faf.pdf

Stocker, T. F., Qin, D., Plattner, G.-K., Tignor, M., Allen, S. K., Boschung, J., . . . Midgley, P. M. (2013). Climate change 2013: The physical science basis. In: Cambridge University Press Cambridge.

Strife, S. (2010). Reflecting on environmental education: Where is our place in the green movement? *Journal of Environmental Education, 41*, 179-191. doi:10.1080/00958960903295233

Stuart, A., Thomas, E. F., & Donaghue, N. (2018). "I don't really want to be associated with the self-righteous left extreme": Disincentives to participation in collective action. *Journal of Social and Political Psychology, 6*.

Sturman, E. D., Dufford, A., Bremser, J., & Chantel, C. (2017). Status striving and hypercompetitiveness as they relate to overconsumption and climate change. *Ecopsychology, 9*, 44-50. doi:10.1089/eco.2016.0027

Suri, H. (2011). Purposeful sampling in qualitative research synthesis. *Qualitative Research Journal, 11*, 63-75. doi:10.3316/QRJ1102063

Swim, J. K., Stern, P. C., Doherty, T., Clayton, S., Reser, J. P., Weber, E. U., . . . Howard, G. S. (2011). Psychology's contributions to understanding and addressing global climate change. *American Psychologist, 66*, 241-250. doi:10.1037/A0023220

Swinburn, B. A., Kraak, V. A., Allender, S., Atkins, V. J., Baker, P. I., Bogard, J. R., . . . Dietz, W. H. (2019). The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. *The Lancet, 393*, 791-846. doi:10.1016/S0140-6736(18)32822-8

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5): Pearson Boston, MA.

Tajfel, H. (1974). Social identity and intergroup relations. *Trends and Developments, 13*, 65-93. doi:10.1177/053901847401300204

Tajfel, H. (1981). Human groups and social categories: Studies in social psychology. *Studies in Social Psychology, 1*, 209-211.

Tajfel, H., Turner, J. C., Austin, W. G., & Worchel, S. (1979). An integrative theory of intergroup conflict. In *Organizational identity: A reader* (pp. 56-65).

Talberg, A., Hui, S., & Loynes, K. (2016). Australian climate change policy to 2015: a chronology. *Parliamentary Library*. Retrieved from https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/4590624/upload_binary/4590624.pdf;fileType=application/pdf

Tanner, T., Lewis, D., Wrathall, D., Bronen, R., Cradock-Henry, N., Huq, S., . . . Rahman, M. A. (2015). Livelihood resilience in the face of climate change. *Nature Climate Change, 5*, 23. doi:10.1038/NCLIMATE2431

Taufik, D., Bolderdijk, J. W., & Steg, L. (2015). Acting green elicits a literal warm glow. *Nature Climate Change, 5*, 37. doi:10.1038/nclimate2449

Teo, T. (2006). *The critique of psychology: From Kant to postcolonial theory*. New York, USA: Springer Science & Business Media.

Terry, D. J., Hogg, M. A., & White, K. M. (1999). The theory of planned behaviour: Self-identity, social identity and group norms. *The British Journal of Social Psychology, 38*, 225. doi:10.1348/014466699164149

Thøgersen, J., & Crompton, T. (2009). Simple and painless? The limitations of spillover in environmental campaigning. *Journal of consumer policy, 32*, 141-163. doi:10.1007/s10603-009-9101-1

Thogersen, J., & Olander, F. (2002). Human values and the emergence of a sustainable consumption pattern: A panel study. *Journal of Economic Psychology, 23*, 605-630. doi:10.1016/S0167-4870(02)00120-4

Thøgersen, J., & Ölander, F. (2003). Spillover of environment-friendly consumer behaviour. *Journal of Environmental Psychology, 23*, 225-236. doi:10.1016/S0272-4944(03)00018-5

Thomas, E. F., & Louis, W. R. (2013). Doing democracy: The social psychological mobilization and consequences of collective action. *Social Issues and Policy Review, 7*, 173-200. doi:10.1111/j.1751-2409.2012.01047.x

Tiefenbeck, V., Staake, T., Roth, K., & Sachs, O. (2013). For better or for worse? Empirical evidence of moral licensing in a behavioral energy conservation campaign. *Energy Policy, 57*, 160-171. doi:10.1016/j.enpol.2013.01.021

Tollefson, J. (2018). IPCC says limiting global warming to 1.5 C will require drastic action. *Nature, 562*(7726), 172-173.

Tolman, C. W. (2012). *Positivism in psychology: Historical and contemporary problems*. New York: Springer Science & Business Media.

Tranter, B. (2010). Environmental activists and non-active environmentalists in Australia. *Environmental Politics, 19*, 413-429. doi:10.1080/09644011003690898

Tranter, B. (2013). The great divide: Political candidate and voter polarisation over global warming in Australia. *Australian Journal of Politics & History, 59*, 397-413. doi:10.1111/ajph.12023

Tranter, B. (2014). Social and political influences on environmentalism in Australia. *Journal of Sociology, 50*, 331-348. doi:10.1177/1440783312459102

Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenbergh, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An integrative review and theoretical framework. *Global Environmental Change, 29*, 127-138. doi:10.1016/j.gloenvcha.2014.09.004

Turner, J. C., & Tajfel, H. (1986). The social identity theory of intergroup behavior. *Psychology of intergroup relations, 5*, 7-24.

Twenge, J. M., & Foster, J. D. (2010). Birth cohort increases in narcissistic personality traits among American college students, 1982–2009. *Social Psychological and Personality Science, 1*, 99-106. doi:10.1177/1948550609355719

Twigger-Ross, C., Bonaiuto, M., & Breakwell, G. (2003). Identity theories and environmental psychology. In. Ashgate: University of Bath.

Udall, M., De Groot, J.I.M. & De Jong, S.B. (2017). *Identities in Environmentally Significant Behavior: A Factor-Analytical Approach*. Paper presented at the International Conference on Environmental Psychology, A Coruna, Spain.

UN. (2017). *The sustainable development goals report 2017*. Retrieved from New York: https://unstats.un.org/sdgs/files/report/2017/TheSustainableDevelopmentGoalsReport2017.pdf

UN. (2018). *Emissions Gap Report 2018*. Retrieved from http://wedocs.unep.org/bitstream/handle/20.500.11822/26895/EGR2018_FullReport_EN.pdf?sequence=1&isAllowed=y

Unsworth, K. L., Dmitrieva, A., & Adriasola, E. (2013). Changing behaviour: Increasing the effectiveness of workplace interventions in creating pro-environmental behaviour change. *Journal of Organizational Behavior*, *34*(2), 211-229. https://doi.org/10.1002/job.1837

Uren, H. V., Dzidic, P. L., & Bishop, B. J. (2015). Exploring social and cultural norms to promote ecologically sensitive residential garden design. *Landscape and Urban Planning, 137*, 76-84. doi:10.1016/j.landurbplan.2014.12.008

Uren, H. V., Dzidic, P. L., Roberts, L. D., Leviston, Z., & Bishop, B. J. (2019). Green-tinted glasses: How do pro-environmental citizens conceptualize environmental sustainability? *Environmental Communication*, 1-17. doi:10.1080/17524032.2017.1397042

Uren, H. V., Roberts, L. D., Dzidic, P. L., & Leviston, Z. (2019). High-Status Pro-Environmental Behaviors: Costly, Effortful, and Visible. *Environment and Behavior*, 1-30. doi:10.1177/0013916519882773

Uzzell, D., & Räthzel, N. (2009). Transforming environmental psychology. *Journal of Environmental Psychology, 29*, 340-350. doi:10.1016/j.jenvp.2008.11.005

Van Boven, L. (2005). Experientialism, materialism, and the pursuit of happiness. *Review of general psychology, 9*, 132-142. doi:10.1037/1089-2680.9.2.132

van Dam, Y. K., & van Trijp, H. C. M. (2011). Cognitive and motivational structure of sustainability. *Journal of Economic Psychology, 32*, 726-741. doi:10.1016/j.joep.2011.06.002

van der Linden, S. (2018). Warm glow is associated with low-but not high-cost sustainable behaviour. *Nature Sustainability, 1*, 28. doi:10.1038/s41893-017-0001-0

van der Wal, A. J., van Horen, F., & Grinstein, A. (2016). The paradox of 'green to be seen': Green high-status shoppers excessively use (branded) shopping bags. *International Journal of Research in Marketing, 33*, 216-219. doi:10.1016/j.ijresmar.2015.11.004

van der Werff, E. (2013). *Growing Environmental Self-identity.* (Doctoral disertation), University of Groningen, Retrieved from http://www.rug.nl/research/portal/files/2347793/20130819_elektronischeversie.pdf

van der Werff, E., & Steg, L. (2018). Spillover Benefits: Emphasizing Different Benefits of Environmental Behavior and Its Effects on Spillover. *Frontiers in psychology, 9*. doi:10.3389/fpsyg.2018.02347

van der Werff, E., Steg, L., & Keizer, K. (2013a). It is a moral issue: The relationship between environmental self-identity, obligation-based intrinsic motivation and pro-environmental behaviour. *Global Environmental Change, 23*, 1258-1265. doi:10.1016/j.gloenvcha.2013.07.018

van der Werff, E., Steg, L., & Keizer, K. (2013b). The value of environmental self-identity: The relationship between biospheric values, environmental self-identity and environmental preferences, intentions and behaviour. *Journal of Environmental Psychology, 34*, 55-63. doi:10.1016/j.jenvp.2012.12.006

van der Werff, E., Steg, L., & Keizer, K. (2014). I am what I am, by looking past the present the influence of biospheric values and past behavior on environmental self-identity. *Environment and Behavior, 46*, 626-657. doi:10.1177/0013916512475209

Van Kasteren, Y. (2012). *Why are some people more environmentally sustainable than others? An exploration of how values and identity motivate sustainable behaviour.* University of Queensland, Queensland, Australia.

Van Rompay, T. J., Vonk, D. J., & Fransen, M. L. (2009). The eye of the camera: Effects of security cameras on prosocial behavior. *Environment and Behavior, 41*, 60-74. doi:10.1177/0013916507309996

Veblen, T. (1899). *The theory of the leisure class*. New York: The New American Library.

Venn, D., Banwell, C., & Dixon, J. (2017). Australia's evolving food practices: a risky mix of continuity and change. *Public Health Nutrition, 20*, 2549-2558. doi:10.1017/S136898001600255X

Vesely, S., & Klöckner, C. A. (2018). How anonymity and norms influence costly support for environmental causes. *Journal of Environmental Psychology, 58*, 27-30. doi:10.1016/j.jenvp.2018.07.013

Vining, J., Merrick, M. S., & Price, E. A. (2008). The distinction between humans and nature: Human perceptions of connectedness to nature and elements of the natural and unnatural. *Human Ecology Review*, 1-11.

Vromen, A. (2005). *Who are the Australian Greens? Surveying the membership.* Paper presented at the Proceedings of the Australian Sociological Association Conference.

Wahlquist, C. (2019). Australia to import wheat for first time in 12 years as drought eats into grain production. *The Guardian*. Retrieved from https://www.theguardian.com/australia-news/2019/may/15/australia-to-import-wheat-for-first-time-in-12-years-as-drought-eats-into-grain-production

Wals, A. E. (2012). *Shaping the education of tomorrow: 2012 full-length report on the UN decade of education for sustainable development*: UNESCO Paris, France.

Watts, J. (2019). 'Biggest compliment yet': Greta Thunberg welcomes oil chief's 'greatest threat' label. *The Guardian* Retrieved from https://www.theguardian.com/environment/2019/jul/05/biggest-compliment-yet-greta-thunberg-welcomes-oil-chiefs-greatest-threat-label

Watts, N., Adger, W. N., Ayeb-Karlsson, S., Bai, Y., Byass, P., Campbell-Lendrum, D., . . . Depledge, M. (2017). The Lancet Countdown: tracking progress on health and climate change. *The Lancet, 389*(10074), 1151-1164. doi:10.1016/S0140-6736(16)32124-9

Watzlawick, P., Weakland, J. H., & Fisch, R. (1974). *Change: Principles of problem formation and problem resolution*: WW Norton & Company.

Weisse, M., & Goldman, E. D. (2019). 2017 Was the Second-Worst Year on Record for Tropical Tree Cover Loss. *World Resources Institute*. Retrieved from https://www.wri.org/blog/2018/06/2017-was-second-worst-year-record-tropical-tree-cover-loss

Welte, T. H., & Anastasio, P. A. (2010). To conserve or not to conserve: Is status the question? *Environment and Behavior, 42*, 845-863. doi:10.1177/0013916509348461

Wertz, F. J. (2011). The qualitative revolution and psychology: Science, politics, and ethics. *The Humanistic Psychologist, 39*, 77-104. doi:10.1080/08873267.2011.564531

Whitburn, J., Linklater, W., & Abrahamse, W. (2019). Meta-analysis of human connection to nature and proenvironmental behavior. *Conservation Biology*. doi:10.1111/cobi.13381

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychol Rev, 66*, 297.

Whitmarsh, L. (2009). Behavioural responses to climate change: Asymmetry of intentions and impacts. *Journal of Environmental Psychology, 29*, 13-23. doi:10.1016/j.jenvp.2008.05.003

Whitmarsh, L. (2011). Scepticism and uncertainty about climate change: Dimensions, determinants and change over time. *Global Environmental Change-Human and Policy Dimensions, 21*, 690-700. doi:10.1016/j.gloenvcha.2011.01.016

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.

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*, 305-314. doi:10.1016/j.jenvp.2010.01.003

WHO (Producer). (2015). Climate change and human health. Retrieved from https://www.who.int/globalchange/global-campaign/cop21/en/

Wilhite, H., & Lutzenhiser, L. (1999). Social loading and sustainable consumption. *ACR North American Advances, 26*, 281-287.

Wilk, R. R., & Wilhite, H. L. (1985). Why don't people weatherize their homes? An ethnographic solution. *Energy, 10*, 621-629. doi:10.1016/0360-5442(85)90093-3

Williams, P., Pocock, B., & Skinner, N. (2008). “Clawing back time”: expansive working time and implications for work—life outcomes in Australian workers. *Work, Employment and Society, 22*, 737-748. doi:10.1177/0950017008096745

Winkel, G., Saegert, S., & Evans, G. W. (2009). An ecological perspective on theory, methods, and analysis in environmental psychology: Advances and challenges. *Journal of Environmental Psychology, 29*, 318-328. doi:10.1016/j.jenvp.2009.02.005

Wolf, J., & Moser, S. C. (2011). Individual understandings, perceptions, and engagement with climate change: insights from in-depth studies across the world. *Wiley Interdisciplinary Reviews: Climate Change, 2*, 547-569. doi:10.1002/wcc.120

Wooden, M., & Drago, R. (2009). The changing distribution of working hours in Australia. In *Laggards and Leaders in Labour Market Reform* (pp. 87-102): Routledge.

Wright, C., Nyberg, D., & Grant, D. (2012). “Hippies on the third floor”: Climate change, narrative identity and the micro-politics of corporate environmentalism. *Organization studies, 33*, 1451-1475. doi:10.1177/0170840612463316

WWF. (2016). *Living Planet Report 2016. Risk and resilience in a new era.* Retrieved from Gland, Switzerland: http://awsassets.panda.org/downloads/lpr_living_planet_report_2016.pdf

WWF. (2018). *Backyard Barometer 2018: Environmental concern on the rise*. Retrieved from http://www.wwf.org.au/knowledge-centre/resource-library/resources/backyard-barometer#gs.KZ3mELM

Yacoumis, P. (2017). Making Progress? Reproducing Hegemony Through Discourses of “Sustainable Development” in the Australian News Media. *Environmental Communication*, 14. doi:10.1080/17524032.2017.1308405

Zahavi, A. (1975). Mate selection—a selection for a handicap. *Journal of Theoretical Biology, 53*, 205-214. doi:10.1016/0022-5193(75)90111-3

Zhang, K., Douglas, B. C., & Leatherman, S. P. (2004). Global warming and coastal erosion. *Climatic Change, 64*, 41. doi:10.1023/B:CLIM.0000024690.32682.48

Zhou, S. L., & Heckelei, T. (2015). *Going Green for Esteem: An Extended Uzawa-Lucas Model with Status Driven Environmentalism*. Retrieved from https://ageconsearch.umn.edu/record/206560/

Appendices

Appendix A Chapter 3- Manuscript Reuse

Appendix B Ethics Approval Letter

Curtin University

Memorandum

To	Associate Professor Brian Bishop
From	Dr Moira O'Connor
Subject	Approval for form C ethics
Date	25 November 2014
Copy	Dr Peta Dzidic, Hannah Velure Uren

Office of Research and Development

Human Research Ethics Committee

Telephone 9266 2784
Facsimile 9266 3793
Email hrec@curtin.edu.au

Thank you for your "Form C Application for Approval of Research with Low Risk (Ethical Requirements)" for stage 1 of the project titled *"What does it mean to be green? An ecological investigation of environmental attitudes and identity in Australia"*. On behalf of the Human Research Ethics Committee, I am authorised to inform you that the project is approved.

Approval of this project is for a period of 4 years **25th November 2014 to 25th November 2018**.

Your approval has the following conditions:

(i) Annual progress reports on the project must be submitted to the Ethics Office.

(ii) **It is your responsibility, as the researcher, to meet the conditions outlined above and to retain the necessary records demonstrating that these have been completed.**

The approval number for your project is **PSY SP 2014-78.** Please quote this number in any future correspondence. If at any time during the approval term changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately.

[redacted]

Dr Moira O'Connor
Senior Research Fellow
School of Psychology and Speech Pathology | Faculty of Health Sciences

Curtin University
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Please Note: The following standard statement must be included in the information sheet to participants:
This study has been approved under Curtin University's process for lower-risk Studies (Approval Number xxxx). This process complies with the National Statement on Ethical Conduct in Human Research (Chapter 5.1.7 and Chapters 5.1.18-5.1.21).

Appendix C Chapter 3- Letter of Contribution

Curtin University

School Of Psychology

GPO Box U1987
Perth Western Australia 6845

22 August 2019

To whom it may concern,

I, Hannah Velure Uren was the major contributor to the conceptualisation and coordination of the research resulting in the following paper:

Uren, H. V., Dzidic, P. L., Roberts, L. D., Leviston, Z., & Bishop, B. J. (2019). Green-tinted glasses: how do pro-environmental citizens conceptualize environmental sustainability?. *Environmental Communication*, 13, 395-411. doi: 10.1080/17524032.2017.1397042

I am the lead author, and it was primarily my responsibility to conceptualise, collect and analyse data, write and edit the paper above. This paper is included as a chapter in my PhD thesis.

Kind regards,
Hannah Velure Uren

I, Doctor Peta Louise Dzidic, endorse Hannah Velure Uren's contribution to the above-mentioned paper.

[redacted]

Peta Louise Dzidic:

I, Associate Professor Lynne Roberts, endorse Hannah Velure Uren's contribution to the above-mentioned paper.

[redacted]

Lynne Diane Roberts

I, Doctor Zoe Leviston, endorse Hannah Velure Uren's contribution to the above-mentioned paper.

[redacted]

Zoe Leviston

I, Associate Professor Brian Bishop, endorse Hannah Velure Uren's contribution to the above-mentioned paper.

[redacted]

Brian John Bishop

Appendix D Chapter 6- Letter of Contribution

Curtin University

School Of Psychology

GPO Box U1987
Perth Western Australia 6845

20 November 2019

To whom it may concern,

I, Hannah Velure Uren was the major contributor to the conceptualisation and coordination of the research resulting in the following paper:

Uren, H. V., Roberts, L. D., Dzidic, P. L., & Leviston, Z. (2019). High-Status Pro-Environmental Behaviors: Costly, Effortful, and Visible. *Environment and Behavior*, doi: 10.1177/0013916519882773.

I am the lead author, and it was primarily my responsibility to conceptualise, collect and analyse data, write and edit the paper above. This paper is included as a chapter in my PhD thesis.

Kind regards,
Hannah Velure Uren

I, Associate Professor Lynne Roberts, endorse Hannah Velure Uren's contribution to the above mentioned paper,

Lynne Diane Roberts:

[redacted]

I, Doctor Peta Louise Dzidic, endorse Hannah Velure Uren's contribution to the above mentioned paper,

Peta Louise Dzidic:

[redacted]

I, Doctor Zoe Leviston, endorse Hannah Velure Uren's contribution to the above mentioned paper, as specified above.

Zoe Leviston:

[redacted]