Aiming for sustainability:
How do feelings of collective guilt impact ecological friendliness?

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STATEMENT ON THE CONTRIBUTION OF OTHERS

Nature of Assistance	Contribution	Names, Titles and Affiliations of Co-Contributors
Intellectual support	Statistical Support	Dr Nerina Caltabiano
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DECLARATION ON ETHICS

The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the National Statement on Ethical Conduct in Research Involving Humans (1999), the *Joint NHMRC/AVCC Statement and Guidelines on Research (1997),* and the *James Cook University Policy on Experimentation Ethics, Standard Practices and Guidelines (2001)*. The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (approval numbers H3064, H3243, H3875, H3876, H3877 and H3964).

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PUBLICATIONS RELEVANT TO THE THESIS

A manuscript based on Study 1has been published in the Journal of Tropical Psychology:

> Pensini, P. M. & Caltabiano, N. J. (2012). Collective guilt and attitudes toward recycling: Data from a North Queensland sample. *Journal of Tropical Psychology, 2*(5), 1–7.

A manuscript based on Study 3 has been published in the international journal, Management of Environmental Quality:

> Pensini, P. M., Slugoski, B. R., & Caltabiano, N. J. (2012). Predictors of environmental behaviour: A comparison of known groups. *Management of Environmental Quality: An International Journal, 23*(5), 536–545.

Both of these publications were designed, conducted, analysed and written-up by the candidate under the supervision of Nerina Caltabiano and Ben Slugoski. In both of these papers, the candidate took the lead role, including in the design, conduct, analysis and write up, with supervisors commenting on drafts of the manuscript.

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ABSTRACT

It has been widely acknowledged that the current consumption behaviours of developed nations cannot continue unchanged, and that steps toward sustainability are required to avoid destroying the biosphere beyond habitability. Ecological challenges can be conceptualised as an example of a commons dilemma, and as a social justice issue, as many groups that are innocent with respect to causing these challenges are predicted to experience great suffering as a result of the continuing actions of developed nations. The majority of research into ecological friendliness has focussed on contributions from the individual level of analysis; however, due to the intergroup nature of ecological harm, group behaviour can provide potent influences on the emotions and behaviour of ingroup members. Indeed, feelings of collective guilt may result when members of perpetrator groups acknowledge the immorality of their ingroup's actions, with these feelings motivating attempts at reparation. Indeed, this thesis investigated the application of feelings of collective guilt within the ecological domain in members of one developed nation, Australia, through seven studies.

With the first aim of demonstrating a preliminary relationship between, to avoid criterion contamination, general feelings of collective guilt and one aspect of ecological friendliness, Study 1 was conducted. This study demonstrated that general feelings of collective guilt were positively related to attitudes toward recycling; however, their relationship with reported recycling behaviour failed to reach significance. It was thus reasoned that, while general collective guilt feelings may be sufficient when considering ecologically-friendly attitudes, an assessment of ecologically-specific collective guilt would likely show a stronger relationship with ecological behaviour.

As ecological behaviour was reasoned to be cooperative as it generally costs the individual and benefits others, and, as feelings of collective guilt emerge from the acknowledgment of unjust harm doing to other groups, their origins were also reasoned to be cooperative. As a result, Study 2 tested a mediation model that feelings of ecologically-specific collective guilt would mediate the positive relationship that would be found between the tendency to make cooperative decisions involving the distribution of finite funds and the everyday ecologically-friendly behaviour individuals reported. Support was found for the cooperative origins of both ecologically-friendly behaviour as well as feelings of collective guilt. Feelings of ecologically-specific collective guilt, at least partially, mediated the relationship between cooperative decisions involving

innocent others and ecologically-friendly behaviour.

Study 3 aimed to demonstrate the ecological validity of collective guilt feelings by demonstrating their increased presence in members of Environmentalist groups when compared to community groups not invested in the ecological domain, such as Performance Car Enthusiasts. This study also conducted similar comparisons between Older and Younger groups and assessed a host of other individual difference variables including tendencies to cooperate. This was in an attempt to provide some insight into both the causes of ecological friendliness as well as the motivations for membership in these groups. Indeed, evidence was found for the ecological validity of feelings of collective guilt in that they were reported more by the Environmentalist group members. They also exemplified greater cooperation, stronger social and personal norms regarding the environment, a more internal locus of control, and identified less with Australia than Performance Car Enthusiasts. Interestingly, young people engaged in less ecological behaviour, cooperated less, had a more external locus of control, and identified less with Australia, than did the older people. This study, once again, suggested that cooperation may be a key antecedent for the occurrence of ecological behaviour, with feelings of collective guilt emerging in some individuals.

Studies 4, 5 and 6 investigated the application of collective guilt feelings within terror management theory. As individual-level contributions to self-esteem have traditionally been investigated with the mortality salience hypothesis, Study 4 first sought to demonstrate that, just like individual environmentally-relevant self-esteem, feelings of ecologically-specific collective guilt would moderate the effects of mortality salience on ecological concern. Study 5 sought to separate the effects of these contributions to self-esteem (individual and group) by employing an ingroup privilege or outgroup disadvantage reminder. In what was reasoned to be due to a failure to sufficiently engage with the mortality prime, mortality salience effects were not found in either study and, as such, Study 6 was conducted utilising a modified procedure. For what appears to be the same reason, mortality salience effects were still not obtained. In congruence with the previous studies, subsequent investigation into the data gathered revealed the expected positive relationships between feelings of collective guilt and the ecologically-friendly dependent variables.

As the prior results were all conducted within a correlational framework, Study 7 aimed to demonstrate the causal role of collective guilt feelings in increasing ecological friendliness. A negative ingroup history reminder was found to increase green

purchasing. Despite not showing an increase in explicit feelings of ecologically-specific collective guilt, it was reasoned that feelings of implicit collective guilt may account for this relationship. As limited investigation into the relationship between instances of ecological behaviour has been conducted, this study also provided a subsequent opportunity at ecological friendliness. As ingroup identification influences how group-relevant information is treated, any ecologically-friendly behaviour witnessed in those inclined toward ingroup glorification may be due to self-focussed efforts at regaining emotional homeostasis. As such, ecologically-friendly behaviour was not expected, or found, to be maintained in these individuals and, in fact, it declined. For precisely opposite reasons, those more critically attached to the ingroup demonstrated a positive relationship between instances of ecological behaviour in what appears an attempt toward outgroup cooperation.

In combination, these results demonstrate that feelings of collective guilt are positively related to ecological friendliness, and suggest that considering the intergroup nature of ecological harm as well as ingroup behaviour is important for understanding ecological friendliness. While feelings of collective guilt are an appropriate response for members of developed nations, the manner in which one identifies with the ingroup appears to have differential effects on the longevity of any ecological friendliness that may result. Despite any immediate effects of negative group-based emotions such as collective guilt, achieving sustainability and therefore intergroup justice appears a possibility only through outgroup cooperation.

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CHAPTER 1: EXPLANATION OF ECOLOGICAL PROBLEMS: AN INTRODUCTION

> "[We] demand to the countries that have over-consumed the atmospheric space to acknowledge their historic and current responsibilities for the causes and adverse effects of climate change, and to honor their climate debts to developing countries, to vulnerable communities in their own countries, to our children's children and to all living beings in our shared home – Mother Earth." (WPCCC, 2010)

The global climate has shown several relatively rapid changes over recent years; and although climate change is a naturally occurring phenomenon, the actions of humans can influence this process. Indeed, there is overwhelming evidence that the modern world is currently facing ecological concerns that are, at least partly, due to the actions of humans, the most notable of which is global climate change (IPCC, 2007; Stern, 2007). While developing nations may have many localised environmental issues, the actions of those in developed nations in particular are negatively impacting the environment on a global scale (IPCC, 2007; Stern, 2007). The continued unsustainable actions by those in developed nations can be conceptualised as a social justice issue, as the ecological consequences resulting from the actions of developed nations are predicted to be endured unequally across the globe. Many groups largely innocent with respect to contributing to global ecological issues will disproportionately experience the negative effects predicted to result from the ecologically-unsustainable actions of these nations. Thus, underpinning current ecological injustices are notions of cooperation between developed nations and those who will suffer the negative outcomes of their actions.

Understanding what motivates some individuals in developed nations to be ecologically friendly and what may inhibit others is a relevant task for psychology. This chapter will first start with a conceptual explanation of ecological problems, what is meant by ecological friendliness, and then outline the numerous groups which will be affected by the ecologically-unsustainable actions of developed nations. Factors identified in the literature that may encourage or inhibit ecological behaviour will be covered in Chapter 2, before moving on to focus on one morally-relevant emotion, collective guilt, as an avenue

for understanding and potentially increasing ecological friendliness in members of developed nations (Chapter 3). The remainder of this thesis (Chapters 4 to 11) will deal with theoretical, methodological, and empirical elements that accompany this application of collective guilt emotions. The specific outline of the remaining chapters of this thesis is provided in the final section of this chapter.

Explanation of Ecological Problems

Behavioural economics and economic theory can be utilised to understand the decision-making processes that may be underlying ecologically-relevant behaviour. In general, economic theory relies on the notion of the 'rational individual' whereby individuals act out of self-interest to minimise costs and to maximise personal gain, and includes models such as the Expected Utility Model (Darnton, 2008). In this behavioural economic sense, ecological problems can be conceptualised as a commons dilemma. Commons dilemmas are social dilemmas that follow the notion of maximising gains and minimising losses pertaining to the usage of a shared, or collective, good utilised by many different parties (Hardin, 1968). This collective good can be utilised sustainably; however, it can also be used unsustainably, i.e. exploited, to achieve personal gain (Hardin, 1968). If sufficient exploitation of the resource occurs, despite providing an increased short-term gain for that party, the resource will eventually become depleted and unusable by all parties. While those involved in the exploitation directly benefit from their increased use, the costs are distributed across all parties using the resource. With this realisation, those involved in sharing the resource have to decide how they are to utilise it. If they do exercise a restrained usage, they run the risk of others exploiting it while they still suffer the consequences of over-exploitation. If they were to over-use the resource, while the resource may still become depleted, they at least experience the benefits of the over-exploitation. As Hardin (1968) explains, while being collectively irrational, over-exploiting the resource is the individually-rational course of action. As a result, many shared resources suffer depletion resulting from over-use.

Indeed, the environment is a collective good, meaning it is subject to the risk of over-exploitation; and, due to its collective nature, its availability to one individual means it is also available to all others (Olson, 1971). Thus, the notion of conservation is problematic as, although it makes collective sense to conserve, it makes individual sense to exploit the

environment (Tellegen & Wolsink, 1998). While all human action impacts the natural environment to some extent, as humans need to eat, shelter, defecate, reproduce; not all behaviour may cause lasting detrimental impacts. The use of resources from nature are required for human survival; however, for the last four decades, beginning in the 1970s, there has been growing concern about the rate and extent of this resource use (Tellegen & Wolsink, 1998). This resource use is thought to be unsustainable and to, ultimately, result in resource depletion or changes in climatic conditions to such an extent that may compromise the ability for the planet to sustain human, or even other, life into the future (IPCC, 2007; Stern, 2007). As a result, current ecological issues can be conceptualised as an issue of social justice whereby those in developed nations who are largely responsible for this exploitation do so at the expense of numerous other groups. The quality of life or, indeed, the existence, of these others is dependent upon current actions of developed nations.

Thus, at the core of ecological issues is the notion of cooperation. Specifically, the cooperation of developed nations with the groups in which the resources of the planet are being shared. These outgroups are discussed later in this chapter. It is first necessary, however, to explain what is meant by ecological friendliness.

Ecological Friendliness

The concept of ecological friendliness stems from the notion of the ecological crisis as a commons dilemma, as explained above, which requires the cooperation of developed nations with the numerous groups which will suffer the effects of their unsustainability. Ecological friendliness is reasoned to encompass any attitude, behaviour, concern, or behaviour intention that has ecological relevance. Indeed, contemporary definitions of ecologically-relevant actions hint at their cooperative nature. Ecological behaviour has been defined as “actions which contribute towards environmental preservation and/or conservation” (Axelrod & Lehman, 1993, p.153) and as “intentionally reducing the negative impact that an action can have on the environment” (Kollmuss & Agyeman, 2002, p.240). This includes the multitude of behaviours that may fall under this definition, for example, public sphere behaviours such as volunteering or petitioning governments, as well as private sphere behaviours including energy conservation, recycling, ecologically-friendly transport choices, the purchase of ecologically-friendly products, and reducing consumption. Adding weight to the moral relevance of ecological friendliness are the

findings of Mazar and Zhong (2010). They report that people rated "green" behaviour as more cooperative, altruistic, and ethical than conventional behaviour (Mazar & Zhong, 2010). These findings suggest that ecological issues do indeed possess moral roots.

Furthermore, the concept of ecological sustainability also acknowledges the cooperative nature of ecological friendliness and the notion of the commons dilemma. The explicit acknowledgement of intergroup cooperation is captured in the definition of environmental sustainability, where it has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WECD, 1987, p.43). As ecological behaviour is often more demanding of time, effort and/or resources than not acting in an ecologically-friendly manner, and, as explained by the theory of the commons dilemma, most of the rewards are reaped by others, purposeful ecologically-friendly behaviour is indeed a cooperative behaviour. In fact, Kollock (1998) explains that for cooperative behaviour to occur, the effects of one's behaviour on others must be considered. While the definition of sustainability explicitly states one group, future generations, as an outgroup to which developed nations are to act in cooperation with, other groups may also suffer disadvantage as a result of the unsustainable actions of developed nations.

Outgroups Impacted by Ecological Actions

Ecological harm doing involves the intergroup cooperation of developed nations with the four distinct outgroups that will suffer if ecologically-conscious behaviour do not occur: future generations; developing and ecologically-endangered nations; plants, animals or nature more generally; and the future self. These outgroups are not in a position to alter the behaviour of those currently causing the environmental degradation that will lead to the suffering they will experience and, indeed, may not even be aware of the groups responsible for causing it. This amplifies the pervasiveness of ecologically-unsustainable behaviour by developed nations as a social injustice.

With respect to causing global environmental problems, most of the groups that are predicted to experience the great suffering as a result of the continuing actions of developed nations are innocent with respects to causing the harm. These outgroups are separated from the perpetrator groups by geography, relative disadvantage (including economic strength or infrastructure that may help to minimise the impacts of climate change), or time. These

outgroups exist in different physical locations or at future times will largely be those that experience the impacts of the current unecological behaviour of developed nations (Fischlin, Midgley, Price, Leemans, Gopal, Turley et al., 2007). Each of these outgroups are described in the following sections.

Future Generations

Much of the public discussion on human ecological impacts has focused on the effect of current behaviours on future generations, humans yet unborn, who may inherit an earth that is questionably habitable. This includes *all* people that have not been born yet, including one's own descendants, those of others in one's own group, and those in other groups. The notion of the inheritance of future generations has been so pervasive in the discourse on ecological issues that they have been included in the definition of sustainable development. As stated previously, this definition includes the explicit mention of future generations as an outgroup that may be impacted by current unsustainable actions (see WECD, 1987, p.43). Furthermore, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) has established its *Declaration on the Responsibilities of the Present Generations Towards Future Generations* (UNESCO, 1997). This explicitly states numerous core responsibilities that present generations should assume due to their impacts on future generations, and includes issues surrounding the fair treatment of the natural environment (see UNESCO, 1997, Article 5, p. 2).

The notion of the inheritance of future generations has also dominated much of popular culture in the discussion on the effects of climate change and other ecological issues. For example, politicians such as Australia's Prime Minister, Julia Gillard, have made references to future generations when discussing ecologically-relevant policies, urging voters to consider the impacts on these future people (e.g., Tovey, 2011). Furthermore, the Australian community advocacy organisation "Get Up" has also made reference to future generations when encouraging support for the introduction of a carbon tax, which includes slogans such as "Yes: Price Pollution. Our Kids are Worth It" (Get Up, 2011). Public figures and intellectuals including David Suzuki (e.g., Suzuki, 2010), Newt Gingrich (e.g., Gingrich & Maple, 2007) and Clive Hamilton (e.g., Hamilton, 2010; Hamilton & Denniss, 2005) have all made reference to future generations in their work when discussing the need for environmental sustainability. As shown by these numerous examples, the consideration

of future generations when contemplating ecological issues has been highly pervasive. Despite this, there are other outgroups which will also suffer the impacts of the ecologically-unfriendly actions of developed nations, as outlined in the following sections.

Developing and Ecologically-Endangered Nations

Ecological consequences are predicted to also impact many nations that, unlike developed nations, are either largely or completely innocent with respect to their contribution to these issues. This includes developing nations who, despite possible local ecological issues, remain non-contributors to ecological issues on the global scale. Indeed, the World Health Organisation (WHO) estimated that approximately four million deaths resulted from air and water pollution in the year 2002 alone, most of which were in developing countries (WHO, 2007). Furthermore, these developing countries generally also lack the infrastructure and/or capital to adjust to a changing climate. There are also numerous ecologically-endangered nations, including, among others, the Maldives, Papua New Guinea, Bangladesh, Barbados, and Egypt, whose peoples are predicted to be displaced from their homeland because of rising sea levels resulting from global climate change. These effects on developing and ecologically-endangered nations will likely result in thousands of human deaths and millions of "climate refugees" who will be forced to find new homes. Indeed, according to Furnass (2007), up to 150 million people may be displaced from their homes by the year 2050 as a direct result of rising sea levels or global climate change, with a large proportion of these coming from developing nations.

Plants, Animals and Nature

It can be considered that humans are sharing the planet with other living things, not just other humans, but also other animals, plants, and nature more generally. Intergroup research has generally focussed on the relationships and processes involving *human* groups. It is reasoned that non-humans, namely plants, animals and nature more generally, can be conceptualised as an outgroup in which intergroup processes and collective emotions may also apply. Like the human outgroups described above, plants, animals, and nature as a whole have experienced, and are anticipated to experience, many negative impacts as a result of anthropogenic actions. This includes, for example, all the species that have or will go extinct, lose their habitat or experience diminished quality of life. Like the human outgroups described above, it is contended that non-human outgroups including plants,

animals and nature may be similarly considered by those engaging in ecological behaviour.

There is recognition of this notion within popular culture, with numerous attempts at acknowledging the suffering of all aspects of nature as a result of anthropogenic actions. For example, recently the lawyer Polly Higgins has submitted to the United Nations a proposal for 'ecocide' to be included as a Crime Against Peace, similarly to genocide (see Higgins, 2010). Ecocide has been defined as "the extensive destruction, damage or loss of ecosystem(s) of a given territory, whether by human agency or by other causes, to such an extent that peaceful enjoyment by the inhabitants of that territory has been severely diminished" (Higgins, 2010, p. 63). The intention of Higgins (2010) was to create a legal duty of care whereby the effects of one's actions on the natural environment, and its impacts on the non-humans that reside in it, are to come before human benefit. That is, humans should be held accountable, as they would be for their actions to other humans, for their actions toward the natural environment.

Furthermore, the World People's Conference on Climate Change and the Rights of Mother Earth (WPCCC) held in April 2010 in Cochabamba, Bolivia aimed to develop a Universal Declaration on the Rights of Mother Earth and a Climate Justice Tribunal (WPCCC, 2010). Indeed, this conference pressed for the acknowledgement of the relationship of brotherhood between humans, animals and all aspects of nature when considering policies regarding climate change (see WPCCC, 2010). There is also an emerging field of 'animal law' aiming to serve the interests and wellbeing of animals, and at least one dedicated 'animal lawyer' in Switzerland (Antoine Goetschel) who aims to represent the interests of animals including cats, dogs and fish (Bauch, 2010). Given the recent emergence of these perspectives, it appears that there is present and growing public desire for the acknowledgment and recognition of non-human aspects of life when considering human ecological impacts.

The Future Self

There is a philosophical perspective that the self exists in numerous time slices, each representing slightly different versions of the self. This notion of *multiple selves* is explained by Elster (1986, 1989), such that the selves occurring at the different time slices may be interpreted as members of a psychological outgroup. Thoughts of the self in the future are perceived to be separate to the current self, with selves in the distant future

increasingly distinct from those in the more immediate future (Albert, 1977). These future selves may be subject to similar psychological phenomenon known to occur between individuals and outgroups. Thompson, Barresi and Moore (1997), for example, demonstrated that children who were more inclined to save rewards (stickers) for their future self were also more likely to share the stickers with their peers.

There are also popular culture references to this notion of future selves. For example, an episode of the American animated series Southpark (Parker & Stone, 2004) employs the notion that people from the future, including future versions of the self, travel back in time to the present day in order to find work. This is because, as a result of present-day activities, future conditions are desolate. After substantial community outrage and mistreatment, one character, Stan Marsh, advocates for fair treatment of these "goobacks," and encourages present-day people to work toward a better future; thus, avoiding the negative consequences that the future characters will experience. This captures what was meant by Elster (1986, 1989) that future versions of the self are considered distinct and separate from the present-day self, and also captures sentiment pertaining to ecological issues, whereby present actions directly impact the quality of life of the future self and future others.

Unlike the other outgroups identified as suffering the negative consequences of the unecological actions of developed nations, the future selves of members of developed nations lack the innocence that these other groups possess. While these future selves may be separate, they are still connected to the present self whereby they have experienced the prior benefits associated with ecological unfriendliness. As a result, these future selves may be less likely to be directed any feelings of collective guilt for any suffering they may experience.

In conclusion, these outgroups, regardless of whether they exist now, or in the future, and whether they are separated by small or large distance, are unable to influence current behaviour of those who are contributing most extensively to ecological problems. These outgroups are also predicted to experience substantially more suffering relative to the main contributors to environmental issues, as the perpetrator groups generally have greater resources enabling easier adaptation and protection from a changing climate. They are often geographically located in safer areas, or will not be alive by the time ecological

consequences are fully realised. Thus, for the earth to remain habitable into the future, the sharing of resources, or cooperation, with these outgroups must occur. The recognition by both popular culture, as well as theoretically, that the use of the natural environment can affect others, reinforces the notion that ecological issues incorporate themes of cooperation.

Overview of Thesis

This chapter has provided an introduction to the contemporary environmental crisis, and has provided a theoretical explanation of ecological problems. These problems were explained as stemming from a commons dilemma requiring cooperation with the outgroups expected to suffer as a result of the unsustainable actions of developed nations. This chapter has also listed the numerous outgroups predicted to experience this suffering, and has also explained what may be meant by ecological friendliness. Finally, this chapter has ended by providing an outline of what will be covered in the remaining chapters of this thesis.

Chapter 2 will review the predictors and inhibitors of ecological friendliness that have been identified either by previous literature or theory, and will explain that most of this previous work has lacked a strong theoretical base. While it may have been implied, this, in particular, refers to approaching ecological friendliness in terms of a cooperative behaviour in the commons dilemma sense. Indeed, from this literature review, selfishness, or the failure to cooperate, was identified as a major inhibitor of ecological friendliness. This selfishness, which may occur at both the individual and group level, was reasoned to have emotional consequences for some individuals, including feelings of collective guilt, which are explained in Chapter 3. An outline of the aims and hypotheses of this thesis will also be provided in this chapter.

Chapter 4 will then discuss the theoretical perspectives relevant to this thesis. These include Tajfel and Turner's (1979) social identity theory and Greenberg, Pyszczynski and Solomon's (1986) terror management theory. In this chapter, specific focus to how these theories relate to the current project will be given.

Chapter 5 will then outline general methodological considerations acknowledged in this thesis. It will specify the design of the current project, the methodological issues that were required to be overcome for this design, as well as those not able to be overcome. It will also offer explanation of the methodological contributions provided by the current project. Finally, this chapter will also include the development of a new measure of self-

report, multi-domain ecological behaviours which will be utilised in some of the studies.

Chapters 6 through 10 detail the seven studies of this thesis that were conducted to empirically investigate feelings of collective guilt within the ecological domain. These studies are outlined more extensively in the Outline of Studies and Hypotheses section of Chapter 3. The specific aims and hypotheses for each of the studies are provided in this section.

After the presentation of each of these studies, the findings of this thesis will be discussed in the final chapter, Chapter 11. Firstly, the findings of each of the seven studies will be summarised and explained in light of previous research. The theoretical implications of the current project for intergroup research and social identity theory, terror management theory, and ecological research will also be discussed. This chapter will also outline the limitations faced and future directions this research area could explore. Finally, this volume will conclude by emphasising the need for intergroup cooperation when addressing ecological concerns.

CHAPTER 2: PREDICTORS AND INHIBITORS OF ECOLOGICAL FRIENDLINESS: A LITERATURE REVIEW

The previous chapter provided an introduction to the contemporary ecological crisis, and focussed on this as stemming from a failure to cooperate with the outgroups predicted to suffer. This chapter will review factors that have been identified as having an influential role in ecological friendliness. Although it may be implicit, the majority of current literature on ecological friendliness has lacked a unifying theory and has failed to approach the topic in terms of considering it to involve cooperation with the outgroups that will bear the impacts of unecological action. Instead, research has been piecemeal and focused on demographic factors, psychological variables, and situational constraints as predictors or inhibitors of numerous ecologically-relevant variables. Indeed, certain variables have been indicated to contribute to the 'sort of person' who cares for the environment, including both demographic and individual difference variables. The predictive ability of these variables is often modest at best, and suggests that ecological friendliness is complex and may be impacted by inhibitory factors. In addition, complex situational factors may lead to an interaction between predictive and inhibitory elements, allowing these attributes to play a bigger or smaller role in determining an individual's ecological friendliness. While these variables may go some way to explaining the occurrence, or not, of ecological behaviour, this literature could benefit from a more holistic approach, considering the underlying motives for ecological friendliness. Thus, an understanding of how these factors may manifest to determine the extent to which an individual may be ecologically friendly is sought. Indeed, this chapter will outline a summary of current literature on ecological friendliness, and will focus on variables identified in terms of their ability to act as predictive or inhibitory aspects of ecological friendliness.

Predictors of Ecological Friendliness

As stated, a large portion of previous literature on ecological friendliness to date has investigated the suggestion that there may be certain demographic variables that contribute to the 'sort of person' who cares for the environment. Variables such as age (e.g., Arcury & Christianson, 1990; Blaikie, 1992; Dunlap, Van Liere, Mertig & Jones, 2000; Howell & Laska, 1992; Kantola, Syme & Campbell, 1982; Tranter, 1996; Van Liere & Dunlap, 1980), gender (e.g., Blaikie, 1992; Blocker & Eckberg, 1997; Bord & O'Connor, 1997; Casey &

Scott, 2006; Ray, 1975; Tranter, 1996; Zelezny, Chua & Aldrich, 2000), education and income (e.g., Arcury & Christianson, 1990; Casey & Scott, 2006; Dunlap et al., 2000; Howell & Laska, 1992; Van Liere & Dunlap, 1980) have been reasoned to predict ecological friendliness and have received considerable research to investigate the notion of the ecologically-friendly person. It has generally been attested that those who are younger, female, better educated, and of higher income are more likely to be more ecologically friendly, although the research results do not paint the picture so simply. Numerous individual difference variables have also been implicated in ecological friendliness, including norms (personal and social; e.g., Bamberg, Hunecke & Blobaum, 2007; Black, Stern & Elworth, 1985; Chan, 1998; Hopper & Nielsen, 1991; Kantola et al., 1982), locus of control (e.g., Ballard & Ballard, 2005), self-efficacy (Judge, Erez & Bono, 1998), personal guilt (e.g., Kaiser & Shimoda, 1999), as well as attitudes and knowledge toward ecological issues (e.g., Kotchen & Reiling, 2000; Mainieri, Barnett, Valdero, Unipan & Oskamp, 1997; McFarlane & Boxall, 2003), self-righteousness (e.g., Mazar & Zhong, 2010) and identity (e.g., Lennox & Eesley, 2009). This section will outline the ecologically-relevant research on each of these variables.

Demographic Variables

Age

The intuitive argument that younger persons are more concerned about the environment because they are apparently more idealistic, are more likely to suffer the negative consequences of ecological exploitation, as well as less integrated into the economic structure of their society has been used to explain the apparent negative relationship between age and ecological friendliness. Mohai and Twight (1987) explain that age may have two distinct effects on ecologically-relevant attitudes and behaviours. These include a cohort effect brought about by generational differences, and an age effect brought about by specific socio-cultural conditions younger persons face in comparison to their older counterparts (Mohai & Twight, 1987). In line with the latter of these, Winter and Koger (2004) explain that younger people may be more inclined to be ecologically friendly because they are less integrated into the economic structure of their society and, hence, are less dependent on this system as older persons might be. As well as this, the consequences of unecological behaviour are more likely to affect the lives of younger persons in the future and, thus, may increase the motivation of younger people to be ecologically friendly.

There is some evidence to support these notions; for example, Kantola et al. (1982) found, in relation to household water conservation during a period of drought, that younger individuals were more committed to this goal, with older individuals intending to conserve less water. Several other studies have also demonstrated negative relationships between age and ecological concern (e.g., Arcury & Christianson, 1990; Blaikie, 1992; Dunlap et al., 2000; Howell & Laska, 1992; Tranter, 1996; Van Liere & Dunlap, 1980).

Despite this, however, the effects of age on ecological friendliness have not been consistent, with several studies failing to find a negative effect of age on ecologically-relevant variables. In Harris' (1989) cross-continental analysis of environmental attitudes, only a very weak relationship between age and environmental opinion was found. Indeed, some research has even found the opposite trend with older individuals reporting greater ecological friendliness (e.g., Huntley, 2006; Casey & Scott, 2006), and survey results undertaken by the New South Wales Government (DEC, 2006) found younger individuals (15-24 years) to be *less* environmentally engaged than older respondents. This was suggested to be due to the consumer culture and subsequent identities that Australian Generation Y (born after 1982) have adopted. These findings add support to the notion of generational differences in ecological friendliness, as suggested by Mohai and Twight (1987), and question the influence that age itself may have on ecological friendliness.

The notion of defining identity through consumption has been recognised by Huntley (2006) and others (e.g., Davies, 2012; Hamilton, 2010; Hamilton & Denniss, 2005) as a negative influence on ecological friendliness, and the influence of identity on ecological friendliness is discussed more thoroughly later in this Chapter. Another factor that may be contributing to the apparent lack of concern for the environment in Generation Y is the increasing human-environment gap brought about by the adoption of numerous technologies in developed nations. These newer technologies include The Internet and the increased role computers play in the spheres of work and home as well as increasingly more common home luxuries, including heating and cooling systems, and personal access to motor vehicle transport (Davies, 2012). Younger generations generally utilise newer technologies more so than older generations and they may also be unaware of what life might be like in their absence (Davies, 2012). Finally, inhibitory factors such as helplessness and lack of responsibility, as discussed later in this chapter, may also be

exerting a greater influence on younger members of developed nations. Younger individuals may feel less able to influence or change their society as well as less responsible for the environmental crisis than older individuals, discouraging them from engaging with ecological issues. Thus, it is suggested that research on younger people from previous generations (e.g., Kantola et al., 1982) may have found contradictory findings to more recent work due to cohort effects, possible changes in youth lifestyles and identities, and a lack of agency that younger people may experience in today's society.

Gender

Research on the effects of gender on ecological friendliness has also been inconsistent. The general notion is that women are more concerned about the environment than men, due to their more caring and nurturing nature and increased concern for offspring (Davidson & Freudenberg, 1996; Winter & Koger, 2004). Indeed, some research has found females to report greater levels of ecologically-friendly behaviour (e.g., Blaikie, 1992; Blocker & Eckberg, 1997; Bord & O'Connor, 1997; Casey & Scott, 2006; Ray, 1975; Tranter, 1996; Zelezny et al., 2000); however, there has also been research that has failed to demonstrate such gender effects (e.g., Gillham, 2008; McFarland & Boxall, 2003; Tindall, Davies & Mauboules, 2003; Van Liere & Dunlap, 1980).

Indeed, any gender differences in ecological behaviour may be due, not to some inherent difference in ecological friendliness, but instead due to general lifestyle factors and constraints faced by men and women. There is some support for this notion, whereby women have been found to engage in more ecologically-friendly behaviours in their general day-to-day lives than men. These behaviours include, among others, reducing electricity usage, purchasing organic produce, reusing or repairing items instead of discarding them, and choosing environmentally-friendly products (see e.g., Mohai,1992; Stern, Dietz & Kalof, 1993; Tindall et al., 2003; Zelezny, et al., 2000). There is further support for the possibility that gender differences are the result of lifestyle constraints and the specific ecological behaviour being considered in that Zelezny, Chua and Aldrich (2000) found that women engaged in ecological behaviours more often than men; however, there was not a significant gender difference in pro-environmental attitudes. Indeed, Williams and McCrorie (1990) suggested that both men and women are concerned for the environment in equal but different ways, and demonstrated that males showed a stronger commitment to

action, while females showed greater concern. As a result, caution is recommended when considering the effects of gender on ecological matters, and this has been suggested by some (e.g., Torgler & Garcia-Valinas, 2007).

Education and Income

Some evidence also exists to suggest that those with higher incomes as well as those possessing higher levels of education are more likely to be ecologically friendly. For example, some research has found a positive relationship between education level, income, and concern about environmental issues (e.g., Arcury & Christianson, 1990; Casey & Scott, 2006; Dunlap et al., 2000; Howell & Laska, 1992; Van Liere & Dunlap, 1980). Others, however, have found no significant effect of education or income on actual pro-environmental behaviours (e.g., Blaikie, 1992; Ray, 1975; Widegren, 1998), while some have even found the opposite effect of education on environmental concern (e.g., Trantner, 1996). Adding to this complexity is the fact that income and education variables are usually highly correlated, thus making it difficult to separate any unique effects that these variables may contribute to an individual's ecological friendliness.

In addition, it has been postulated that individuals with higher education and income may be more knowledgeable about environmental risks and alternatives, making them more likely to engage in such behaviours; however, knowledge of environmental issues has not been found to be a good predictor of pro-environmental behaviour (e.g., McFarlane & Boxall, 2003). Another possible explanation comes from Maslow's (1943) hierarchy of needs, which explains that those with higher incomes may express greater ecological friendliness than those with lower incomes because they have their financial needs met and can thus focus attention on higher-order needs, including matters pertaining to others and the environment. Furthermore, as ecologically-friendly behaviours, for example, the purchase of organically-grown produce, are often more expensive than the comparable conventional behaviour, these sorts of behaviours may simply be out of reach to those on lower incomes. As a result, some ecologically-friendly behaviours would be expected to be more common amongst higher income earners. On the other hand, some ecologically-friendly behaviours, such as conserving electricity, actually save the individual money, and may therefore be more likely to occur in those with lower incomes. Indeed, those on lower incomes are reported to be more concerned about the energy efficiency of their housing

than those on higher incomes (Hamilton & Denniss, 2005). This suggests that the relationship between ecologically-relevant behaviour and income may be dependent, at least partly, on the specific behaviour under consideration, although the motivation for engaging in such behaviour may be due to personal financial considerations as opposed to broader ecological concerns. This makes the precise effects of education and income on ecological friendliness not clearly discernable and stresses that the motivation for engaging in ecologically-relevant behaviours must be considered.

Individual Difference Variables

As outlined above, the variables of age, gender, education and income may go some way to explain ecological friendliness, several individual difference variables have shown theoretically-relevant and consistent relationships within the ecological domain. Of these variables, attitudes, norms, locus of control, self-efficacy, personal guilt, and identification with a developed nation, will be discussed.

Attitudes

Ajzen and Fishbein's (1980) theory of reasoned action, and later adapted in the theory of planned behaviour (Ajzen, 1991), explains that specific attitudes predict behaviour in those domains, and does so by influencing one's intentions. Thus, positive attitudes toward ecologically-friendly behaviour should predict such behaviour. Indeed, Chan (1998) found that the best predictor of intention to engage in ecologically-friendly behaviours was, in fact, attitudes toward those behaviours. Positive attitudes have been found to be a good predictor of ecological behaviour as demonstrated in several domains, including forest management (McFarlane & Boxall, 2003), the conservation of endangered species (Kotchen & Reiling, 2000), and green purchasing (Mainieri et al., 1997). However, Ajzen and colleagues (Ajzen, 1991; Ajzen & Fishbein, 1980) explain that other factors including subjective norms and behavioural intention are also critical to consider in conjunction with attitudes when predicting behaviour.

Often, however, positive attitudes toward ecologically-friendly behaviours do exist, but the performance of such behaviour is lacking. This often-witnessed 'value action gap' (Ajzen, 1991), that is, the gap between attitudes on the one hand and actual behaviour on the other, is also often witnessed in the ecological domain. That is, positive attitudes may be present but, despite this, the behaviour may fail to occur. For example, support for

environmental action has grown in recent years (e.g., Barr, 2004), while actual ecologically-friendly behaviour has not shown anywhere near the same degree of increase (Flynn, Bellaby & Ricci, 2010). There have been some suggestions as to why this gap exists, for example, when considering Prochaska and DiClemente's (1983) stages of change model, individuals may be at the pre-contemplation or contemplation stages which allow for a positive attitude toward ecological behaviour to exist but without that behaviour actually occurring. Or, as Kollmuss and Agyeman (2002) explain, the presence of complex situational factors as well as inhibitory factors may interact to determine behaviour and can negate the specific influence of attitudes on ecologically-friendly behaviour. The most common inhibitory factors associated with ecological friendliness have been discussed later in this Chapter. Despite this, ecologically-friendly attitudes appear to be positive antecedents to ecological friendliness.

Norms

Additionally, norms may be an important variable contributing to an individual's ecological friendliness. Indeed, when individuals choose to act, their decisions are informed by expectations for how they should behave in a particular situation. These rules or expectations are referred to as norms and can come from within an individual (personal norms) or from others (social norms; Schwartz, 1977). Schwartz (1977) explained personal norms as feelings of moral obligation regarding personal conduct, which originate from innate values or internalised social norms. Based on Schwartz's (1977) model of moral norm activation, norms will serve as guides to behaviour when they are "activated" or made salient. This occurs when there are high levels of both awareness of responsibility and an understanding of the consequences of acting (Schwartz, 1977). Departures from normative behaviour can cause feelings of guilt and shame and, in the case of social norms, can also lead to the receipt of punishment (Fransson & Garling, 1999; Schwartz, 1977; Van Liere & Dunlap, 1980). As such, norms can be good predictors of behaviour, including ecologically-friendly behaviour.

Social norms may have particular relevance to ecologically-relevant behaviour as the appropriate response to ecological issues is often ambiguous. Indeed, norms have consistently been found to influence ecologically-relevant variables. Environmental norms have been demonstrated to influence recycling behaviour (personal and social; Hopper &

Nielsen, 1991), anticipated public transport use (personal; Bamberg et al., 2007), and home energy use (personal; Black et al., 1985). Furthermore, Oskamp, Harrington, Edwards, Sherwood, Okuda and Swanson (1991) have demonstrated the influence of social norms on recycling, and found that it was greater amongst those whose friends and neighbours recycled, and Barr (2003) found that increasing the visibility of curb-side recycling increased citizen participation. Kantola et al. (1982) also identified social norms as the single greatest predictor of intentions to conserve water during a draught period; and Chan (1998) found social norms to be a major predictor of recycling behaviour in Hong Kong citizens. Thus, ecologically-relevant norms appear to be an important antecedent for the occurrence of ecologically-friendly behaviour; however, ecologically-friendly behaviour may only occur if inhibitory factors, discussed later in this chapter, are sufficiently low.

Agency

Additionally, the level of control or agency an individual feels they have over their environment may also influence the extent to which they may be ecologically friendly. If one feels capable of making and implementing choices, this may increase the inclination to engage in ecologically-friendly behaviours, as these efforts are more likely to be met with success. Giddens (1984) describes this notion of agency as simply referring to the perceived power or ability to act. Indeed, Ballard and Ballard (2005) found that a sense of agency was critical for the success of the 'climate change champions' they studied, and a lack of agency was a factor identified as limiting others' action, feeling their behaviour failed to make any difference.

Locus of control and self-efficacy are two variables that fall within this vein of agency. Locus of control refers to the degree to which individuals believe they control events that affect them, or that such events arise from external causes (Rotter, 1966). As such, causes for events may either be internal or external to the individual, corresponding to an internal or external locus of control. An internal locus of control has been implicated in ecological behaviour, as Fransson and Garling (1999) suggest, due to the belief that one's actions are in fact making a difference. It is thus suggested that an internal locus of control may provide the sense of agency required to overcome factors inhibiting ecological friendliness. As for general self-efficacy, this variable corresponds to the degree to which one feels they are capable of performing across different situations (Judge et al., 1998), or

as Bandura (1977) explains, “the conviction that one can successfully execute the behaviour required to produce the outcomes” (p.193). It is an indication of the degree of competence one feels one has and determines whether someone may attempt a behaviour in the first instance, and for how long effort may be sustained (Bandura, 1977). Like attitudes, notions of efficacy hold the most predictive ability when they refer to the specific behaviour at hand, that is, not general, but specific, self-efficacy (Ajzen, 1991); and, while it has not, to the author’s best knowledge, been studied within the ecological domain, it is associated with success in several other domains, including job attitudes (e.g., Saks, 1995) and performance (e.g., Stajkovic & Luthans, 1998).

Guilt

Another reason people may engage in ecological behaviour is to avoid or alleviate guilt emotions stemming from unecological behaviour. Guilt is a negative emotion resulting from behaviour perceived to be in violation of some moral standard, and usually involves a transgression against another (Tangney, 1995). Feelings of guilt encourage reparative efforts to reduce or alleviate the guilt feelings, and to make amends for the harm done (Tangney, 1995). As unecological behaviour is associated with negative environmental outcomes, individuals who are more inclined to feeling guilty for their behaviours should, therefore, be more likely to engage in ecologically-friendly behaviours. Feelings of guilt may be personal or collective depending on whether the focus is on individual or group-level moral violations.

There is some research to suggest that feelings of personal guilt are indeed linked with ecological behaviour (e.g., Kaiser & Shimoda, 1999); however, there has been limited research published on this variable. It is suggested by the author as well as others (e.g., Ferguson & Branscombe, 2010) that feelings of personal guilt pertaining to environmental issues may be relatively unsuccessful at predicting ecological friendliness due to the relatively minute contribution of one’s own actions when considering the global scale of ecological issues. Instead, it is suggested that feelings of collective or group-based guilt will exert a greater influence on an individual’s ecological friendliness as one’s group has a much larger contribution to ecological issues than any group member individually. As the focus variable of this thesis, the role of collective guilt in ecological friendliness has been covered more extensively in Chapter 3.

Identity

Another variable that may be reasoned to relate to ecological friendliness includes aspects of an individual's identity. Identity influences behaviour in that individuals choose behaviours that are identity congruent (Stets & Biga, 2003). Thus, aspects of identity may have a direct relationship with ecological behaviour, or it may exert its influence indirectly through other variables such as norms, as Schwartz (1977) suggested. As such, there may be identities that may make it more or less likely that one would be ecologically friendly. Developed nations contribute extensively to global climate change, in particular through the emission of greenhouse gases, and Australia is no exception. Indeed, Australia has the highest per capita greenhouse gas emissions of all developed nations (Garnaut, 2008); thus, it is likely that the many members of developed nations, including Australia, include this level of consumption and emissions, whether acknowledged or not, as part of their identity. Indeed, numerous authors (e.g., Davies, 2012; Hamilton, 2010; Hamilton & Denniss, 2005) have discussed that, for those in developed countries, it is through this consumption that identity is sought, established, and maintained, particularly in members of Generation Y. This suggests then, that those with identities involving such notions of consumption are likely to engage in lower levels of ecologically-friendly behaviour than those with identities invested in other, less consumptive, domains.

It also remains possible for identity to have the opposite effects on ecological friendliness. For example Lennox and Eesley (2009) demonstrated that those who engaged in environmental activism, and who also identified as environmental activists, also demonstrated higher rates of ecological behaviour in other ecologically-relevant domains. Thus, notions of identity appear to be fundamental to many aspects of behaviour, with those in the ecological domain being no exception. The effects of identity on behaviour have been elaborated more extensively in Chapter 4 under social identity theory.

Inhibitors of Ecological Friendliness

Despite the widespread belief that change needs to occur, and drastic movements toward environmental sustainability need to be taken, the large-scale adoption of these changes has failed to occur. This suggests that there may be factors that may inhibit the performance of or transition to more ecologically-friendly behaviour. There are two sources

of inhibition that relate to these low levels of ecological friendliness, one originating externally to the self, including factors such as pressure from governments and corporations that benefit from continued unsustainability. Indeed, pressure to maintain the current economic system and culture of consumption is, not surprisingly, going to come from those that will suffer if the behaviour of individuals changes. As such, governments of developed nations, as well as large corporations are generally motivated by short-term interests, such as being re-elected for another term, and quarterly returns for their shareholders. The second source of opposition to ecological behaviour is from factors internal to the individual, including: habit, helplessness, fear, a lack of responsibility, a lack of connection between behaviour and consequence, and selfishness, each of which will be outlined in the following sections. It is likely to be a combination of one or more of these factors that may inhibit an individual from performing in an ecologically-friendly way.

Habit

Individuals may not be motivated to change their behaviour if that behaviour is still successful at attaining the goal, even if they know that the behaviour is causing harm to the environment (Oskamp, 2002; Tellegen & Wolsink, 1998). However, if an individual would like to change current behaviour to become more ecologically friendly, habitual processes may inhibit this from occurring as they can occur relatively independently of the individual's specific motives (Knussen & Yule, 2008; Rorty, 1986). Indeed, as behaviours are repeated, their link with environmental cues become strengthened (Verplanken, 2006). Habits have been explained to be situation-behaviour sequences that have become automatic (Triandis, 1980), and habitual behaviours are more than just repeatedly making the same behavioural choice; the notion of automaticity or routinisation is crucial. Indeed, Triandis (1977) explains in his theory of interpersonal behaviour that the effect of habit on behavioural outcomes increases the more a behaviour is performed. That is, automatic and unconscious processes are thought to play an important role in an individual's maintenance of ecologically-unfriendly behaviour and the failure to adopt more sustainable behaviours. For example, previous household energy use has been found to be a better predictor of current household energy use than attitudes about usage reduction (Macey & Brown, 1983). For frequent behaviours like household energy use, the effects of habit are apparent;

however, in the case of unhabituated behaviours behavioural intention was a strong predictor of behaviour (Macey & Brown, 1983; Verplanken, Aarts, van Knippenberg & Moonen, 1998).

Helplessness

The consensus that global action regarding the ecological issues is required can foster feelings of helplessness at the individual level (Lorenzoni, Nicholson-Cole & Whitmarsh, 2007; Oskamp, 2002). Individuals may not know what to do to change, and may feel as though any contribution they make is too small to contribute to the drastic change they may perceive is required (e.g., Norgaard, 2006), or that any changes they make at the individual level are futile when they may perceive that others, including governments and industry, are not fostering ecologically-friendly action (Winter & Koger, 2004). Even if there are alternative options available, a sense of inertia may inhibit change, as difficult decisions involving many choices can result in individuals choosing the easiest option, which is often failing to change at all (Wilson & Dowlatabadi, 2007). Indeed, liberal democracies, of which most developed nations may be classified, can generate this sort of inertia with respect to ecological issues. The processes necessary for change are generally extremely complex and tedious, discouraging individuals from even considering change and rendering them essentially helpless (Costanza, 2011). These feelings of helplessness may be felt even more so by younger individuals whose perceived ability to influence their society may be considerably less than older individuals.

Feelings of helplessness are unpleasant and may even dissuade an individual from thinking about or taking personal actions regarding ecological issues. Feelings of helplessness may be argued to stem from a lack of knowledge about environmental issues or alternatives; however, McFarlane and Boxall (2003) investigated the effects of actual knowledge on the likelihood to engage in environmental activism in the forest sector, and failed to find a significant relationship between knowledge of environmental issues and environmental activism behaviour. Self-rated knowledge was, however, associated with environmental activism behaviour, although the causal direction of this relationship is unclear (McFarlane & Boxall, 2003). Indeed, Norgaard (2006) explains that the majority of individuals, at least in Norway, were well informed about climate change and current environmental risks, but this knowledge did not necessarily translate into action. Others

have reported similar effects on the increase in environmental knowledge failing to translate into relevant behavioural increases (e.g., Ester & Winett, 1982; Geller, 1981; McDougall, Claxton & Ritchie, 1983).This was explained by the fact that knowledge of environmental issues is often accompanied by feelings of helplessness due to the overwhelming scope of the issue and perceived lack of alternatives, causing an individual to avoid, deny, or possibly even legitimise the issue (Norgaard, 2006). Indeed, feelings of helplessness appear closely linked to notions of agency discussed previously. A lack of agency resulting from factors such as an external locus of control or low self-efficacy may manifest feelings of helplessness as individuals may feel their actions have little effect or that little can be done to change the behaviour of others.

Fear

Fear is another factor that may inhibit individuals from being ecologically friendly. Indeed, ecological issues are often presented in a way that may instil fear in the individual (Oskamp, 2002). For example, phrases such as "air pollution is killing us," or "unless we act now, the earth will be uninhabitable in a few generations" may be sufficient at eliciting fear at the individual level. It has been found that if a fearful message is coupled with a lack of alternative options or viable sources of action, the threat evoked by the message is likely to be denied (Becker & Josephs, 1988; Leventhal, Meyer & Nerenz, 1980). Thus, if environmental concerns are framed in such a manner and, in particular, if they are also coupled with feelings of helplessness as described above, it is likely that an individual will respond simply by denying the threat.

Furthermore, research from terror management theory (Greenberg et al., 1986) suggests that anxieties associated with messages of mortality as a result of environmental degradation may actually serve to increase consumption, instead of increasing ecological behaviour. The mortality salience hypothesis put forward by terror management theory explains that after being reminded of one's mortality, one looks to sources of one's self-esteem, namely one's cultural group, for affirmation; and, as a result, people are more inclined to act in accordance with culturally-sanctioned behaviours. In the case of developed nations, which have a very strong culture of consumption, reminders of mortality have been found to decrease ecological concern (e.g., Vess & Arndt, 2008). Thus, instilling fear in the individual with the hope of increasing ecological behaviour can have

counterproductive effects depending on the relevance of ecological friendliness within one's worldview. Terror management theory will be elaborated more extensively in Chapter 4 of this thesis.

Lack of Responsibility

The deferral of responsibility for factors contributing to global climate change is another method individuals may use to avoid changing their behaviour. This notion of responsibility, or lack thereof, has been identified by Darnton (2008) as a common inhibitor of ecological behaviour. This is often thought to manifest in a belief in technology, where many individuals may believe that technological fixes to ecological issues will be found by the time the situation becomes dire, and hence, removing the need for individuals to change their behaviour (Gare, 1996; Oskamp, 2002). This notion was recognised decades ago by Maloney and Ward (1973) who explained that technological solutions were being sought to solve ecological crises via some assumption that technology will provide the necessary solutions. These solutions will, assumingly, be made available or implemented by some sort of top-down process such as via government or industry, thus, rendering changes in lifestyle and consumption behaviour largely unnecessary. This notion is still very present today, with, for example, pushes in the development of more ecologically-friendly energy sources and transport options. While this may go some way to addressing ecological issues, in order for true sustainability to occur, a change in the approach to consumption is also required (Gare, 1996). Indeed, measures of the success of a nation are generally based on economic growth which, largely, is dependent upon consumption of finite resources. The emphasis has been on developing more sustainable methods of consumption, instead of actually decreasing consumption. This belief in technology essentially defers responsibility for changing personal behaviour as it concedes that solutions will be found and implemented by others. Such a lack of responsibility for ecological issues may be especially felt by younger members of developed nations who have inherited a culture requiring radical change. These individuals are now responsible for the ecological crisis only by virtue of their group membership. Although ecological consequences will more directly impact their lives, they may not feel responsible, or capable, of addressing these issues.

Behaviour-Consequence Link

Another reason for the relatively low levels of ecological behaviour may be due to individuals lacking a connection between their behaviour and the consequences of that behaviour. This is believed to stem from evolved predispositions regarding the types of information that are more easily understood by humans. Ornstein and Elrich (2000) explain that humankind's hesitation to change current behaviours to more sustainable ones may be due to the fact that earlier people were not required to ever consider such a distant future as that required to be considered now. As the current state of the environment has not deteriorated to such an extent that an individual's current lifestyle has been noticeably affected, an individual may not be heavily motivated to change current behaviours. This may even be the case when an individual has been taught and does, in fact, understand that the resources used to maintain their current lifestyle are finite and will have negative impacts on others. Thus, the notion of engaging in ecologically-friendly behaviour to maintain habitable conditions for others into the future may seem unfathomable to the individual at the present time.

Additionally, the types of information that are able to be successfully processed by people is another factor impacted by these evolved predispositions and may negatively affect ecologically-relevant behaviour. Indeed, the difficulty demonstrated by people to link abstract scientific information to actual ecological, and therefore lifestyle, impacts may inhibit ecological friendliness. This point has been acknowledged by some, and has been accompanied by the recognition that communicating scientific information with the hope of behaviour change remains an unlikely task (e.g., CRED, 2009; Davies, 2012; Hamilton, 2010). Indeed, the reporting of greenhouse gases, for example, is generally done in a comparison of actual and projected parts per million (ppm) of certain gases. It is difficult to imagine the impact that change from 388ppm of CO_2 in 2010 to beyond 500ppm in 2050 will have on one's life, or how one's behaviour directly contributes to this. As a result, motivation to adopt ecologically-friendly behaviours when provided with this sort of information may be lacking, and compounded by factors such as helplessness and fear discussed earlier.

It seems, as a result of these factors, humans are rather poor at making judgements

involving distant events, as well as in their understanding of abstract scientific information. The failure to link behaviour to its ecological consequences may be further compounded by popular media and politics by their portrayal of conflicting evidence and conclusions of climate scientists. Indeed, conflicting opinions of scientists around the world have been voiced, with some even outright denying the anthropogenic contribution to climate change, and others again differing in their projected ecological consequences.

Finally, the level of disconnection most members of developed nations have to the natural environment in their lives may add to the failure to link their behaviour to its ecological consequences. This disconnection or separation of humans from the environment is pervasive in the lifestyle of those in developed nations and witnessed in, for example, such things as the sophisticated housing and transport systems complete with climate control, the separation from waste, and working roles that are increasingly abstracted from the natural environment. In order for a behaviour to be thought to cause or result in a particular outcome, the behaviour and the outcome must somehow be linked (Ajzen, 1991). It is not surprising that, given evolutionary factors, the presentation of climate change information, and the human-environment gap, that many members of developed nations may fail to connect the ecological consequences of their behaviours.

Selfishness

The final factor thought to inhibit ecological friendliness is that of selfishness. As already explained, ecological behaviour can be conceptualised as a commons dilemma, whereby a shared resource, the planet, is being unsustainably used by some at the expense of causing negative outcomes for others (see Chapter 1). Indeed, ecological behaviour is often more demanding of time, effort and/or resources than acting in a conventional, unecological manner, and most of the rewards of ecological behaviour are reaped by others. Selfishness and its inverse, cooperation, are reasoned to be the key factors underlying ecological friendliness, with selfishness inhibiting and cooperation encouraging it to occur. Oskamp (2002) explains this in the economic sense as a matter of either cooperating, or defecting with those groups that will suffer. Habit, helplessness and fear come with the acknowledgement that one *should* change one's behaviour, but for whatever the reason, behaviour change does not occur. The lack of responsibility also acknowledges the impact of one's behaviour; however, also include beliefs that solutions to ecological problems will

be found by others, rendering personal behaviour change unnecessary. All these factors are motivated by the desire to avoid negative outcomes predicted to be caused by continued unecological behaviour. It is also this desire to avoid negative outcomes for others that is reasoned to also be behind the variables found to positively relate to ecological behaviour discussed earlier in this chapter. Selfishness, however, is the only factor that appears to not be concerned about the outcomes of one's behaviour; the focus appears to be on the self.

It is a common conception that in order for developed nations to become environmentally sustainable, large reductions in living standards and consumption accompanied by changes to current behaviour will be required by those in developed nations (e.g., Davies, 2012; Hamilton & Denniss, 2005). This is, of course, considered unfavourable by those who have become accustomed to, and enjoy, the luxuries of life experienced in these nations, and who may value their own high quality of life over the mere existence of others. This may especially be the case for members of developed nations whose identities may be, at least partly, invested in consumption; consequently, any movement away from this consumption will challenge an important aspect of who they are (Hamilton, 2010; Hamilton & Denniss, 2005). Thus, despite the negative outcomes that are predicted to result from continued unecological behaviour, achieving environmental sustainability may not be considered favourable, due to the compromises in identity and living standards that may be perceived to be required. Therefore, those identifying to a lesser extent with consumptive cultures, as well as those inclined toward acting cooperatively with others, should be more inclined toward engaging in ecologically-friendly behaviours.

The notion of selfishness in ecological issues is complicated by what Miller (1999) explains as the norm of self-interest. This phenomenon states that, due to direct or indirect experience, individuals overestimate the value that others place on material or economic gain, which in turn results in themselves adopting more materialistic behaviours. This ties in directly with the notion of the tragedy of the commons and economic theory which assumes that people consider that others will act in self-interested ways and, thus, in an attempt to avoid losing out or being exploited by others, the only rational way to behave is also in a self-interested manner (see Chapter 1). Also in the vein of selfishness, while individuals may desire to be cooperative, there are processes that may maintain selfish

behaviour. This includes the phenomenon of pluralistic ignorance which may go some way to explaining why individuals may continue to engage in selfish behaviours despite apparently realising that negative ecological consequences will result from continuing to act in such ways.

Katz and Allport (1931) explain pluralistic ignorance whereby someone's behaviour is used to indicate their internal motivations, intentions, and desires. As a result, if they witness selfish or unecological behaviour on the part of another, then this may be interpreted as reflective of the individual's internal non-cooperative desires. This then prompts the individual to also engage in such behaviour because they believe that is the expected behaviour, and to behave differently may question their membership in the group. Also, it may remind the individual that any efforts to act cooperatively will be in vain unless others also follow suit. Indeed, Coontz (1992) explains that it may not be self-interested motives that maintain ecologically-unfriendly behaviour, but the feeling that they are alone in feeling that things should be different; however, from the outside it may be difficult to differentiate the two. This is considered to be pluralistic ignorance when this opinion is not actually held by the majority, but is maintained because it is assumed that it is. This is clearly problematic in the case of ecological issues, where individuals may witness others behaving in unecological ways and conclude, even if this is not the case, that this sort of behaviour is still considered appropriate and, thus, behave unecologically themselves.

Furthermore, the individual may also not wish to be the first to engage in ecological behaviour, because if others do not also follow suit, their efforts would be ineffectual and the additional time, effort and/or resources they have expended to act in such a manner would put them in a position of relative disadvantage to those who did not (Miller & Ratner, 1998). These notions may also manifest in what is known as the 'value action gap,' that is, the seeming gap between environmental knowledge and attitudes on one hand, and behaviour on the other (Blake, 1999). While environmental knowledge is presumably high due to extensive media coverage and education programs, so too are attitudes and some behaviours, such as the increasing use of ecologically-friendly shopping bags and purchasing of organic products. However, the consumer behaviour of Australians on the whole is on the increase, including the increased consumption of energy, general use

of resources, and the increased production of waste. So, while some individuals may desire to act in ecologically-friendly ways, the perceived behaviour, and therefore desires, of those around them may ultimately influence their behaviour. Thus, the culture of selfishness and consumption maintains itself.

Finally, given that issues of morality appear to be at the core of ecological behaviour (see Chapter 1), the performance of ecologically-friendly behaviour may occur not only due to a desire to be cooperative with the numerous groups reasoned to suffer, but also out of self-interest as a method of increasing one's own moral standing. Recent findings from Mazar and Zhong (2010) have shown that "green" behaviour is considered to be more cooperative, altruistic, and ethical, and can lead to the subsequent 'licensing' of immoral behaviour. Also, recent research on the types of green consumer (e.g., Jacobsen, 2010) has identified that not all ecological behaviour may be due to a desire to preserve the earth, with some engaging in such behaviour for self-interested reasons. As such, the performance of ecological behaviour may be at least partly due to a desire to elevate the self from others and achieve a position of moral superiority. While possibly having positive associations with ecologically-friendly behaviours, these behaviours are not maintained and are not reflective of a true concern for the ecological impacts of one's actions on others; they are, instead, motivated by personal, or selfish, motives.

If, however, one acknowledges, either explicitly or implicitly, that ecological selfishness is occurring while, instead, more cooperative behaviour should be occurring, there may be resultant emotional consequences for the individual. Indeed, emotions that may accompany the realisation of this selfishness may be another source of motivation for individuals to be ecologically friendly. Emotions have been found to be good predictors of both attitudes and behaviours across a host of domains (see e.g., Antola, 1985; Tomkins, 1970). Attesting to the importance of emotions in motivating behavioural responses, Niedenthal and Breuer (2012) cite evidence from numerous sources (e.g., van Zomeren, Spears & Leach, 2008; Iyer, Schmader & Lickel, 2007) that emotions such as guilt, shame, moral outgrage, and anger have shown stronger relationships to making reparations for wrong doing than perceptions of the actual wrong doing. As it is thought that there may be emotional consequences for the individual when they acknowledge the large-scale occurrence of ecologically-selfish behaviour and the impacts this is predicted to have on

others (see Chapter 1), the emotional consequences that may result when this failure to cooperate is acknowledged are described in the following chapter.

CHAPTER 3: EMOTIONAL CONSEQUENCES OF FAILING TO COOPERATE

The previous chapter outlined factors that may encourage or inhibit ecological friendliness and identified selfishness, or the failure to cooperate, as a major inhibiting factor. This chapter will describe the emotional consequences that may result if this selfishness is acknowledged. Indeed, if one acknowledges, either implicitly or explicitly, that there are actions that are in violation of moral standards, emotional consequences may result for the individual. As a failure to cooperate can be considered to be a moral issue, its emotional consequences will centre on morally-relevant emotions. It is generally considered that there are four moral emotions – shame, guilt, embarrassment and pride (Tangney, Stuewig & Mashek, 2007). Of these, shame, guilt and embarrassment are negative emotions that may occur when there has been a breach or violation of moral code; whereas pride is a positive emotion arising when one meets or exceeds expectations (Tangney et al., 2007). These emotions are considered to be "self-conscious" in that they involve some level of self-reflection or evaluation, whether it is implicit or explicit (Tangney et al., 2007). As a failure to cooperate is at the core of ecological issues (see Chapter 1), some level of negative self-evaluation may result, and the negative emotions of shame, guilt and/or embarrassment may be experienced, each of which have been outlined below.

Embarrassment

Embarrassment emotions result when one has behaved in a way that may threaten others' acceptance of them (Cupach & Metts, 1992). These emotions are centred on the desire for acceptance by others, and the desire for inclusion or re-inclusion (Cupach & Metts, 1992). Given current ecological issues involve changing behaviour from that which is currently performed on mass, it is reasoned that embarrassment emotions are unlikely to play a role in motivating ecological friendliness in members of developed nations. Also, issues of morality are generally less of a focus with feelings of embarrassment, which are concerned more so with personal notions of acceptance and inclusion, while issues of morality are much more centrally relevant to feelings of shame and guilt (Tangney, Miller, Flicker & Barlow, 1996). As a result, feelings of embarrassment are deemed unlikely to be significantly related to ecological friendliness, with the focus instead on the more morally-concerned emotions of shame and guilt.

Shame and Guilt

With respect to feelings of shame and guilt, certain conditions have not been found to specifically induce shame or guilt. Indeed, the same conditions have found to induce feelings of guilt in some, while feelings of shame in others (e.g., Keltner & Bruswell, 1996; Tangney, Marschall, Rosenberg, Barlow & Wagner, 1994), and the way the moral violation is personally framed determines which emotion will be experienced. Attempts to explain the difference between shame and guilt have differed, although the most current and dominant approach involves a distinction between the self and behaviour.

Building on the work of Lewis (1971), shame has been explained as the emotion resulting when one realises one has failed to live up to some sort of moral ideal. This usually results when behavioural control is perceived to be lacking such that behaviour is reflective of the dispositional qualities of the individual (Branscombe, Slugoski & Kappen, 2004; Lickel, Schmader & Barquissau, 2004). Guilt, on the other hand, results when one acknowledges that there has been some infringement on moral behaviour (Tangney, 1995; Tangney et al., 1994), and this behaviour was within the perceived control of the individual (Branscombe et al., 2004; Lickel et al., 2004). While this distinction may seem subtle, in the case of shame, the focus is on the "doer" whereas for guilt, the emphasis is on the impact of the actions. That is, shame is concerned with the fact that others will negatively evaluate one as a result of one's actions, whereas guilt is more concerned with the effect of one's actions on others (Tangney et al., 1994). Mulligan (2009) illustrates this by phrasing guilt as "How could I have done *that*?" whereas shame holds the emphasis on the self, such that "How could *I* have done that?". As a result, these emotions result in different behavioural motivations.

Consistently, research has shown that feelings of shame are linked with efforts to withdraw, distance or hide from the harmed party, whereas feelings of guilt motivate reparative efforts including expressing regret, apology, or doing things to ameliorate the wrongdoing (e.g., Brown, Gonzales, Zagefka, Manzi & Cehajic, 2008; Lindsay-Hartz, 1984; Tangney, 1993; Wicker, Payne & Morgan, 1983). In line with the notion that guilt emotions are concerned with the effects of one's misdeeds, guilt-prone people have been found to be higher on measures of perspective-taking (Leith & Baumeister, 1998), indicating these feelings may result from considering the negative effects of one's behaviour on others. As a result, feelings of guilt may be considered to be more pro-social and more adaptive than feelings of shame (Mulligan, 2009).

Collective Emotions

Emotions may be personal or collective (group-based) depending on whether one is focussing on the behaviour of the self or the groups to which one is a member. Collective emotions are similar to personal emotions; however, they are based on group, as opposed to personal, behaviour. Thus, they may be vicarious in that the individual may not be directly involved in the emotion-eliciting actions. Collective emotions emerge from social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) in that self-esteem is thought to be gained from the numerous groups to which one has membership, and therefore has aspects of their identity invested. As self-esteem is gained from these numerous identities, and, as it is a valued part of the individual (Tajfel, 1978), these sources of self-esteem can be an important source of an individual's emotions. Social identity theory and its relevance to the current body of work will be further elaborated in Chapter 4.

Indeed, positive feelings of pride may accompany the positive performance of one's group, such as the wins of one's sports team (e.g., Cialdini, Borden, Thorne, Wakler, Freeman & Sloane, 1976) or political party (e.g., Boen, Vanbeselaere, Pandelaere, Dewitte, Duriez, Snauwaert et al., 2002), and negative, morally-relevant emotions of shame and guilt may also result from the immoral actions of one's group. However, due to the different effects of shame and guilt emotions, in particular that guilt is associated with reparative efforts, this emotion will be given focus as a possible avenue for understanding and potentially increasing ecological friendliness in members of developed nations. Furthermore, due to the relative contribution of group activities having a much greater ecological impact than individual actions, it is contended that, in the case of the natural environment, group behaviour should be a more potent determinant of ecological friendliness than personal behaviour. Others (e.g., Ferguson & Branscombe, 2010) agree with this position.

Collective Guilt

As stated, personal guilt is a moral emotion that results when individuals believe they have behaved or have somehow caused an outcome that is discrepant with their moral standards (Tangney, 1995). Similarly, collective guilt is the emotion resulting from the inconsistency of morals and behaviour, only this time referring to the behaviour of one's group. In the case of personal guilt, the individual was involved in performing the transgression. For collective guilt, the individual may lack any personal involvement in the action, that is, the transgression was performed by other group

members. As such, the individual can be considered to be *guilty by association* with the group that caused the harm, and these feelings of guilt may be present even if personal responsibility for the harmful actions is lacking (Doosje, Branscombe, Spears & Manstead, 1998). This usually translates to harmful actions of one's group toward another group (Doosje et al., 1998), and this harm doing may also be separated by a temporal element whereby the harm may have been committed in the past, such as historical prejudices against racial minorities or indigenous populations (e.g., Wohl & Branscombe, 2005). The degree to which the behaviour deviates from held morals determines the degree to which these guilt emotions, be they either personal or collective, may be experienced (Bizman, Yinon & Krotman, 2001). Indeed, the two forms of guilt (personal and collective) have been demonstrated to be separate constructs by Branscombe et al. (2004) who distinguished collective guilt from personal state as well as trait guilt. Feelings of collective guilt have also been differentiated from other collective emotions, including collective regret and collective shame (see Imhoff, Bilewicz & Erb, 2012). Notions of ingroup responsibility are critical for the experience of collective guilt, while not required for the experience of collective regret (Imhoff et al., 2012).

Branscombe et al. (2004) also explained that collective guilt can incorporate several dimensions. There is the *acceptance* of collective guilt for the immoral actions of one's group, the *assignment* of collective guilt to others for the actions of their group, the notion that whole groups may be accountable for the actions of its members, and, finally, not denying the actions of one's group. Thus, there are aspects of the collective guilt experience, namely the assignment of collective guilt, which may be felt by those not associated with committing the immoral actions. In particular, victim groups may be inclined to assign collective guilt to members of perpetrator groups; however, this assignment may not be restricted solely to those in victim groups and may come from other groups knowledgeable of the harm doing, and this may impact the manner in which these outgroups respond to perpetrator groups. The next section will address which ingroup members may experience collective guilt and the role that ingroup identification may play in this.

Who Experiences Collective Guilt? The Importance of Ingroup Identification

In order for collective guilt or other group-based emotions to occur certain requirements must be met. The first and foremost of these requirements is for social identity to be salient; that is, individuals must be thinking of themselves in terms of

their group membership (Branscombe & Doosje, 2004). From this, it is also required that a categorisation of the self into the particular group that has committed the transgression also occurs (Branscombe, Doosje & McGarty, 2004). Furthermore, they must also acknowledge that harm was caused to another group, that this harm was illegitimate, and that one's group is responsible for the harm doing (Branscombe et al., 2004).

Given these requirements for the experience of collective guilt, ingroup identification can provide a potent influence on intergroup emotions and behaviour (e.g., Doosje et al., 1998; Doosje & Ellemers, 1997; Spears, Doosje & Ellemers, 1997). From this, one may then expect those who are most invested in their group, namely those identifying most strongly (the high identifiers) to experience the most collective guilt. However, those who are most invested in their group are, according to social identity theory (Tajfel, 1978; Tajfel & Turner, 1979), also the most motivated to protect the image of their group in order to maintain a positive sense of self. This then suggests that it should be the lower identifiers who are most vulnerable to collective guilt feelings because they are not as motivated to protect their group's image. Indeed, in some cases, lower identifiers have been found to experience more collective guilt (e.g., Doosje et al., 1998). However, this finding has not been universal, with no relationship (e.g., Branscombe et al., 2004), or even the opposite relationship (e.g., Doosje, Branscombe, Spears & Manstead, 2004) being found in other studies. There are some reasons that may explain this.

Recently, Klein, Licata and Pierucci (2011) proposed that the findings of ingroup identification on feelings of collective guilt may be conflicting because it may well be that the relationship between ingroup identification and collective guilt feelings is not linear. They instead proposed, and found support for, a curvilinear relationship whereby for lower identifiers identification positively predicted feelings of collective guilt; however, after identification reached a certain point it had the opposite effect on feelings of collective guilt. This was presumably because, for these higher identifiers, acknowledging ingroup wrongdoing posed enough of a threat to their identity that defensive strategies were employed, thereby reducing feelings of collective guilt (Klein et al., 2011). Feelings of collective guilt were, thus, demonstrated to reach a maximum in those moderately identified with the ingroup (Klein et al., 2011). A downside of approaching the relationship between ingroup identification and feelings of collective guilt in this curvilinear manner is the large sample sizes required to obtain a sufficient

distribution in identification as well as possible confounding effects such as the individual's mode of ingroup identification, as discussed below.

In an earlier attempt to explain the influence of identification on group-relevant emotions, it was suggested that it may not be the *degree* of identification but instead the *mode*, or type, of identification with the ingroup. Specifically, Roccas, Klar and Liviatan (2004; 2006) investigated the way in which individuals identified with their ingroup in order to predict the level of collective guilt experienced. They investigated differences between those that 'glorified' their ingroup and those that were more 'critically attached' to their ingroup and, through these differing modes of attachment, they showed that group-relevant information is interpreted differently, resulting in differing levels of collective guilt (Roccas et al., 2004; 2006). They explain a glorification type of attachment as a "blind attachment" to one's group, involving love and commitment to the group. This is characterised by the use of exonerating cognitions, and also involves beliefs that one's group is of a higher status to others and that ingroup criticism should not be tolerated (Roccas et al., 2004; 2006). In terms of national identity, this can be compared to nationalism (Roccas et al., 2004; 2006). On the other hand, a glorification attachment can be contrasted to a more critical ingroup attachment. While also involving a love and commitment to the ingroup, it is characterised by a failure to use exonerating cognitions and, in terms of national identity, can be compared to patriotism. The use of exonerating cognitions was found to mediate the negative relationship between collective guilt and ingroup glorification, as well as the positive relationship between collective guilt and critical ingroup attachment (Roccas et al., 2004). As such, individuals who use exonerating cognitions are unlikely to experience collective guilt as they are unlikely to acknowledge the wrongdoing of their ingroup. Those who do not use exonerating cognitions, however, are likely to experience collective guilt for precisely the opposite reason, namely, that they are likely to acknowledge ingroup wrongdoing.

In a similar vein, Klandermans, Werner and van Doorn (2008) found political ideology (liberal or conservative) to moderate the relationship between the degree of ingroup identification and the extent to which collective guilt emotions were experienced. That is, in their study on White South Africans, for those strongly identified, if they also reported a liberal political orientation, then strong feelings of collective guilt about apartheid were reported (Klandermans et al., 2008). On the other hand, for those strongly identified, but with a conservative political orientation, feelings

of collective guilt were largely non-existent. This conceptualisation has similarities to the glorification and more critical attachments described by Roccas et al. (2004; 2006), whereby one's political orientation may influence the way in which group-relevant information is interpreted. If one subscribes to a conservative political view, then one may also hold one's group above others and be less open to criticism about one's group and, hence, be likely to use exonerating cognitions. If one, however, subscribes to a more liberal view, while still strongly valuing one's group, one may be more open to information and accepting of ingroup criticism. Thus, it seems that both the extent of ingroup identification as well as the way group-relevant information is interpreted as a result of the way one identifies with the group, either through political ideology, or mode of ingroup attachment, may be important for the experience of collective guilt.

Another factor that influences which group members experience the most collective guilt is the source of the negative information about the group. If the source of the harm doing is from other ingroup members, such as a group's leader, then it has been found that the high-identifiers experience higher levels of collective guilt than low identifiers, but when the source of the information is from outside the group, the opposite is observed and it is the lower identifiers that experience the most collective guilt (Doosje et al., 2004). This is presumably due to the inability of high-identifiers to dismiss the information presented by members of their own group (Doosje et al., 2004). However, due to the negative valence of guilt emotions, collective guilt is thought to be undesirable, and numerous factors have been identified as affecting the magnitude of its experience. These are discussed in the following section.

Influencing the Experience of Collective Guilt

As collective guilt is a negative emotion that puts the morality of one's group, and therefore the self, into questionable light, people are motivated to avoid it. This is done through processes aimed at an individual's social identity (Branscombe & Doosje, 2004) or at the legitimacy of the ingroup's actions (Kelman, 2001). These processes essentially involve recategorisation, denial or reappraisal processes which can be used to maintain a positive sense of identity (Doosje et al., 1998). Branscombe and Miron (2004) outline the methods which are often undertaken to avoid feelings of collective guilt. These methods include: (1) the avoidance of categorising oneself as a member of the group that committed the harm, (2) the minimisation of the harm done to the outgroup by attesting that the harm was less severe, (3) the derogation of the victim to inferior or even sub-human status, and (4) the legitimisation of the harm done against

the outgroup (Branscombe & Miron, 2004).

Furthermore, isolating the harm doing can also help to negate the experience of collective guilt. This may be done by temporally separating the harm doing from the present (e.g., Peetz, Gunn & Wilson, 2010), or by symbolically separating it from the ingroup by viewing those responsible as uncharacteristic group members (e.g., Branscombe, Wann, Noel & Coleman, 1993). This avoidance of collective guilt is thought to be made possible by the disconnection of the harm doing from the individual's social identity (Peetz et al., 2010). Indeed, as stated, social category membership is required for group behaviour to be relevant to an individual (Tajfel, 1978), and definitions of collective guilt include the necessity of categorisation into a group that has committed illegitimate outgroup harm (Branscombe et al., 2004). As such, an individual can therefore avoid association with ingroup behaviour and any feelings of collective guilt by simply avoiding ingroup categorisation.

As mentioned, the temporal distance between the harm doing and the present can also influence the extent to which feelings of collective guilt are felt by ingroup members. Wilson and Ross (2003) explained that the extent to which events are temporally removed from the present affects the extent to which these events are connected, and therefore relevant, to present identity. Thus, when events are perceived to be more subjectively remote they are less part of the self and have a less pertinent influence on identity than events bearing greater temporal relevance (Peetz et al., 2010). This was found to hold for events relevant to both personal and collective identity (Peetz et al., 2010). Collective guilt feelings should thus be lower with increased temporal separation from the present. Indeed, it was demonstrated that Germans who viewed the Holocaust as more subjectively distant also reported feeling less collective guilt than those perceiving the Holocaust as more temporally relevant, and this also translated to a lower willingness to make reparations (Peetz et al., 2010).

Other distancing mechanisms may also be utilised to avoid the aversive feelings of collective guilt. As guilt is an emotion resulting from morally-unacceptable behaviour, strategies that address the perceived morality of the ingroup's actions may also be utilised to avoid collective guilt feelings. By interpreting ingroup members responsible for the harm doing as either uncharacteristic of the ingroup, or isolated in that they are performed by only a few ingroup members, can remove the negative taint that these behaviours may have on all group members (Branscombe et al., 1993). For example, after the Second World War, Rensmann (2004) explained that many Germans

outsourced the harm doing to a few Nazi members, thus removing the need for them to accept responsibility for ingroup actions or, alternatively, distance themselves from their national identity. Thus, strategies that downplay the effects of the ingroup's actions on the individual's social identity can be a potent avenue for avoiding feelings of collective guilt.

Another method of avoiding collective guilt feelings includes minimising the harm that has been done to the outgroup (Branscombe & Miron, 2004). The most extreme harm minimisation might be the denial of the occurrence of any harm doing in the first place (Branscombe & Miron, 2004; Cohen, 2001). Indeed, there is some evidence to suggest that denial of historical wrongdoing does occur; and Churchill (1997) reported data suggesting that 25% to 40% of Europeans were either not confident of the Holocaust's actual occurrence or thought the extent of the harm was exaggerated.

Finally, strategies that focus on increasing the legitimacy of the ingroup's actions can also be utilised to avoid collective guilt feelings. Strategies that serve to devalue the outgroup, such as by derogation to sub-human status, can serve to increase the legitimacy of the ingroup's actions, thereby negating any collective guilt feelings. Bar-Tal (1990) explains that denying humanity to an outgroup can serve as a method of rationalising ingroup harm doing. This has been seen in numerous cases of intergroup harm including within the current conflict between Israeli Jews and Palestinians (e.g., Bar-Tal, 1988), and between Germans and Jews during the Holocaust (e.g., Rensmann, 2004). Other methods that can increase the legitimacy of the ingroup's actions include strategies such as reappraising the ingroup's negative actions as necessary either for some higher good, for example, many Germans involved in the Holocaust justified their actions as a service to their country (Staub, 1989). As a method to avoid collective guilt feelings, the ingroup's negative actions can also be appraised as within the interests of the outgroup. For example, some Australians reported the forceful removal of Indigenous children from their families (The Stolen Generation) as within their best interests due to the apparent inferior Aboriginal culture and parenting (Augoustinos & LeCouteur, 2004).

Apart from strategies that may be utilised to avoid collective guilt feelings, there are a few factors that have been identified as impacting the extent to which feelings of collective guilt are experienced. The perceived cost of making reparations for the harm committed can determine the level of collective guilt felt. Specifically, Schmitt and

colleagues (Schmitt, Branscombe & Brehm, 2004; Schmitt, Miller, Branscombe & Brehm, 2008) investigated the collective guilt felt by men for gender inequality, and it was found that when the cost of making reparations, be it effort or financial, was either very low or very high, little collective guilt was experienced. It was explained that when the cost required to restore the inequality was very low, there was also little motivation to experience collective guilt. When the cost was very high, little collective guilt was also experienced, possibly due to the effort required to restore equality perhaps outweighing the value of such change (Schmitt et al., 2004, 2008) in combination with possible efficacy issues at being able to bring about the required change.

Another strategy to increase feelings of collective guilt involves perceiving the harmed outgroup as members of a larger, more inclusive and common ingroup. When this categorisation is more inclusive and also involves the ingroup, it implies that evaluation of these former outgroup members should become increasingly positive (Gaertner, Mann, Dovidio, Murrell & Pomare, 1990). It also implies that the same standards of justice that are used to judge other ingroup members should also be applied to the former outgroup (Wenzel, 2001). Indeed, Branscombe (2003) demonstrated that greater collective guilt was found when minority groups could be recategorised as members of the ingroup than when they could not. This implies that the degree to which outgroups may be recategorised as belonging to a more inclusive group of which the ingroup is also part can decrease the likelihood that ingroup members may engage in denial or reappraisal processes to avoid feelings of collective guilt.

The vast majority of collective guilt research has, however, utilised domain-specific assessments of feelings of collective guilt. The downside of this approach is that is poses possible risks of criterion contamination in that the independent and dependent variables become increasingly similar. For example, Doosje et al. (1998), Ferguson and Branscombe (2010), Iyer, Leach and Crosby (2003) and Powell, Branscombe and Schmitt (2005) all utilised domain-specific assessments of collective guilt feelings in their studies, while very few used more general assessments of feelings of collective guilt (e.g., Brown, 2002). As a result, some caution is recommended in the interpretation of the results of studies utilising domain-specific assessments of collective guilt due to this risk to validity. Despite this, feelings of collective guilt have been linked with numerous outcomes, and these are described next.

The Effects of Collective Guilt

If feelings of collective guilt are unavoidable, they may hold ramifications for

the individual. As social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) explains, self-worth is derived, in part, from group membership and can be compromised by feelings of collective guilt when the ingroup has committed moral wrongdoing. Poorer mental health may result from diminished self-worth, and therefore from feelings of collective guilt. Indeed, Fujishiro (2009) found the perception of racial privilege to be associated with poorer mental and physical health and, recently, feelings of collective guilt resulting from perceptions of racism have been found to predict negative mental health outcomes in dominant group members (Blodorn & O'Brien, 2011). Thus, feelings of collective guilt can have impacts on the health of dominant group members, and may partially explain why members of perpetrator groups desire to avoid it.

In addition to health consequences, feelings of collective guilt may also have behavioural consequences for members of the perpetrator group. Like personal guilt (e.g., Tangney, 1993, 1995), feelings of collective guilt motivate reparative behaviour, including expressing apology, regret, or retributive action to "make up" for the harm done and to alleviate the feelings of guilt (Doosje et al., 1998). Indeed, feelings of collective guilt have been implicated in many cases of intergroup harm, and these feelings predict more positive attitudes and behaviours toward the outgroup. The recent work on collective guilt has studied post-Holocaust Germany (e.g., Rensmann, 2004), nations with a colonial past or a history of ethnic cleansing, including Australia (e.g., Brown, 2002; Halloran, 2007; McGarty, Pederson, Leach, Mansell, Waller & Bluic, 2005) and the United States (e.g., Branscombe et al., 2004; Swim & Miller, 1999), as well as gender inequality between men and women (e.g., Schmitt et al., 2004, 2008). Feelings of collective guilt have been associated with more favourable attitudes toward the outgroups and actions directed at reparation in each of these cases. For example, feelings of collective guilt have been associated with more favourable attitudes of White Australians toward Indigenous reconciliation (Brown, 2002; Halloran, 2007; McGarty et al., 2005) as well as towards affirmative action policies in the United States (Branscombe et al., 2004; Swim & Miller, 1999).

As feelings of collective guilt result from acknowledging the immorality of the ingroup's actions, they are unpleasant and, as a result, they motivate reparation. These reparations can be explained to be out of some desire for, or move toward, intergroup equity, or out of some self-focussed desire by ingroup members to alleviate the guilt and stop "feeling bad" with little real concern for the well-being of the outgroup. Baumeister, Heatherton and Tice (1994) argue that reparative efforts stemming from

guilt emotions are more consistent with the former of these; that is, they are motivated by a desire to establish a cooperative relationship with the previously harmed party. Indeed, feelings of guilt are found to be associated with increased perspective taking, hinting at its association with the consideration of the other (Leith & Baumeister, 1998); and, as explained earlier in this chapter, feelings of guilt stem from the concern about the effects that one's wrong doing may have on others (Tangney et al., 1994). This suggests that feelings of collective guilt hold cooperative origins.

Not all share this view, however, with some (e.g., Iyer et al., 2003; Powell et al., 2005) arguing that reparative efforts resulting from collective guilt emotions are self-focussed. This is in the sense that they are due to a desire to alleviate the negative guilt emotions and restore positive ingroup identity, as opposed to some sort of genuine concern for social justice or the welfare of the outgroup. This notion was recognised some time ago by Steele (1990) who argued that many attempts by White Americans to address racial disadvantage faced by African Americans are driven not by a desire to actually reduce inequality, but instead for their own White redemption. Indeed, Thomas, McGarty and Mavor (2009) also explain that the emotion of guilt may be associated more so with token efforts at reparation that allow members of perpetrator groups to relieve their consciences, while maintaining the continued disadvantage of the outgroup. Reparations resulting from collective guilt are not, according to Iyer et al. (2003) and Powell et al. (2005), caused by empathetic feelings and concern toward the victims, an other-focused emotion, but instead due to the self-focused distress as a result of perceiving that one's own group has acted immorally (Iyer et al., 2003). This argument is based on their findings that feelings of collective guilt were evoked when the harmful actions of the ingroup were made salient, whilst empathy resulted from highlighting the disadvantaged status of the outgroup (Iyer et al., 2003; Powell et al., 2005). Furthermore, Powell et al. (2005) demonstrated that more collective guilt was felt when the advantaged status of the ingroup was made salient as opposed to when attention was drawn to the disadvantaged status of the outgroup. They explain that a focus on the ingroup and not the outgroup increases levels of collective guilt, and strategies to reduce guilt are apparently based on a concern to restore a positive ingroup identity for the individual, and not due to an empathetic concern for the welfare of the outgroup (Iyer et al., 2003; Powell et al., 2005).

As stated previously, in order for collective guilt to be experienced, individuals must be thinking of themselves in terms of their group membership (Doosje et al.,

1998). The increased collective guilt elicited by an ingroup focus may just be due to the fact that membership in the perpetrator group has been made salient to participants in these studies, while this was not the case when considering the disadvantaged status of the outgroup. Iyer et al. (2003), however, further demonstrated that feelings of collective guilt were predictive of compensatory retribution as opposed to initiatives aimed at equal opportunity for the outgroup. As a result, these authors conclude that the experience of collective guilt is a self-focussed one driven, not by a desire for social justice but, instead, by the desire to alleviate negative emotions.

These findings do not automatically harmonise with theoretical approaches to the guilt, or the collective guilt, experience which explains that these feelings arise from a violation of moral standards and hence motivate efforts to re-establish or reaffirm morality. Thus, as a moral emotion, feelings of guilt *should* motivate efforts at achieving intergroup justice. Given previous work on the relationship between ease of reparation and the extent of collective guilt feelings (see Schmitt et al., 2004, 2008), it remains a possibility that participants in Iyer et al.'s (2003) work may have felt that achieving intergroup equality may have been too difficult. Compensatory action at least demonstrates some level of effort by the ingroup and goes some way to "doing something" for the harmed outgroup. Reparation resulting from feelings of collective guilt may be a balance between self- and other-focussed in that it may involve a desire to better the outgroup's position but also considers the impact of this on the ingroup.

Furthermore, it is also reasoned that the relationship between the ingroup and the outgroup in each case of intergroup harm may influence whether cooperative or self-focused retributions result from any feelings of collective guilt in dominant group members. This perceived intergroup relationship may also be affected by one's ingroup identification. Indeed, as social identity theory explains (see Chapter 4), individuals desire to view their group with positive distinctiveness (Tajfel, 1978; Turner, 1975), and this may include being relatively advantaged in comparison to other groups, especially for those with a glorification ingroup attachment. Reparative efforts resulting from collective guilt emotions may, thus, lead to self-focussed retributions with the aim of guilt alleviation in some ingroup members. Indeed, this may be especially the case when addressing the relative disadvantage of the outgroup poses a salient threat on the advantaged status of the ingroup. Indeed, the work of Iyer et al. (2003) and Powell et al. (2005) can be interpreted in this light. Their studies investigated feelings of collective guilt in White Americans for African American disadvantage. In this case, there is no

temporal or spatial separation between the ingroup and the outgroup, thus, intergroup cooperation will directly threaten the ingroup's advantaged status. As a result, feelings of collective guilt may motivate compensatory, as opposed to cooperative, retribution, as this may still allow for guilt alleviation, while also maintaining the ingroup's dominant status. However, maintaining the relative disadvantage of the outgroup may not be considered favourable by all ingroup members, or under all circumstances.

As social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) explains, individuals desire to achieve and maintain a positive sense of self (see Chapter 4). Due to the differing types of ingroup identification, this may hold different requirements for different ingroup members. Those with a glorification mode of ingroup attachment, by definition, perceive their group as superior to others (see Roccas et al., 2004, 2006); thus, the preference to maintain the ingroup's dominant status may also be likely to occur in these ingroup members. As a result, any feelings of collective guilt that these ingroup members experience may motivate retributions that maintain this advantage. On the other hand, for those with a more critical ingroup attachment, a positive identity may require a greater degree of intergroup justice, suggesting that feelings of collective guilt in these ingroup members may motivate cooperative retributions. Thus, the experience of collective guilt by members of perpetrator groups can have consequences relevant to the harmed outgroups, although they may have either selfish or cooperative undertones.

Collective Guilt and the Natural Environment

As explained, feelings of collective guilt result when members of a group responsible for causing harm to an outgroup acknowledge this harm, its illegitimacy, and the ingroup's responsibility for it (Doosje et al., 1998). These feelings then motivate efforts at reparation, whether it be for self-interested reasons of guilt alleviation as argued by some (e.g., Iyer et al., 2003; Powell et al., 2005), or a more cooperative concern for the outgroups as others (e.g., Baumeister et al., 1994; Leith & Baumeister, 1998) suggest. In the case of the natural environment, group behaviour has a much larger impact than any individual and, thus, it is reasoned that group behaviour should be a pervasive source of influence and motivation for ecological friendliness. It is reasoned that members of developed nations may experience collective guilt feelings when they acknowledge their group's role in anthropogenic climate change and ecological degradation, and the negative effects that will be consequently endured by others. These feelings are reasoned to motivate reparations that may take one of the

many forms of ecological friendliness. In some cases these may be guilt-alleviating, while in other cases cooperative, depending on what is required for positive ingroup identity.

As explained in Chapter 1, the contemporary ecological crisis can be understood in terms of a commons dilemma whereby developed nations are benefitting from the overuse of natural resources at the predicted expense of numerous outgroups that are both innocent and powerless. In the sense that feelings of collective guilt have cooperative origins, it is argued that those inclined toward cooperating with others will be more likely to experience feelings of collective guilt, and these feelings of collective guilt may, in turn, motivate individuals to be ecologically friendly. While these feelings of collective guilt may be more general, or pertaining to a specific case of intergroup harm, both require acknowledgment of ingroup responsibility of outgroup harm doing. As a result, feelings of collective guilt in members of developed nations , both more generally, but especially for ecological harm, should positively relate to notions that favour addressing the harm that has been done to the natural environment, such that the harm that will be experienced by the numerous groups that are predicted to suffer can be undone or minimised. It is this desire for outgroup cooperation that may also encourage any continued engagement in ecologically-friendly behaviour that may be witnessed in members of developed nations.

In contrast, it is also reasoned that feelings of collective guilt for ecological harm may motivate self-focussed attempts at guilt alleviation. As explained earlier in this chapter, guilt-alleviating or compensatory retributions resulting from collective guilt feelings may result from the desire to maintain the ingroup's advantaged status. This desire may come from an individual's mode of ingroup identification, whereby ingroup glorifiers perceive their group as superior to others (Roccas et al., 2004, 2006), or the perceived difficulty in making reparations whereby the effort to amend the harm perhaps outweighs its value (Schmitt et al., 2004, 2008). It may also arise from the relationship between the ingroup and the harmed outgroup and the threat that outgroup cooperation may pose on ingroup advantage. With respect to feelings of collective guilt in members of developed nations for ecological harm, cooperating with the outgroups poses a much less salient threat on the advantaged status of the ingroup than other cases of collective guilt emotions, such as in White Americans for the disadvantage of African Americans. As a result, it is reasoned that collective guilt emotions in the ecological domain may be more likely to motivate cooperative retributions, provided one does not

possess an ingroup glorification attachment.

There may be other factors that may also encourage guilt-alleviating retributions including temporal distance and the perceived behaviour of other group members. With respect to ecological harm committed by developed nations, the consequences are not predicted to be realised until some future time. As such, the temporal separation from the outgroup's experience of harm and the present ingroup may also exist in a prospective manner. This separation may, thus, impact any feelings of collective guilt ingroup members may have regarding their group's role in ecological harm. Although not investigated in this project, the high degree of temporal separation between ingroup actions and the consequences for the outgroups reduces the ability for one to predict both the negative effects of ingroup actions as well as the positive effects of any ecologically-friendly behaviour that one may perform. Indeed, temporal separation has been found to decrease feelings of collective guilt (Peetz et al., 2010). As a result, this may encourage individuals to subjectively push the consequences of unecological action further into the future, or to engage in actions which may alleviate any feelings of collective guilt but fail to necessarily address the intergroup inequality as, due to the temporal separation, it remains uncertain as to what would actually be required for equality to be reached.

Furthermore, individuals in developed nations may desire for their ingroup to act cooperatively with the outgroups that will be harmed as a result of continued unecological behaviour. However, they may feel as though the impact of their action is considerably diminished by the apparent continued unfriendly behaviour of their ingroup. As a result of these factors, these ingroup members may be motivated to perform ecologically-friendly behaviour as a means of alleviating any collective guilt emotions they may be feeling. Such behaviours may occur out of a belief that a cooperative relationship between the ingroup and the outgroups is unlikely.

Recently, work investigating feelings of collective guilt for ecological harm has begun to emerge. Ferguson and Branscombe (2010) investigated feelings of collective guilt Americans felt toward future ingroup members (future Americans) for America's greenhouse gas emissions and contribution to global warming. They report two studies, the first of which demonstrated that more collective guilt was experienced when global warming was portrayed as resulting from anthropogenic actions as opposed to natural processes (Ferguson & Branscombe, 2010). This fulfils a major requirement for the experience of collective guilt, whereby one's group must be responsible for the harm

doing in order for collective guilt to occur (Branscombe et al., 2004). Ferguson and Branscombe (2010) also found that more collective guilt was reported when global warming was explained to have minor, as opposed to major, effects. This is also in line with previous work that has found that the extent to which collective guilt emotions are experienced is determined by the cost of making reparations, presumably due to its impacts on beliefs that making amends is possible, and that doing so is worth the effort (Schmitt et al., 2004, 2008). Their second study demonstrated that feelings of collective guilt were related to greater willingness to engage in mitigation behaviours including paying green taxes and conserving energy, and discounted the possibility that it may instead be feelings of collective anxiety, not collective guilt, causing the increased willingness to engage in mitigation behaviours (Ferguson & Branscombe, 2010).

Feelings of collective guilt may exert its influence within the ecological domain in more pervasive ways than as a source of motivation for those engaging in ecologically-friendly behaviour. As collective guilt is an aversive emotion, members of perpetrator groups are motivated to avoid it, and they may engage numerous strategies to do so. As stated earlier in this chapter, numerous strategies are often utilised to avoid negative emotions that may result from acknowledging ingroup wrongdoing. These include avoiding categorising the self as a member of the group responsible for the harm, legitimising the harm, distancing from the harm either temporally or by framing it as caused by isolated or uncharacteristic group members, downplaying the severity of the harm, or the outright denial of any harm doing. Indeed, there is some evidence that supports that these strategies are being utilised by some members of developed nations. In particular, in some members of developed nations, the denial of anthropogenic climate change, or the downplaying of its severity, has been witnessed, including by high profile scientists and politicians. This may be due to their desire to avoid negative emotional consequences that may result from acknowledging their group's role in harm doing.

Additionally, the notion of collective guilt includes not only the acceptance of collective guilt for ingroup wrongdoing, but also the *assignment* of responsibility and guilt feelings to members of other groups responsible for harm. This has been seen in between-country negotiations which have aimed to develop targets for the reduction of anthropogenic climate change, whereby developing nations have attributed responsibility for climate change to developed nations. For example, at the 2009 Copenhagen Climate Summit, which failed to establish meaningful emission reduction

targets, China's Foreign Minister, Yang Jiechi stated that "developing and developed countries are very different in their historical emissions responsibilities…Therefore, they should shoulder different responsibilities and obligations in fighting climate change" (Coates & Macartney, 2009). This illustrates the role of collective responsibility, and therefore collective emotions such as collective guilt, in addressing global ecological issues. The notion of collective guilt assignment to developed nations for matters pertaining to the environment may provide an interesting topic of social psychological research in the future where many of the consequences of current unecological behaviour may become realised.

Overview of Studies and Hypotheses

This body of work will focus on one perpetrator group, namely the developed nation of Australia, in its research on the relationship between feelings of collective guilt and ecological friendliness. Seven studies have been conducted to demonstrate and explore the application of feelings of collective guilt to the ecological domain. Each of these studies are outlined below.

Study 1: Collective Guilt and Recycling: A Preliminary Study

This study aimed to find preliminary evidence for the relationship between general feelings of collective guilt and one ecologically-relevant behaviour, recycling. It aimed to do this by demonstrating a correlational relationship between general feelings of collective guilt and recycling attitudes and behaviour. A general assessment of collective guilt was considered desirable in the first instance to avoid issues of criterion contamination discussed previously in this chapter. It was hypothesised that general feelings of collective guilt would be positively related to both recycling attitudes and behaviour, and that social norms would also be positively related to recycling attitudes and behaviour. Study 1 has been presented in Chapter 6.

Study 2: The Mediating Role of Collective Guilt in Cooperation and Ecological Behaviour

This study aimed to demonstrate the cooperative roots of collective guilt by investigating the relationship between the tendency to make cooperative decisions, feelings of collective guilt (both general and domain-specific), and everyday ecological behaviour. It hypothesised that feelings of collective guilt would mediate the positive relationship between cooperative tendencies and ecological behaviour. Study 2 has been presented in Chapter 7 of this thesis.

Study 3: Predictors of Ecological Behaviour: A Comparison of Known Groups

This study compared community groups that differ in their ecological behaviour, in order to investigate how these groups may differ in terms of the psychological characteristics identified in Chapter 2. It also aimed to provide ecological validity for feelings of collective guilt by demonstrating that this emotion would be experienced more by those invested in ecological friendliness than those not invested in such behaviour. Specifically, this study investigated the differences between Environmentalists and Performance Car Enthusiasts as well as between Young and Older samples. It hypothesised that Environmentalists would report more collective guilt, be more cooperative, have higher norms (both personal and social) surrounding environmental behaviour, have a more internal locus of control, higher levels of self-efficacy, higher levels of personal guilt, and lower levels of identification with Australia compared to Performance Car Enthusiasts. Furthermore, comparisons between young and older populations were expected to reveal only differences in locus of control, with the young sample having a more external locus of control, and self-efficacy and personal guilt, with the older sample scoring higher on these variables. Study 3 has been presented in Chapter 8 of this thesis.

Studies 4, 5 and 6: Untangling Collective Guilt and Environmental Contingencies of Self-Worth: Three Terror Management Studies

Studies 4, 5 and 6 aimed to explore the implications of feelings of collective guilt within terror management theory (Greenberg et al., 1986). Studies 4 and 6 aimed to replicate the findings of Vess and Arndt (2008) that environmental contingencies of self-worth (ECSW) would moderate the relationship between mortality salience and environmental concern, and it was hypothesised that feelings of ecologically-specific collective guilt would also moderate this relationship. Study 5 aimed to separate the influence of collective guilt and ECSW on environmental concern by employing a differential focus prime, focussing either on the advantaged status of the ingroup, or on the disadvantaged status of the outgroup. It was predicted that when ingroup identity is salient, focussing on either the ingroup's advantaged status or the outgroup's disadvantaged status would impact on environmental concern after MS by impacting levels of collective guilt. This advantaged ingroup / disadvantaged outgroup focus was not thought to have any impact on the relationship of ECSW between MS and environmental concern as it operates at the individual level. Thus, any effects of ECSW would be equivalent in both ingroup privilege and outgroup disadvantage conditions.

Due to the apparent self-focussed nature of collective guilt, it was hypothesised that in the outgroup disadvantage condition, via the reduction in collective guilt feelings, environmental concern would decrease after MS. In contrast, in the ingroup privilege condition, via the increase in collective guilt feelings, it was hypothesised that environmental concern would increase after MS. These studies are presented in Chapter 9.

Study 7: Negative Ingroup History Reminders Increase "Green" Purchasing, But What Happens Next?

Finally, Study 7 aimed to demonstrate the causal role of collective guilt in ecological behaviour by using a negative ingroup history reminder to prime individuals to experience ecologically-specific collective guilt. This study hypothesised that those reminded of the negative actions of their group would, due to an increase in feelings of collective guilt, purchase more ecologically-friendly products in comparison to a control group. It also predicted that subsequent ecological behaviour would be influenced by the extent of initial green purchasing and the individual's mode of ingroup identification. Specifically, it was hypothesised that for those who glorify their ingroup, the second instance of ecological behaviour would be negatively related to the amount of green behaviour previously performed. This was reasoned to be reflective of self-focussed motivations for the engagement in ecologically-friendly behaviour, where the performance of ecologically-friendly behaviour may be due to a desire to alleviate any negative emotions elicited when reminded of one's ingroup's history. Continued ecologically-friendly behaviour was not expected to occur as these individuals, by virtue of their ingroup identification, desire to maintain ingroup advantage, and they may even achieve a sense of moral elevation licensing them from engaging in future ecologically-friendly actions. This is in direct contrast to those with a more critical ingroup attachment, where it was hypothesised that an increase in ecological behaviour would be observed in the second assessment relative to their initial ecological behaviour. It was reasoned that this is due to the altering of their cognitions based on their previous behaviour, whereby cognition change may accompany those with a more critical ingroup attachment (reflective of the foot-in-the-door effect) and they may be acting out of a desire to cooperate with the outgroups. Study 7 has been presented in Chapter 10 of this thesis.

CHAPTER 4: THEORETICAL PERSPECTIVES

The previous chapter reviewed the emotional consequences that may result from the acknowledgement of ingroup harm doing and focussed on the emotion of collective guilt. It also outlined the seven studies investigating the role of this emotion within the ecological domain that comprise this thesis. This chapter provides a review of the two theoretical approaches relevant to this thesis. These theories include social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) and terror management theory (Greenberg et al., 1986). It is noted that social identity theory is the overarching theory in which this thesis is situated, with contributions of terror management theory most relevant to Studies 4, 5 and 6, presented in Chapter 9.

Social Identity Theory

As a method for understanding interpersonal and intergroup relations, social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) focuses on individual needs and motivations, in particular, the drive for a positive social identity. An individual is motivated to seek and maintain a positive sense of self, presumably because it makes one feel meaningful and a valued member of one's group (Tajfel & Turner, 1979); and, a positive sense of self has been associated with numerous positive outcomes, including positive emotions and psychological well-being (Marsh, 1986). Indeed, the desire for positive self-regard makes identity an important determinant of behaviour, and people choose behaviours that are congruent with their identities (Stets & Biga, 2003). Darnton (2008) concurs and explains that a behaviour may occur as a method of defining identity, and this identity also, in turn, shapes behaviour.

Individuals may have many aspects that comprise their identities, and use these numerous sources to gain a sense of self-worth. These may include aspects from their personal behaviour, such as sports or vocation (e.g., I am a good soccer player, or I am a good architect) or they may evaluate themselves on a more global level (e.g., I am a good person; Harter, 1996). Social identity theory explains that not only may individuals have their identity invested in personal domains, but it may also be invested in the group domain, that is, in group membership (Tajfel & Turner, 1979). These groups may even be assembled very arbitrarily, such as via random assignment into one group over another (e.g., the

'minimal group paradigm;' Tajfel, Billig, Flament & Bundy, 1971), or via more meaningful divisions, such as in sport teams, clubs, or national groups (e.g., I am a Socceroos' supporter, or I am an Australian). As a result, Tajfel and Turner (1979) have proposed that the group may be viewed as an extension of the self in the sense that it may contribute to an individual's sense of identity, that is, one's social identity. This social identity has been explained to involve four interrelated concepts, categorisation, self-enhancement, social comparison and positive distinctiveness (Tajfel & Turner, 1979). Categorisation involves the inclusion of the self into the particular group, and self-enhancement involves favouring the ingroup over outgroups. This self-enhancement is presumably done to achieve positive distinctiveness, or positive self-regard, via social comparisons between other relevant groups and occurs to affirm the meaningfulness of one's group membership and, thus, to maintain positive self-regard (Tajfel & Turner, 1979).

When social identity is threatened, such as when faced with negative information about one's group, strategies to attain or maintain this positive distinctiveness result. As part of social identity theory, in order to achieve this positive sense of self-worth three governing factors have been proposed (Tajfel & Turner, 1979). The first of which involves the perceived permeability of group boundaries which, in its most extreme case, the individual may simply leave the group and attain social identity via other group memberships; however, this may not always be possible. The second factor involves the perceived stability of the intergroup hierarchy. This involves perceptions of the effects that actions to rectify the social identity threat may have on this hierarchy. Simply, will actions to address the threat to social identity impact or change the hierarchy of the ingroup and the outgroup? And, thirdly, the perceived legitimacy of this hierarchy is also reasoned to impact the response to any threat to social identity. If the subordinate status of the outgroup is perceived to be legitimate, then there will be little motivation to change it.

Indeed, this thesis emerges from the social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) tradition which, as explained, reasons that an individual can gain self-esteem not only from one's personal identity, but also from the more extended identities in which one's social self is invested, that is, the social groups to which one belongs. As a result, it may therefore be possible for an individual to feel emotions pertaining to their group, stemming from the actions of other group members. This may include both positively or

negatively valenced emotions, and it is from this perspective that group-based emotions such as collective guilt are thought to arise. If, for example, there is reason to perceive that one's ingroup has committed moral wrongdoing, such as by causing illegitimate harm to an outgroup, this will threaten the positive social identity of ingroup members. As a result, ingroup members may be motivated to address this issue, such as by avoiding or reframing negative information (e.g., Branscombe & Miron, 2004), or by feeling aversive emotions, such as collective guilt, and taking action to ameliorate the harm (e.g., Doosje et al., 1998). Hence, for those in developed nations, feelings of collective guilt pertaining to ecological matters may result when one acknowledges the role of their group in the contemporary ecological crisis. As feelings of collective guilt encourage reparative action (see Chapter 3), they may antecede ecological friendliness in members of developed nations; however, due to the desire for positive self-regard, they may be impacted by the factors governing positive distinctiveness, outlined above.

The consideration of social groups is thought to be particularly relevant when considering ecological issues for several reasons. These include that individual-level contributions to ecological issues pale in comparison to group-level contributions, that feedback regarding ecological matters is often presented at the social-group level, that the costs of ecological unfriendliness are generally experienced by other social groups, and that solutions to ecological issues necessitate group-level action. With specific reference to the present research, this thesis applies social identity theory to the ecological domain. It will investigate whether collective guilt emotions can, indeed, be felt for ecological matters, and the relationship that these feelings may have with ecological friendliness (Studies 1 – 7, Chapters 6 – 10). It will also investigate the cooperative motivations that are reasoned to be underpinning both collective guilt feelings and ecological behaviour (Studies 2, 3 and 7, Chapters 7, 8 and 10). As stated in Chapter 1, the contemporary ecological crisis can be understood in terms of a commons dilemma and the failure to cooperate with other groups sharing the resource. Also as explained, in order for collective guilt emotions to be experienced, some sort of moral violation must occur (see Chapter 3). Thus, if feelings of collective guilt for ecological matters are indeed felt, then the failure to cooperate with these outgroups must be considered to be immoral. Indeed, this is no surprise given that the discourse around ecological friendliness often makes reference to the numerous outgroups

and the negative consequences that they will endure (see Chapter 1).

Finally, as explained in Chapter 3, ingroup identification influences the way in which group-relevant information is treated and, as this Chapter explains, ingroup identification may impact factors governing positive distinctiveness, such as the perceived legitimacy of the intergroup hierarchy. As social identity theory explains, the ingroup can be a source of self-esteem and activate emotions for individuals; therefore, ingroup identification can offer insight into the motivations that may be underlying group-relevant behaviours. Indeed, this is investigated in Study 7 (Chapter 10) where the relationship between instances of ecologically-friendly behaviour is reasoned to be influenced by the individual's ingroup identification. Ingroup identification may therefore reflect different motivations for engagement, or not, in such ecologically-friendly behaviours. The application of collective guilt feelings to the ecological domain exemplifies that group membership can bear influence on the individuals that comprise it; because, as social identity theory implies, ingroup behaviour can have emotional consequences for ingroup members, and impact the extent to which they may be ecologically friendly. The following section outlines terror management theory, the other theory relevant to this thesis.

Terror Management Theory

Inspired by the work of cultural anthropologist Ernest Becker (1962, 1973), terror management theory (Greenberg et al., 1986) explains that much human behaviour aims to distinguish humans from the rest of nature, and this is done, in part, to mitigate thoughts of one's inevitable mortality. Humans possess unique qualities involving reflection and awareness, including the awareness of one's inevitable mortality. The death-anxiety that presumably accompanies awareness of mortality is explained to be a motivating factor in the formation and adherence to religious and cultural worldviews (Becker, 1962, 1973; Greenberg et al., 1986). Successfully behaving within the expectations of one's worldview can serve as a method for gaining immortality, either literally in the form of an afterlife (e.g., in heaven), or symbolically through the production of offspring or the achievements or legacy that one leaves behind.

Terror management theory explains that being made aware of one's mortality (mortality salience; MS) can trigger two forms of defense, proximal or distal, depending on whether this awareness is above or below the level of consciousness (Pyszcynski,

Greenberg & Solomon, 1999). A conscious awareness of mortality has been found to trigger proximal defences that directly address the threat of death, including the denial of the risk of death or pushing the notion of death into the more distant future (e.g., Greenberg, Arndt, Simon, Pyszczynski & Solomon, 2000). When mortality thoughts are not within conscious attention yet still highly accessible they have been found to have more distal effects associated with the maintenance and adherence to culturally-relevant worldviews. This is known as the MS hypothesis, an aspect of terror management theory that has received considerable research (for a review, see Greenberg, Solomon & Pyszczynski, 1997). It generally shows that reminders of mortality increase reliance on, and favourability of, one's worldview. For example, reminders of mortality have been found to increase liking of similar others, and decrease that of dissimilar others, in numerous domains including religion (Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, Kirkland & Lyon, 1990), and ethnicity (Ochmann & Mathay, 1994).

Research in terror management has also extended to the environmental domain, and has found that reminders of mortality can increase the degree to which an individual upholds culturally-sanctioned norms and behaviours. This generally translates to increasing distancing from nature in various ways. For example, Goldenberg, Pyszczynski, Greenberg, Solomon, Kluck and Cornwell (2001, Study 1) demonstrated that reminders of mortality increased the disgust reaction to bodily products that are reminders of one's animal nature (e.g., faeces) as well as the disgust reaction to other animals. They also found that MS, but not a control condition, increased the preference for an essay outlining humans as distinctly different from other animals as opposed to an essay describing humans as similar to other animals (Goldenberg et al., 2001, Study 2). Also in this vein, Koole and Van den Berg (2005, Study 2) showed that MS reduced the perceived beauty of wilderness, and that uncultivated nature, as compared to cultivated nature and urban landscapes, engendered more thoughts about death (Koole & Van den Berg, 2005, Study 1). Combined, these findings provide support for the idea that reactions to mortality stimuli inadvertently lead to preferences and actions that deny human creatureliness and increase the distance between humans and other animals. This is seemingly an attempt to deny that humans have much in common with other animals, especially in the sense that they too will serve the same fate.

Terror management theory has particular relevance to the current body of work

which aims to understand and increase ecological friendliness and the role that feelings of collective guilt play. Due to the high degree of separation that humans in developed nations have from nature, and the positive position consumption has in these cultures, terror management theory suggests that reminding members in developed nations of their inevitable mortality could have a negative influence on ecologically-relevant behaviour. Indeed, Vess and Arndt (2008) distinguished individuals who did and did not gain personal self-esteem from ecologically-relevant behaviour (high and low Environmental Contingencies of Self-Worth; ECSW; Brook, 2005) and found that mortality reminders decreased environmental concern in those not deriving personal self-esteem from environmental behaviour, while it increased concern in those who did gain self-esteem from such behaviour. This demonstrates that the effects of mortality salience differ depending on the individual's initial extent of self-esteem invested in the ecological domain.

In what is believed to be a novel application of terror management theory, this thesis aims to demonstrate and explore the effects of group-level influences on ecologically-relevant self-esteem within a MS framework. As stated, Vess and Arndt's (2008) work focussed on the effects of individual-level self-esteem derived from environmentally-relevant behaviours (i.e., ECSW) and its moderation effects on MS-induced ecological concern. This thesis aimed to demonstrate that group-level influences will also be important when considering the effects of MS on ecologically-relevant variables. It is reasoned that personally-relevant sources of self-esteem will moderate the relationship between MS and the ecologically-relevant dependent variables; however, group-derived sources of self-esteem should also impact mortality-induced ecological friendliness, and exert their influence when group identity is salient. Studies 4, 5 and 6 are three studies that explore such an application of group-level self-esteem, namely feelings of ecologically-specific collective guilt, to the MS hypothesis and ecologically-relevant dependent variables. These studies have been presented in Chapter 9.

CHAPTER 5: METHODOLOGICAL CONSIDERATIONS

Chapter four reviewed the major theoretical perspectives relevant to this thesis. This chapter outlines the methodological considerations relevant to this project. It outlines the methodological design, issues that were required to be overcome, those that were not able to be overcome, as well as the methodological contributions offered by this project. This chapter will also present the development of a new scale to measure self-report, multi-domain ecological behaviours that will be utilised in the studies in this thesis requiring such a measure. Indeed, the current project had several issues that were required to be addressed in its methodology. As mentioned in Chapter 2, the first, and most pervasive, of these refers to previous research into ecological friendliness not being studied within a strong theoretical framework. In some cases, the theoretical notion that ecological friendliness stems from the cooperation with the numerous outgroups that will suffer as a result of unecological behaviour may be implied or implicit in the research. In general, research on ecological friendliness has been piecemeal at best.

Additional methodological problems that were faced in the design and conduct of this project included issues accompanying the use of a combination of correlational designs and experimental manipulations involving both self-reported information and behavioural assessments. Furthermore, issues of representativeness and generalisibility that emerge from the use of convenience samples, such as psychology undergraduate students who are required to accrue a certain number of course credits for research participation, were also faced. Finally, as it appeared that currently existing self-report measures of general ecological behaviour were outmoded for use on Australian participants at the current time, a new measure was also written.

Design of the Current Project

The current project aimed to demonstrate and explore the role of feelings of collective guilt in ecological friendliness. In particular, the project consisted of a series of separate studies. It was argued that by demonstrating and exploring the relationship between these variables in a series of studies would attest to the validity of this topic. The design of each of the studies was formulated within the broader theoretical perspectives of social identity theory and terror management theory, and it was reasoned that feelings of

collective guilt would emerge as a function of these theoretical perspectives.

Within this frame of conducting a series of studies, both surveys utilising correlational designs and experimental designs were utilised. It is acknowledged that both of these methods have their own advantages and limitations. Issues of causality can not, of course, be overcome in correlational research, and it was reasoned that the inclusion of experimental aspects into the current project would lend to the validity of the findings of the correlational aspects of the current project.

Self-report measures and behavioural assessments were used within both the correlation-based studies and those involving experimental manipulation. Furthermore, the current project also utilised multiple data collection methods, with some studies involving online administration, while others involved participants completing hard copies of surveys. The strengths and weaknesses associated with each of these have been discussed in the following section.

Methodological Issues Faced

As this project involved a series of studies, some utilising correlational techniques and some experimental manipulation, and included both self-reported information and behavioural assessments via either online administration or hard copy, issues accompanying each of these were faced in the design and conduct of this project. The main methodological issue of concern in the current project pertains to the accuracy of information gathered in each of the approaches utilised in this project. Namely, the data collection techniques utilised in this project, at some point, included both self-reported information as well as behavioural assessments, administered in survey format either online or in hard copy.

Specifically, as survey research is reliant upon participants self-reporting information, issues associated with this were faced in this project. In particular, issues pertaining to the accuracy of information reported by participants are most pertinent. The self-reporting of behaviour can be problematic in that it offers a reflection of perceptions or beliefs about one's behaviour, as opposed to direct information about their actual behaviour. Issues pertaining to participants adjusting their reported information in order to appear more socially desirable, or other response biases that may influence the accuracy of information provided may be found. This said, however, there is substantial evidence that

the difference between the actual behaviour and the self-reported behaviour of participants does not vary in such a manner to suggest that discrepancies are motivated. In short, they are non-systematic (e.g., Fuijii, Hennesy & Mak, 1985; Warriner, McDougall & Claxton, 1984). Indeed, it has been found that the reporting of ecologically-friendly behaviour was barely influenced by participant desires to present socially-desirable responses. According to Kaiser, Wolfing and Fuhrer (1999), self-reported ecological behaviour and attitudes were either non-significantly or only marginally significantly correlated with social desirability. The same applies to collective guilt assessments. The self-reporting of collective guilt has generally been found to not significantly relate to socially-desirable responding (e.g., Branscombe et al., 2004; Caouette, 2010). There are, however, remote instances in which the reporting of collective guilt has been impacted by socially-desirable responding thought to reflect the social and/or political environment at the time, for example the negative relationship between these variables found by Brown (2002). Indeed, this negative relationship was thought to reflect the then political environment of Australia, whereby the then dominant political position had refused to apologise to Indigenous Australians for historical wrong doings (Brown, 2002).

Furthermore, self-reported information requires the information reported to be explicit. Utilising self-report measures fails to assess any possible implicit feelings that may also be present. This issue has been acknowledged, at least, since Nisbett and Wilson's (1977) commentary on the use of self-reported information in psychological research. Thus, self-reports may be largely accurate measures of cognitive content, but become problematic if the individual is actually unaware of that content.

Indeed, Haeffel and Howard (2010) attest to the soundness of self-report as a method of data collection whereby they explain that self-reports may be at least as accurate, and in many cases more accurate, than other assessments of behavioural outcomes. To lend weight to their position, they cite numerous sources that support this claim (e.g., Cole, Howard, & Maxwell, 1981; Cole, Lazarick, & Howard, 1987; Gabbard, Howard & Dunfee, 1986). Indeed, others (e.g., Tourangeau, Rips & Rasinski, 2000) have found that self-administered surveys are a *more* accurate method of data collection than other approaches such as face-to-face interviews. It has been argued that social desirability effects are lessoned, particularly when questions address sensitive topics (Tourangeau et al., 2000).

Thus, while the issue of accuracy remains inherent in any self-reported information, this method of data collection was concluded to be a valid approach appropriate for the current series of studies. There are also numerous positive aspects of utilising self-report as a method of data collection, including ease of administration, cost-effectiveness, and convenience. As a result, it was considered that utilising self-report measures in the current series of studies was appropriate to address the research aims.

Similarly, behavioural assessments that involve participation in simulated tasks, or by the level of participant agreement or disagreement with a host of outcome items, also suffer from similar issues to the self-reporting of the emotional states or prior behaviour of participants. That is, they may not be accurate reflections of how participants would behave if that situation were real. As such, while seemingly possessing ecological validity, some degree of caution should be implemented when interpreting or generalising from both self-report research and research utilising abstract measures of behaviour.

Finally, another aspect that may influence the accuracy of information gathered in the current series of studies is the mode by which the study is conducted. Pen-and-paper administration of surveys and, more recently, the online administration of studies, while both have faced criticism for different reasons, both were utilised in the current project. Pen-and-paper (hard copy) administration of survey materials has been long utilised in social psychology research, and while the prior-mentioned issues associated with self-report apply, matters of cost effectiveness and convenience attest to the appropriateness of this method. More recently, social psychological research utilising online methods of data collection has begun to appear. While the main criticisms of online administration include difficulties controlling for the external environment of participants while they are involved in the study, coupled with the accuracy or responses reported, this method of data collection appears to also be valid (Kreuter, Presser & Tourangeau, 2008). Thus, by instructing participants to complete the study in a quiet and non-distracting environment should help in minimising any effects of external conditions, and increase the validity of responses. Kreuter et al. (2008) have investigated the social desirability of responses originating in social psychological studies conducted online and found that participants were, in fact, no more inclined, and where sensitive information was concerned were even less likely to report socially-desirable responses than when completing hard copies of surveys.

Another methodological issue faced in this project was the use of non-probability samples, as participation in all studies was voluntary. Most of the studies in this project involved convenience samples of psychology undergraduate students. As those enrolled in psychology courses may be reasonably perceived to differ from those enrolled in other courses, or indeed, those not attending tertiary education, possible issues as to the generalisability of any research findings obtained from this subpopulation may apply. Criticisms of using non-probability sampling, and indeed such a specific subpopulation for researching human behaviour are not new (e.g., Henrich, Heine & Norenzayan, 2010). However, some research has been conducted which defends this use of participants by demonstrating generalisability to less discrete populations, particularly when that population shares the same cultural heritage (e.g., Elfenbein & Ambady, 2002). Given that psychology undergraduate students in Australia share similar cultural heritage to other Australians, it may be reasonable to conclude that the data reported by this population are indeed generalisable to Australians more broadly. Given this, and factors such as convenience and the low cost of conducting research, this use of participants was rendered favourable for the current project.

Contributions of the Present Research

The research to be presented in this thesis has attempted to deal with the issues outlined above. This was done by formulating a series of studies each investigating the role of collective guilt emotions in the ecological domain, utilising a combination of designs (correlational and experimental), techniques (self-report and behavioural assessments), and data collection methods (online or hard copy). As a result of such a mixed-methods approach, it was reasoned that the methodological issues, while still present, may be lessoned if support for the phenomena can be demonstrated across methods.

Additionally, in order to enable the greatest degree of faith in the data gathered, where experimental designs have been utilised, random assignment of participants to the different conditions in the study occurred in order to make them as equivalent and representative as possible. Where non-experimental, that is correlational, designs were utilised, and a psychology undergraduate sample used, a measure of social desirability was included to assess and potentially partial out any tendency for socially-normative responding. The current project, however, included one study utilising a correlational

design in which a social desirability measure was not included, as this study involved a lengthy questionnaire using a community sample. For this study, including a measure of social desirability was not included in an attempt to encourage participation by keeping the questionnaire as short as possible.

Finally, as a suitable measure of ecological behaviour seemed unavailable, this project also involved the construction of a new measure of ecological behaviour, the New Ecological Behaviours Scale. This scale was used in the studies where a multi-domain, self-report measure of ecological behaviour was required (Studies 2 and 3, Chapters 7 and 8). The construction of this scale has been described later in this Chapter.

Methodological Limitations

Despite efforts at addressing the methodological issues identified, there remained some issues that were not able to be overcome in all aspects of this project. Although reasoned earlier in this Chapter as to the use of self-reported measures and psychology undergraduate students as the pool of participants for most of the studies in the current project, these methods may be sufficient, but not necessarily devoid of limitations. Due to the convenience and cost-effectiveness of these approaches, however, it was reasoned that the validity of the current series of studies would not be sufficiently jeopardised to warrant other methods.

Additionally, of the series of studies outlined in the current project, several involve a non-experimental, correlational design. As a result, issues of causation cannot be addressed directly. It was aimed to bolster the findings of the correlational aspects of the project with supporting evidence from other studies in the project utilising experimental designs. Finally, as not all studies included an assessment of socially-desirable responding, based on previous research (e.g., Branscombe et al., 2004; Caouette, 2010; Juijii et al., 1985), it was reasoned that this would have minimal, if any, impact on the integrity of the data gathered.

Assessing Ecological Behaviour: The New Ecological Behaviours Scale

Rationale and Design

As there did not seem to be a suitable measure of everyday ecological behaviour available in the literature, especially not one suitable for use on an Australian sample, a self-report scale assessing every day, multi-domain ecological behaviour was constructed.

After reviewing the literature, a preliminary scale was developed and administered, along with a measure of ecological concern to gauge convergent and discriminant validity. To assess, and potentially partial out, participant desires to present in a socially-normative manner, a measure of social desirability was also included.

To date, the published literature has assessed ecological concern and behaviour in numerous ways. These have been summarised by Klineberg, McKeever and Rothenbach (1998) to include (1) a single question approach, assessing participant opinion regarding whether they believe their government is spending too much or too little on environmental protection, (2) a series of questions assessing participant opinion on the seriousness of a series of specific environmental issues, (3) a series of questions posing broad and often abstract statements reflecting the relationship between people and the natural environment, and (4) a series of questions assessing the specific ecologically-relevant behaviour of participants.

Upon reviewing these methods, the first method of assessing ecological concern, by seeking opinion regarding their government's spending on environmental protection has been thought to possess major validity issues (Gardner & Stern, 1996) and therefore was not considered for the current series of studies. Secondly, posing a series of questions to assess participant opinion on the seriousness of a range of ecological issues has been utilised in some research. For example, Weigel and Weigel (1978) developed a scale of this sort to assess ecological concern which has received some use (e.g., Bedrous, 2010; Wergin, 2009). The third approach to assessing ecological concern, consisting of a series of abstract statements reflecting the relationship between people and the environment, has received much greater popularity in research in the ecological domain, most of which have utilised the New Ecological Paradigm (NEP; Dunlap & Van Liere, 1978) or its revised version (Dunlap et al., 2000). However, as the current project ultimately aimed to investigate the behavioural implications of feelings of collective guilt, it was decided to focus more so on specific behavioural assessments. A review of measures of ecological behaviour, including Kaiser's (1998) General Ecological Behaviour Scale, and its cross-cultural version (Kaiser & Wilson, 2000), as well as Dutcher, Finley, Luloff and Johnson's (2007) Environmental Behaviours measure, and Schultz and Zelezny's (1998) Self-Reported Proenvironmental Behaviour Scale suggested that these measures did not seem

appropriate for use in the current studies. Reasons for their exclusion included an apparent lack of content validity as some items appeared to be assessing out-dated behaviours, or the length of the scale was considered too long.

In numerous other studies on ecological behaviour (e.g., Berger, 1997; Gatersleben, Steg & Vlek, 2002; Kaiser, 1998; Karp, 1996; McKenzie-Mohr, Nemiroff, Beers & Desmarais,1995; Painter, Semenik & Belk, 1983; Pelletier, Tuson, Green-Demers, Noels & Beaton, 1998; Whitherspoon & Martin, 1992), the researchers develop their own list of items they believe to be relevant to their sample or research objectives. Thus, a similar approach was taken in the current series of studies, whereby a New Measure of Ecological Behaviour was initially written, pre-tested and then utilised in the subsequent studies requiring a self-report measure of multi-domain ecological behaviour.

Method

Participants

Participants were 110 Australian first-year psychology students who voluntarily participated for course credit. Four of these participants were removed due to significant portions of missing data; thus, data from 106 participants (46 men, 60 women), with ages ranging between 17 and 68 years (M=23.09, SD=9.09) were used in the analyses.

Materials

Questions assessing demographic information (age and gender) were included, followed by the three measures described below.

New Environmental Behaviours Scale. Thirty-six items were generated for this scale after researching everyday pro-environmental behaviours and other published measures of pro-environmental behaviours. Some items were adapted from Kaiser and Wilson (2000), and others were generated after reviewing an extensive list of pro-environmental behaviours provided by Winter and Koger (2004) and Greenpeace Australia (2008). Items were designed to cover a range of domains, including the awareness and support for environmental organisations and public initiatives, reducing consumption and conservation, travel options, reusing and recycling, political awareness, and green purchasing. The items were thought to be applicable to and easily performable by Australians. Items were written to be responded on a 4-point Likert scale, 1 (*never*), 2 (*sometimes*), 3 (*often*), 4 (*always*), with higher scores indicating greater amounts of environmentally-friendly behaviour. The

initial 36 items comprising this scale are listed in Table 1.

Measure of ecological concern. To assess the convergent and discriminant validity of the New Environmental Behaviours Scale, Thompson and Barton's (1994) measure of ecocentric, anthropocentric, and apathetic orientations was also included in the questionnaire. This measure includes 30 items on a 5-point Likert response format, from 1 (*strongly disagree*) to 5 (*strongly agree*), see Appendix A. It is a continuous measure that assesses the degree to which individuals are ecocentric, that is, they value nature for its own sake, are anthropocentric, in that they value nature because of what it can offer people, or are apathetic toward the environment. This measure has been reported to possess adequate reliability and validity, whereby Cronbach's alphas were found to range from .67 to .82 (for Ecocentrism α=.78, Anthropocentrism α=.67, and Apathy α=.82) when the measure was utilised on a sample of undergraduate students (Thompson & Barton, 1994, Study 2). Furthermore, evidence was found for the convergent and discriminant validity of the three orientations of this measure. For example, scores on Weigel and Weigel's (1978) Environmental Concern Scale were significantly negatively correlated with Apathetic scores (r=-.78), and significantly positively correlated with Ecocentrism (r=.69; Thompson & Barton, 1994, Study 2). The Apathy subscale was negatively correlated with Weigel and Weigel's (1978) measure (r=-.78) as well as with self-reported conservation behaviours (r=-.55; Thompson & Barton, 1994, Study 2). No significant correlations were reported for the Anthropocentrism subscale (Thompson & Barton, 1994, Study 2).

Measure of social desirability. A measure of social desirability was also included in the questionnaire to assess participants' desires to express socially-normative responses on the other scales. Crowne and Marlowe's (1960) Social Desirability Scale was used (current sample α=.70), and includes 33 statements to be answered True or False as it pertains to the participant. It includes items such as "I have never intensely disliked someone" and "I can remember "playing sick" to get out of something," see Appendix B. The internal consistency reliability of this scale, when utilised on undergraduate student samples, appears to be adequate. For example, Crowne and Marlowe (1960) reported a coefficient of .88 (Kuder-Richardson formula 20), Nordholm (1974) reported a Cronbach's alpha of .73, Tanaka-Matsumi and Kameoka (1986) a Cronbach's alpha of .79, and Crino, Svoboda, Rubenfeld and White (1983) reported scores ranging from α=.70 to .77. Evidence also

exists to suggest that the internal consistency reliability of this scale does not significantly differ for males and females (α=.71 and .72 respectively; O'Grady, 1988). Test-retest reliability for this measure has also been demonstrated. Crowne and Marlowe (1960) report a correlation of .89 between scores, and Crino et al. (1983) found a correlation of .86 over a one-month period.

Ordering of Scales in Questionnaire

The Information Sheet (see Appendix C) was provided first, followed by the Informed Consent Form (see Appendix D). Demographic information (age and gender) was then gathered. The three scales were compiled in a counterbalanced order in the questionnaire to remove any effects of priming by any of the scales.

Procedure

Human Ethics Clearance was obtained prior to the commencement of this study (see Appendix E). Participants "signed up" to participate in a study called "Environmental Behaviours." They were invited to complete a questionnaire in their own time or by selecting a suitable time with the researcher via a sign-up sheet on a communal noticeboard or by contacting the researcher by phone or email. All participants completed the questionnaire after being instructed to, firstly, read the Information Sheet, which communicated to participants the aims of the study, confidentiality, and the right to withdraw at any time. Participants were then asked to fill out the Informed Consent Form indicating their willingness to participate. The questionnaire provided instructions, in which it was requested the participants follow, and upon completion, participants were to return the questionnaire to a designated drop-box.

Results

For the 36-item scale, the internal consistency reliability was found to be .86. However, based upon the corrected item-total correlations, the removal of 14 items with low correlations (<.3) allowed for the improvement of the internal consistency reliability for these 22 items to an alpha of .89. The 14 items that were removed included items from each of the taxonomies of awareness and support for environmental organisations and public initiatives, reducing consumption and conservation, travel options, reusing and recycling, political awareness, and green purchasing. Using scale totals for each of the variables, it was found that this scale was not significantly related to age, gender, or

socially-desirable responding, *p*s>.05. Evidence for convergent and discriminant validity for the new scale was also demonstrated by a positive correlation (r=.44, p<.001) with Thompson and Barton's (1994) measure of ecocentric orientation, and with a negative correlation (r=-.52, p<.001) with their apathetic scale. Similarly to Thompson and Barton's (1994) finding with Weigel and Weigel's (1978) Environmental Concern Scale, this measure of environmentally-friendly behaviour appeared unrelated to their anthropocentric orientation measure, r=-.004, p=.97. The descriptive statistics for each of the scales have been summarised in Table 2.

Table 1
Items of the New Ecological Behaviours Scale and their Initial Classification into Taxonomic Categories.

	Item	Taxonomic classification
1.	I sometimes contribute financially to environmental organisations.	Awareness/Support
2.	I recycle as much of my household rubbish as I can.	Reuse/Recycling
3.	If I am offered a plastic bag in a store, I will always take it.[1]*	Reduce/Conservation
4.	I use a fabric softener with my laundry.[1]	Green Purchasing
5.	When possible, in nearby areas (1 to 2 km), I walk, ride a bike or take public transport.	Travel
6.	I follow news stories in the media relating to the natural environment.*	Political Awareness
7.	In the past, I have pointed out to someone his or her unecological behaviour.*	Awareness/Support
8.	My purchasing decisions are influenced by whether the packaging is recyclable.*	Reuse/Recycling
9.	When grocery shopping, I bring my own bags.*	Reduce/Conservation
10.	I use a chemical air freshener in my bathroom.[1]	Green Purchasing
11.	I like to take my car, even if the destination is close by.[1]	Travel
12.	I think that Australia should stay firm in its target to reduce	Political Awareness

emissions, as per the Kyoto Protocol, during this time of economic uncertainty.*	
13. I sometimes volunteer my time to environmental organisations.*	Awareness/Support
14. Instead of automatically throwing packaging away, I save it for reuse.*	Reuse/Recycling
15. I wait until I have a full load before doing my laundry.	Reduce/Conservation
16. When grocery shopping, I purchase locally grown and in-season vegetables and/or fruits.*	Green Purchasing
17. When purchasing airline tickets, I select the option to pay for offsetting my carbon footprint.	Travel
18. I consider the environmental policies of candidates when voting.*	Political Awareness
19. I have participated in Clean up Australia Day.	Awareness/Support
20. I take my unwanted clothing, furniture, and household items to a charity bin or second-hand store, or give them to friends and family.*	Reuse/Recycling
21. I use cold water to wash clothes in the washing machine.	Reduce/Conservation
22. I use phosphate free laundry detergent.*	Green Purchasing
23. The ecological performance of car/s that I own or have owned in the past has played a key role in my decision of which car to purchase.*	Travel
24. I think that all the fuss made by politicians over global warming makes it seem like a bigger issue than it really is.[1]	Political Awareness
25. I often talk with friends about problems related to the environment.*	Awareness/Support
26. I consider purchasing second-hand goods if they are appropriate for my needs.*	Reuse/Recycling
27. I turn off electrical items (e.g., microwave, tv, stereo) in my home when not in use.*	Reduce/Conservation
28. I avoid using harsh chemicals to clean my home.*	Green Purchasing
29. I try to travel only when I need to, not just for the sake of it.	Travel
30. I think that politicians purposefully only consider data that suits their agenda when making policies around global warming.[1]	Political Awareness

31. I feel bad when I know I am not acting in the most ecologically friendly way.*	Awareness/Support
32. Recycling is not an issue that I am very much concerned with.[1]*	Reuse/Recycling
33. I have short showers to limit water use.*	Reduce/Conservation
34. I consider the electricity efficiency star rating when buying new electrical appliances.*	Green Purchasing
35. If I know a few of my friends/family are going to the same place as me, I try to organise a car pool.*	Travel
36. The government should continue to delay establishing an emissions trading scheme, to avoid any job losses.[1]	Political Awareness

Note. [1]Incidates item is reverse scored. *Indicates item was retained on final version of the New Ecological Behaviours Scale. Scale ranges from 1 (n*ever*); 2 (*sometimes*); 3 (*often*); to 4 (*always*), with higher scores indicating higher responses to those items.

After the removal of the 14 items with low item-total correlations, a principal components factor analysis was conducted on the remaining 22 items. The Kaiser-Meyer-Olkin measure of sampling adequacy was sufficiently large at .84, exceeding the recommended value of .6 (Kaiser, 1974), and the anti-image correlations were all >.70, well above the acceptable limit of .5 (Field, 2009). Bartlett's Test of Sphericity ($\chi^2_{(231)} = 788.22$, $p<.001$) also indicated that inter-item correlations were sufficiently large to conduct this type of factor analysis (Bartlett, 1954). An initial investigation revealed seven factors with Eigenvalues > 1, which accounted for 56% of the total variance. However, upon inspection of the scree plot, and after both orthogonal and oblique rotations were applied, the factor loadings remained highly complex. It was concluded that a single factor solution (accounting for 31% of the variance) would be most appropriate. A list of the items that comprised the original New Ecological Behaviours Scale and the items that were retained has been provided in Table 2. The 22 items comprising the New Ecological Behaviours Scale were compiled in random order, a copy of which is provided in Appendix F. This scale has been used in Studies 2 and 3 (Chapters 7 and 8) where a self-report measure of multi-domain ecological behaviour was required.

Table 2
Descriptive Statistics for the Development of the New Ecological Behaviours Scale.

Scale	Mean	SD	Predicted Range	Actual Range	Cronbach's Alpha
NEBS	52.74	11.19	88	50	.89
Ecocentric Orientation	46.58	7.04	60	35	.80
Apathetic Orientation	18.58	5.55	40	9	.77
Anthropocentric Orientation	29.65	5.47	50	15	.63

Note. N=106. NEBS = 22-item New Ecological Behaviours Scale.

CHAPTER 6: STUDY 1: COLLECTIVE GUILT AND RECYCLING: A PRELIMINARY STUDY

The previous chapters have described the nature of the current ecological crisis, reviewed relevant literature associated with ecological friendliness focussing on the emotion of collective guilt, outlined the theoretical perspectives relevant to this thesis, as well as provided methodological considerations and a new scale for the measurement of ecologically-friendly action. The study presented in this chapter aimed to find preliminary evidence for the presence of collective guilt feelings in the environmental domain. Specifically, this study sought to demonstrate a relationship between a general tendency toward feelings of collective guilt and attitudes and behaviours in one ecologically-relevant domain, namely recycling. A correlational design was utilised to explore this notion. Specifically, it sought to investigate the interrelationship amongst general feelings of collective guilt, attitudes to recycling, recycling behaviour, and social norms around recycling.

Based on the notion that ecological behaviours may be, in part, motivated by the desire to address feelings of collective guilt (Branscombe et al., 1998), it was predicted that those inclined towards feeling collective guilt will report more positive attitudes to recycling and recycle greater amounts of household rubbish. As a preliminary study, only general feelings of generic collective guilt, that is the inclination to feel guilty for ingroup actions, as opposed to guilt feelings for specific ingroup harm doing, was assessed. It was reasoned that if feelings of collective guilt are indeed a motivational influence on ecological behaviours, those who have a tendency to feeling collective guilt should also show positive attitudes and behaviours toward recycling. It was acknowledged that while feelings of ecologically-specific collective guilt would likely have a stronger relationship with ecologically-friendly behaviours than more general feelings of collective guilt, in this preliminary study it was considered desirable to keep the independent and dependent variables as separate as possible to avoid any criterion contamination.

It was also predicted that those who reported greater social norms regarding ecologically-friendly behaviours will express more positive attitudes toward recycling, and also recycle more of their household rubbish. This is due to feelings of moral obligation

and possible threats of punishment if the norms are not upheld (Schwartz, 1977). Finally, in line with Ajzen's work (Ajzen, 1990; Ajzen & Fishbein, 1980), it was also predicted that those reporting more positive attitudes should also report recycling more than those expressing less positive attitudes. This study will also investigate if any gender difference can be found in recycling attitudes and behaviours and expects that, if any, females should report more positive attitudes and recycle more than males.

Method

Participants

Participants were 88 Australian psychology students who voluntarily participated for course credit. Three participants were removed from the study because they failed to complete large portions of the questionnaire and, as such, data for 85 participants (24 men, 64 women) with ages ranging from 17 to 64 years (M=24.16, SD=8.42) was included in the analysis.

Materials

The questionnaire consisted of demographic questions on age and gender, followed by scales to assess collective guilt, social desirability, ecological norms, and recycling attitudes and behaviour. The three scales were included after the demographic information, and were counterbalanced to control for any priming effects.

Measure of collective guilt. Branscombe et al.'s (2004) Collective Guilt Scale is a 20-item measure assessing individual differences in collective guilt. It consists of four subscales of five items each, including: (1) the *assignment* of collective guilt to other groups (current sample α=.65), (2) *acceptance* of guilt for one's own group (current sample α=.83), (3) denial of responsibility for one's group (current sample α=.82), and (4) whole group accountability (current sample α=.77), see Appendix G. Items are assessed on an 8-point scale from 1 (*strongly agree*) to 8 (*strongly disagree*). Test-retest reliability for this scale has also been established (r=.90; Slugoski, Branscombe & Kappen, 2002), as well as discriminant validity between the Collective Guilt Scale and measures of personal state and trait guilt (see Branscombe et al., 2004). This scale has also been distinguished from measures of an individual's personal self worth, as correlations between the Collective Guilt Scale and measures of personal self-esteem failed to reach significance (rs=-.01 to -.13; Branscombe et al., 2004).

Measure of social desirability. The Social Desirability Scale is a 33 true / false item measure which assesses the degree to which a participant may alter their self presentation or opinions to appear more socially desirable (Crowne & Marlowe, 1960; current sample α=.77), see Appendix B. This scale has also been utilised in the development of the New Ecological Behaviours scale and, as such, see Chapter 5 for a report on the psychometric properties of this scale.

Measure of recycling information. For the purposes of this research, and as no published measure of recycling attitudes or normative influence appeared to be, to the author's best knowledge, available, a 13-item measure was developed. It included eight items to directly assess attitudes toward recycling, e.g. "I make an effort to recycle where I can," four items to assess social norms about ecological behaviour, e.g. "My close friends expect me to engage in environmentally-conscious behaviours," (see Table 3) and one item asking participants to report the percentage of household rubbish they recycled in the last month ("What percentage of your recyclable household rubbish have you recycled in the last month?"). Items were assessed on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), except for the last item which was recorded as a percentage.

Procedure

Prior to the commencement of this study, Human Ethics Clearance was obtained (see Appendix H). Participants were invited to complete a questionnaire in their own time after collecting it from a designated location on the university campus. The questionnaire first consisted of an Information Sheet (see Appendix I) followed by an Informed Consent Form (see Appendix J). Participants returned completed questionnaires to a designated drop-box. Data was collected during early 2008.

Results

Socially-Desirable Responding

The Social Desirability Scale was found to be significantly related to responses on the Collective Guilt Scale, for all its subscales except for that of not denying group responsibility; namely, for collective guilt acceptance (r=.26, p<.01), collective guilt assignment (r=.24, p<.01), and whole group accountability (r=.19, p<.05). Interestingly, the item that asked participants to report the percentage of household rubbish they have recycled in the past month approached significance when correlated with socially-desirable

responding, r=.21, p<.06. One item on the Recycling Information Measure, "I make an effort to recycle where I can," also approached significance when correlated with social desirability (r=.19, p<.08). All other items on the Recycling Information Measure appeared largely unrelated to social desirability responses (ps>.05). Finally, it was also found that females reported significantly more socially-desirable responses than did males, t=-2.00, p<.05 (two-tailed). Social desirability was, thus, partialled out of all variables in the subsequent analyses. Social desirability scores were used to predict the target variables in a regression analysis and the residual scores were saved. These residual scores were then used in the subsequent analyses, where appropriate. Descriptive statistics for the variables have been provided in Table 3.

Table 3

Descriptive Statistics for Study 1

Variables	M	SD	Min.	Max.	Skewness	Kurtosis
CG-AC	5	39	5	39	-.56	-.35
CG-AS	5	35	5	35	-.37	.37
CG-ND	5	40	5	40	-.02	-.36
CG-WGA	5	40	5	40	-.45	1.07
RI-AR	7	36	7	36	-.66	.25
RI-SN	3	24	3	24	-.38	-.18
RB (%)	57.60	22.60	0	95	.25	-.67

Note. N=88. Abbreviations: CG-AC (Collective Guilt Acceptance), CG-AS (Collective Guilt Assignment), CG-ND (Collective Guilt No Denial of Group Responsibility), CG-WGA (Collective Guilt Whole Group Accountability), RI-AR (Recycling Information – Attitudes toward Recycling) 6 items with adequate internal consistency, RI-SN (Recycling Information – Social Norms), RI-RB (Recycling Information – Recycling Behaviour).

Recycling Information Measure

An analysis of internal consistency reliability suggested the removal of two items assessing attitudes toward recycling, due to low item-total correlations. These items were "The prospect of climate change upsets me" and "Any climate change that may be occurring is natural and not caused by humans." The Cronbach's alpha for the 6 items assessing attitudes toward recycling was .88. A principal components analysis (PCA) was performed on the recycling information measure. Prior to performing the PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value

was .82, exceeding the recommended value of .6 (Kaiser, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix. Results revealed, as expected, two separate and internally-consistent factors with eigenvalues exceeding 1. Varimax rotation was performed to aid in the interpretation of these two components and revealed loadings that were substantially on only one component. These factors were (1) attitudes toward recycling (6 items, α=.88), and (2) normative influence (4 items, α=.80), accounting for 37% and 27% of the variance, respectively. Factor loadings for these items have been summarised in Table 4.

Table 4
Factor Loadings for Confirmatory Factor Analysis of the Recycling Behaviours Measure

Item	AR	NI
I make an effort to recycle where I can.	**.85**	.10
I frequently recycle household rubbish.	**.85**	.10
It concerns me that others do not recycle as much as I do.	**.83**	.26
Recycling is not an issue that I am very much concerned with.[1]	**.77**	.03
I think that I recycle more than others do.	**.77**	.05
I feel guilty when I don't bother recycling.	**.62**	.23
My close friends expect me to engage in environmentally conscious behaviours.	.09	**.88**
The majority of my other friends expect me to engage in environmentally conscious behaviours.	.17	**.87**
My parents expect me to engage in environmentally conscious behaviours.	.14	**.74**
My partner expects me to engage in environmentally conscious behaviours.	.08	**.70**

Note. N=88. [1]Incidates reverse scored item. Factor loadings >.4 are in boldface. AR = Attitudes toward Recycling; NI = Normative Influence.

Correlations

It was found that, using scale totals for each of the variables, and a partial correlation controlling for social desirability, the acceptance of collective guilt was positively correlated with attitudes to recycling, (r=.33, p=.005). Thus, in support of the hypothesis, those reporting more collective guilt had more favourable attitudes toward

recycling. However, collective guilt was not significantly related to the amount of household waste participants reported recycling, r=.12, p>.05.

As expected, the subscales of the collective guilt measure were all substantially correlated with each other (r=.39, p=.001, to r=.60, p<.001). Although each assesses different components of the collective guilt experience, all relate to the notion of group-based responsibility and guilt emotions in response to intergroup harm.

Social norms were, as predicted, significantly correlated with attitudes toward recycling, r=.38, p=.001. However, social norms failed to significantly correlate with the amount of household rubbish recycled, r=.17, p>.05. Social norms also correlated with collective guilt acceptance (r=.33, p=.005) and whole group accountability (r=.25, p=.032).

Attitudes toward recycling was the only successful correlate of recycling behaviour (r=.62, p<.001). This indicates that positive attitudes toward recycling may be necessary for recycling behaviour to occur.

Independent samples t-tests were also conducted to investigate possible gender differences in collective guilt and the recycling measures. No gender differences were found on any of the collective guilt subscales, or in recycling attitudes, social norms, or amount of household rubbish recycled (ps>.05).

Discussion

Consistent with predictions, this preliminary study showed that individuals who are more inclined to experience collective guilt hold more positive attitudes toward recycling than those with lower collective guilt. The measure of collective guilt, however, failed to significantly relate to the amount of household rubbish participants reported recycling. The measure of collective guilt utilised in this study was, however, a measure of general feelings of collective guilt for ingroup wrongdoing, not a measure of collective guilt specifically for ecological harm. As a result, this may explain the lack of direct relationship between the general acceptance of collective guilt for ingroup wrongdoing and self-reported recycling behaviour. Just as Ajzen and colleagues (Ajzen, 1991; Ajzen & Fishbein, 1980) explain, attitudes can be good predictors of behaviour, though their predictive ability increases as the attitude becomes more specific to the behaviour. Similarly, utilising an ecologically-specific measure of collective guilt may, therefore, demonstrate a stronger relationship with ecologically-relevant behaviours such as recycling.

Additionally, there may be inhibitory factors operating preventing any feelings of collective guilt from being directly related to recycling behaviour. Reminders of one's group's contribution to the harm, as well as the impact and 'do-ability' of reparative behaviour have been found to increase collective guilt levels (Schmitt et al., 2004), and are thus possible avenues for increasing recycling.

Social norms surrounding ecological behaviour also showed the same pattern as collective guilt, namely that they predicted favourable attitudes toward recycling but failed to predict the amount of household rubbish actually recycled. Others have found that social norms regarding recycling do impact the amount of rubbish recycled (e.g., Hopper & Nielsen, 1991; Oskamp et al., 1991). Schwartz (1977) explains that in order for norms to influence behaviour there needs to be an awareness of the consequences of the action (or failing to act), a sense of responsibility to uphold the norm, and the threat of punishment if the norm is not upheld. Perhaps one or more of these factors are absent in this sample. Indeed, failure to engage in domestic recycling behaviour is a difficult behaviour to monitor and reprimand, increasing the importance for individuals to monitor their own behaviour. This can be done through the internalisation of social norms into personal norms, whereby negative emotions such as guilt result from failure to uphold these norms; thus, allowing personal behaviour to self-regulate (Schwartz, 1977).

Attitudes toward recycling were demonstrated to be the only successful correlate of the amount of household rubbish participants reported recycling. This is in line with Ajzen and Fishbein's (1980) theory of reasoned action that specific attitudes predict behaviour in those domains, and Chan's (1998) finding that the best predictor of intention to engage in pro-environmental behaviours was attitudes toward those behaviours. Thus, positive attitudes toward recycling seem an important antecedent for voluntary recycling behaviour.

Interestingly, social approval motivations appeared to be influencing the reporting of general collective guilt feelings on the Collective Guilt Scale. Due to the positive relationship between reported collective guilt feelings and social desirability, this suggests that the reporting of collective guilt was considered desirable by respondents. This is in contrast to Branscombe et al. (2004) who, in their validation of this measure using White Americans, demonstrated that responding on this scale was not influenced by social

desirability motives. Such responding may, however, to some extent, reflect the socio-political environment of respondents. In this vein, Brown (2002) in fact demonstrated a negative relationship between collective guilt responses and social desirability in an Australian sample; something that was considered reflective of the dominant political position in Australia at the time which refused to apologise to its indigenous peoples for historical wrong doings. However, this political position has since changed, and in 2008, the subsequent prime minister, in fact, apologised to Indigenous Australians. As a result of this, the reporting of collective guilt may, thus, be considered socially desirable.

No gender differences were found in recycling attitudes and behaviour. This suggests that women may not be more concerned about ecological issues than men as has been suggested by some (see Chapter 2 for a review of this literature). It also suggests that different lifestyle constraints faced by men and women that may have influenced ecological behaviour in other domains and in different populations are not applicable to the recycling of household rubbish in Australia.

In conclusion, it appears that acknowledging the contribution one's group is having to other groups can elicit feelings of collective guilt and motivate more positive attitudes about ecological behaviour. This study demonstrated that the general tendency to accept collective guilt for the actions of one's group is associated with more favourable attitudes toward one measure of ecological friendliness, namely attitudes toward recycling. Although this measure of collective guilt acceptance did not directly relate to the amount of household rubbish participants reported recycling, attitudes toward recycling was moderately correlated with the amount of household rubbish recycled. Ecologically-friendly social norms also showed the same trend in that they related to attitudes toward recycling, but not recycling behaviour. Given that preliminary evidence has been found for the implication of feelings of collective guilt within the ecological domain, the following chapters will present a series of studies that explores this application of collective guilt emotions.

CHAPTER 7: STUDY 2: THE MEDIATING ROLE OF COLLECTIVE GUILT IN COOPERATION AND ECOLOGICAL BEHAVIOUR

As Study 1 suggested, feelings of collective guilt may be implicated in the ecological domain (see Chapter 6). From this preliminary relationship, it was aimed to explore this further by investigating the cooperative nature of collective guilt feelings and ecological behaviours. As explained in Chapter 1, ecological behaviour can be conceptualised in terms of a social dilemma and as a cooperative behaviour as it costs the individual and benefits others. Therefore, the tendency toward acting cooperatively should positively relate to ecological friendliness. Furthermore, as feelings of collective guilt emerge from acknowledging unjust harm doing to other groups, their origin is also reasoned to be cooperative (see Chapter 3). Subsequently, feelings of collective guilt lead to outgroup-orientated reparation; indeed, Study 1 found a positive relationship between general tendencies toward feelings of collective guilt and attitudes toward recycling (see Chapter 6). From the findings of Study 1, whereby general feelings of collective guilt were positively related to recycling attitudes but not behaviour, it was reasoned that domain-specific feelings of collective guilt may show a stronger relationship with the dependent variables of ecological friendliness. Additionally, as it was of interest to investigate broader ecologically-friendly behaviours, the multi-domain assessment of ecological behaviours described in Chapter 5 (the New Ecological Behaviours Scale) was utilised. A mediation model is thereby proposed where it is predicted that feelings of ecologically-specific collective guilt will mediate the positive relationship that is predicted to be found between the tendency toward cooperation and ecologically-friendly behaviours.

Method

Rationale and Design

As stated, a mediation model is proposed whereby feelings of collective guilt for the environment are hypothesised to mediate the positive relationship between cooperation and ecological behaviour. As cooperation involves the consideration of others, there are two choices in social dilemmas that involve the consideration of others (Tajfel et al., 1971). These have been termed Maximum Outgroup Profit (MOP) and Maximum Joint Profit (MJP; Tajfel et al., 1971), and they differ in an important way. MOP requires the outgroup to receive the best possible outcome, which will come at some cost or reduced profit to the ingroup. MJP choices, on the other hand, are made to

maximise the total profit made by the ingroup and the outgroup combined, however, choices still favour the ingroup. MJP choices give the outgroup more than if the ingroup were to act selfishly, but not as much as if they acted completely cooperatively. It is reasoned, therefore, that MOP choices, not MJP choices, will positively relate to both ecologically-friendly behaviour and feelings of collective guilt as, although MJP shows some level of concern, the position of the ingroup holds precedence, while MOP gives the outgroup priority, truly reflective of cooperative tendencies.

As stated, this study aims to test the relationship between cooperative tendencies and ecological behaviour. It predicts that feelings of ecologically-specific collective guilt will mediate the positive relationship between cooperation and ecological behaviour. It is hypothesised that tendencies toward cooperation, that is MOP scores, will positively relate to self-reported ecological behaviour, and that this relationship will be mediated by feelings of collective guilt for the environment. General feelings of collective guilt will also be assessed to investigate the possibility that they may also account for the hypothesised relationship. However, given the failure for general collective guilt feelings to predict actual recycling behaviour in Study 1, it is expected that ecologically-specific collective guilt will better account for this relationship.

While other measures of cooperation, such as the dictator game (Hoffman, McCabe, Shachat & Smith, 1994) or the ultimatum game (Stahl, 1972), may be other ways to capture individual differences in the tendency toward cooperative behaviour, choice matrices such as those used by Tajfel et al. (1971) were utilised in the current study for methodological reasons. These sorts of choice matrices have been used by others to assess resource allocation in ingroup favouritism - outgroup cooperation studies (e.g., Blank, 2003; Hertel & Kerr, 2001; Reynolds, Turner, Haslam, Ryan, Bizumic & Subasic, 2007). The alternative games to assess cooperative tendencies generally involve the allocation of money or assets to another participant/s, something that was not feasible in the current study. Additionally, choice matrices modified from those used by Tajfel et al. (1971) also allowed for the assessment of cooperative tendencies toward different outgroups and, thus, cooperative tendencies toward the human outgroups identified as relevant to environmental behaviour (see Chapter 1) were, as a result, able to be investigated.

Participants

Participants were 127 Australian undergraduate psychology students (34 men, 93 women) with ages ranging between 17 and 53 years (M=28.05, SD=10.67).

Participation was voluntary in exchange for course credit.

Materials

The survey pack consisted of an Information Sheet (see Appendix K) followed by an Informed Consent Form (see Appendix L) and a questionnaire. In addition to demographic information (age and gender), the following measures were administered to participants.

Measure of cooperation. To measure cooperation, specifically via the assessment of maximum outgroup profit (MOP) decisions, four brief narratives were described where the individual was instructed to spend a large sum of money, each assessing different ingroup-outgroup combinations. In two narratives, the participants were to imagine they had won a large sum of money in a lotto draw and were to spend some of it on (1) themselves now and save some for their future (self-future self), and (2) spend some of it on themselves and donate some to a charity of their choice (self-other). In a similar manner, in the remaining two narratives, they were to imagine they were in charge of how Australia spends its money, and to allocate how much they would (1) spend now or save for Australia's future (ingroup-future ingroup), and (2) spend on Australia or donate to Foreign Aid (ingroup-outgroup). Accompanying each narrative were two different choice matrices for the distribution of the money, such that both MOP and MJP scores could be differentially calculated. Participants were instructed to provide choices for both matrices. As an example, the two choice matrices assessing self-future self cooperation, and the narrative accompanying them, appear in Figure 1. The complete list of choice matrices and their narratives used in this study are provided in Appendix M.

Imagine that you just won a large sum of money playing lotto. We'd like to know how you would spend the money. You have the option of some combination of spending the money now and saving it for later. What you don't spend now will earn interest for the future.

Below are presented two different scenarios for how the money can be spent.

The numbers below are millions of dollars.

For example, in Scenario 1, if you choose to spend $16mil now (top row), that will mean you will have $7mil left for later (bottom row).

Scenario 1

Have now	19	18	17	16	15	14	13	12	11	10	9	8	7
Have later	1	3	5	7	9	11	13	15	17	19	21	23	25

Scenario 2

Have now	1	3	5	7	9	11	13	15	17	19	21	23	25
Have later	19	18	17	16	15	14	13	12	11	10	9	8	7

Figure 1. The brief narrative and accompanying choice matrices assessing self-future self cooperation.

The choice matrices were adapted from those used by Tajfel et al. (1971) such that maximum outgroup profit (MOP) scores could be calculated. MOP scores were computed for each matrix by, starting from 0, counting from the opposite end of the matrix to where the choice (i.e. MOP) is optimal, and assigning a number to the participant's choice. For example, in Scenario 1 in Figure 1 the choice optimising MOP is 'Have now $7mil : Have later $25mil.' Thus, if a participant were to select 'Have now $16mil : Have later $7mil,' their MOP score for this scenario would be 3. Similarly, in Scenario 2 if they chose 'Have now $3mil : Have later $18mil,' their MOP score for this scenario would be 11. The addition of the two scores for the scenarios accompanying each ingroup-outgroup narrative was computed to provide a measure of MOP for that ingroup-outgroup combination, with higher scores indicating greater cooperation with that outgroup. Thus, in this example, the participant's self-future self MOP score would be 3 + 11 = 14. In this manner MOP scores were computed for each of the four ingroup-outgroup combinations (self-future self, self-other, ingroup-future ingroup, and ingroup-outgroup). Although none was predicted, MJP scores were also calculated in a similar manner to explore any relationship that these scores may have with ecologically-

friendly behaviour and feelings of collective guilt.

Measure of ecological behaviour. The 22-item New Ecological Behaviours Scale developed earlier in this thesis was used to measure multi-domain ecological behaviours (see Chapter 5 and Appendix F). The Cronbach's Alpha for this sample was .85.

Measures of collective guilt. Branscombe et al.'s (2004) 20-item Collective Guilt Scale was used to measure general tendencies toward collective guilt emotions, including the subscales of collective guilt *acceptance* (current sample α=.85), collective guilt *assignment* (current sample α=.75), the notion that whole groups are accountable for the actions of their members (current sample α=.79), and not denying the actions of one's group (current sample α=.79). General psychometric properties of this scale have been reported in Chapter 6 of this thesis, and a copy of this scale is provided in Appendix G.

Eight items were also included in the questionnaire to assess collective guilt specific to ecological concerns (current sample α=.88). These items were adapted from Doosje et al. (1998), and were placed at the very end of the questionnaire to avoid priming on any of the other measures. For example, "I feel guilty about the negative things wealthy nations like Australia have done to the natural environment." Items were answered on a 9-point Likert scale from 1 (*strongly disagree*) to 9 (s*trongly agree*), and a complete list of the items is provided in Appendix N.

Measure of social desirability. The 10-item shortened version of the Crowne and Marlowe (1960) Social Desirability Scale (Strahan & Gerbasi, 1972) was included in the questionnaire to assess, and potentially partial out, any tendency for participants to respond in a socially-normative manner on the other scales. It contains ten true / false items such as "I'm always willing to admit it when I make a mistake" (current sample α=.62; see Appendix O). This measure was considered an appealing method of assessing socially-desirable responding, while being considerably shorter, it has been reported to possess psychometric properties at least on par with the original Crown and Marlowe (1960) measure (see Fischer and Fick (1993) for a review).

Measure of Australian identity. Three items (current sample α=.90) were adapted from Doosje et al. (1998) to assess the degree of identification with Australia. Items were scored on a 9-point scale from 1 (*not at all*) to 9 (*very much*), for example "Australian people are an important group to me." See Appendix P for these items.

Procedure

Before the study commenced, Human Ethical Clearance was obtained (see

Appendix Q). The participants signed up to participate in an online questionnaire called "Money Spending, Emotions and the Environment" in order to receive course credit. Participants were directed to a web page hosting the questionnaire which they completed in their own time and at their own pace. They were requested to complete the questionnaire in a quiet and non-distracting environment.

Results

Descriptive Statistics

In order to investigate the distribution of the data, examinations for violations of normality, linearity, skewness, and to identify outliers were performed. Overall, the data were found to be reasonably distributed, a summary of which is provided in Table 5.

Table 5
Descriptive Statistics for Proximal, Distal and Mediating Variables

Variable		*M*	*SD*	Min	Max	Skewness	Kurtosis
CG-AC		24.64	7.44	5	39	-.56	.40
CG-AS		19.69	6.49	5	36	-.32	.05
CG-ND		22.54	6.91	5	38	-.21	.10
CG-WGA		22.18	6.60	5	37	-.31	-.17
CG-Eco		29.80	8.76	5	45	-.49	.46
MOP	Self-Future self	18.01	5.54	0	24	-.58	-.59
	Self-Other	8.20	6.24	0	24	.63	-.05
	Ingroup-Future ingroup	14.34	5.82	0	24	-.14	-.16
	Ingroup-Outgroup	6.62	5.75	0	24	.98	.84
Aus ID		20.81	5.69	3	27	-.88	.25
NEBS		55.37	8.87	37	78	.12	.40

Note. N=127. Abbreviations: CG-AC (Collective Guilt Acceptance), CG-AS (Collective Guilt Assignment), CG-ND (Collective Guilt No Denial of Group Responsibility), CG-WGA (Collective Guilt Whole Group Accountability), CG-Eco (Ecologically-Specific Collective Guilt), MOP (Maximum Outgroup Profit), Aus ID (Degree of Identification with Australia), NEBS (Ecological Behaviour; New Ecological Behaviour Scale).

Correlations

Before any predictions were investigated, social desirability was correlated with all variables to investigate whether participants altered their responses to appear more socially desirable. Social desirability was found to significantly correlate with some

MOP scores (specifically in the self-future self, and self-other choice matrices), and approached significance on other measures (including identification with Australia). Females also reported significantly more social desirability than males (t=2.06, p<.05) and, as such, social desirability was partialled out of all subsequent analyses.

Correlations between all variables were performed, while controlling for social desirability, as an initial test of predictions (see Table 5). General collective guilt acceptance showed only one significant correlation with MOP scores, for the self-other narrative (r=.24, p=.004). Ecologically-specific collective guilt was also significantly positively correlated with MOP scores for the self-other narrative (r=.26, p=.002), as well as for the ingroup-outgroup narrative (r=.21, p=.009), such that those making more cooperative decisions in these scenarios also reported experiencing more collective guilt, and specifically collective guilt for environmental concerns.

Correlations also showed that MJP scores across the different ingroup-outgroup narratives appeared unrelated to both general and ecologically-specific collective guilt, as well as ecological behaviour, ps>.05. This is in support of the notion that MJP decisions are motivated by an ingroup focus. It is also interesting to note that those identifying more with Australia also reported accepting more collective guilt in a general sense, r=.29, p<.001; however, this was not the case for feelings of ecologically-specific collective guilt (p>.05) suggesting that participants may have been considering other cases of ingroup harm doing when responding on this scale.

MOP scores also positively correlated with ecological behaviour, for the self-other narrative (r=.34, p<.001) and for the ingroup-outgroup narrative (r=.15, p=.048). This suggests that tendencies toward cooperating with these others may encourage ecologically-friendly behaviours. Furthermore, an unexpected finding given that Study 1 (Chapter 6) failed to find a significant correlation between general collective guilt acceptance and recycling behaviour, was that general collective guilt acceptance significantly correlated with multi-domain ecological behaviour, assessed with the New Ecological Behaviours Scale, in this study, r=.21, p=.008. Ecologically-specific collective guilt, however, yielded the expected positive correlation with ecological behaviour, r=.49, p<.001, such that those reporting accepting more collective guilt and, in particular, accepting more collective guilt for ecological concerns, showed higher levels of ecological behaviour.

Table 6
Correlation Matrix of all Variables, Controlling for Social Desirability

		Variables													
							MJP				MOP				
	Variables	CG-AC	CG-AS	CG-ND	CG-WGA	CG-Eco	Self-Future self	Self-Other	Ingroup-Future ingroup	Ingroup-Outgroup	Self-Future self	Self-Other	Ingroup-Future ingroup	Ingroup-Outgroup	Aus ID
CG-AC		1													
CG-AS		.28***	1												
CG-ND		.65***	.21**	1											
CG-WGA		.44***	.30***	.63***	1										
CG-Enviro		.63***	.22**	.43***	.31***	1									
MJP	Self-Future self	.04	-.06	.04	-.11	.06	1								
	Self-Other	-.07	-.02	-.08	-.13	.02	.25**	1							
	Ingroup-Future ingroup	.17	-.09	-.04	-.11	.08	.64***	.23**	1						
	Ingroup-Outgroup	-.08	.02	-.13	-.03	-.05	.22**	.20**	.37***	1					
MOP	Self-Future self	-.01	-.05	-.15*	-.08	.10	-.40***	-.09	-.37***	-.20*	1				
	Self-Other	.24**	-.15*	.24**	.04	.26**	-.09	.13	.00	-.14	.15*	1			
	Ingroup-Future ingroup	-.14	.02	-.20**	-.13	.02	-.06	-.12	-.03	-.02	.23**	-.11	1		
	Ingroup-Outgroup	.10	-.09	.18*	.05	.21**	-.01	.00	.04	-.05	-.11	.25**	.13	1	
Aus ID		.29***	.12	.15*	.16*	.07	-.12	-.23**	-.06	-.16*	-.04	-.02	-.10	.00	1
EcoBehav		.21**	.02	.13	.06	.49***	.08	.08	.14	-.10	.07	.34***	-.09	.15*	.05

Note. N=127. Abbreviations: CG-AC (Collective Guilt Acceptance), CG-AS (Collective Guilt Assignment), CG-ND (Collective Guilt No Denial of Group Responsibility), CG-WGA (Collective Guilt Whole Group Accountability), CG-Eco (Ecologically-Specific Collective Guilt), MJP (Maximum Joint Profit), MOP (Maximum Outgroup Profit), Aus ID (Degree of Identification with Australia), EcoBehav (Ecological Behaviour). *p<.05, **p<.01, ***p<.001

Mediation Analyses

To test the model that MOP choices predict ecological behaviour, through feelings of collective guilt, mediation analyses were performed for each of the three significant relationships identified between MOP scores and ecological behaviour (see Table 6). The procedures outlined by Baron and Kenny (1986) were used. As stated, correlations were found between socially-desirable responding and some of the target variables. As a result, social desirability was controlled for by entering it into the first block of the regression analyses.

Mediation analysis 1: Self-other MOP and general collective guilt acceptance. MOP scores on the self-other narrative were a significant predictor of both general collective guilt acceptance (β=.24, p=.004), and ecological behaviour (β=.34, p<.001). General collective guilt acceptance was also a significant predictor of ecological behaviour when MOP scores on the self-other narrative was controlled (β=.21, p=.008). When predicting ecological behaviour from MOP scores on the self-other narrative, but controlling for general collective guilt acceptance, the relationship between self-other MOP and ecological behaviour was reduced, but still remained significant (β=.30, p=.001), as shown in Figure 2. Using the bootstrapping procedures suggested by Preacher and Hayes (2008), a confidence interval of 95% and bias-corrected and accelerated bootsrapping using 5000 bootsrapped samples of -.0026 / .1494, revealed that this reduction was non-significant as this range includes 0. This therefore, suggests that partial mediation of the relationship between MOP scores on the self-other narrative and ecological behaviour by general collective guilt acceptance has not occurred.

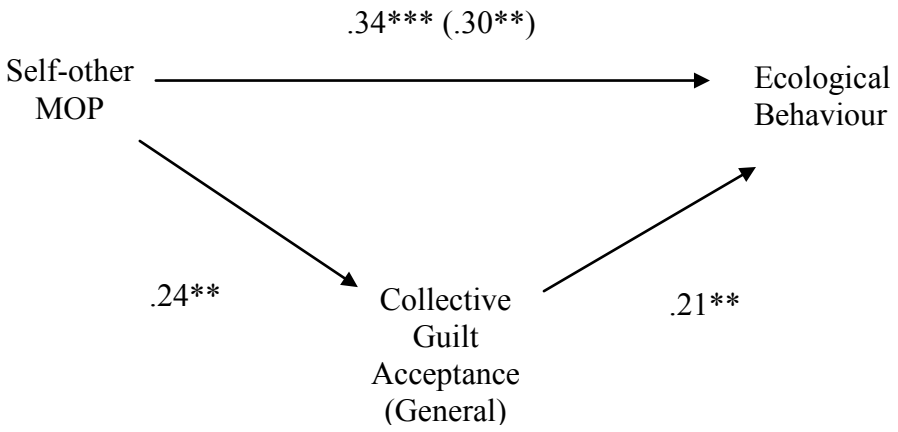

Figure 2. Unsuccessful mediation of self-other MOP by general collective guilt acceptance
** p <.01, *** p <.001

Mediation analysis 2: Self-other MOP and ecologically-specific collective guilt. The two remaining mediation analyses assess the mediation of MOP scores and ecological behaviour by feelings of ecologically-specific collective guilt. MOP scores on the self-other narrative were a significant predictor of both ecologically-specific collective guilt (β=.26, p=.002), and ecological behaviour (β=.34, p<.001). Feelings of ecologically-specific collective guilt were also a significant predictor of ecological behaviour when self-other MOP was controlled (β=.49, p<.001). When predicting ecological behaviour from self-other MOP scores, but controlling for feelings of ecologically-specific collective guilt, once again, the relationship between self-other MOP and ecological behaviour was reduced, but still remained significant (β=.22, p=.005), as shown in Figure 3. Preacher and Hayes' (2008) procedures for bootstrapping were, once again, used. A confidence interval of 95% and bias-corrected and accelerated bootstrapping using 5000 samples of .0164 / .2886 revealed that this reduction was indeed significant as 0 falls outside this range. Thus, in support of the proposed mediation model, the positive relationship between self-other MOP and ecologically-friendly behaviour has been partially mediated by feelings of ecologically-specific collective guilt.

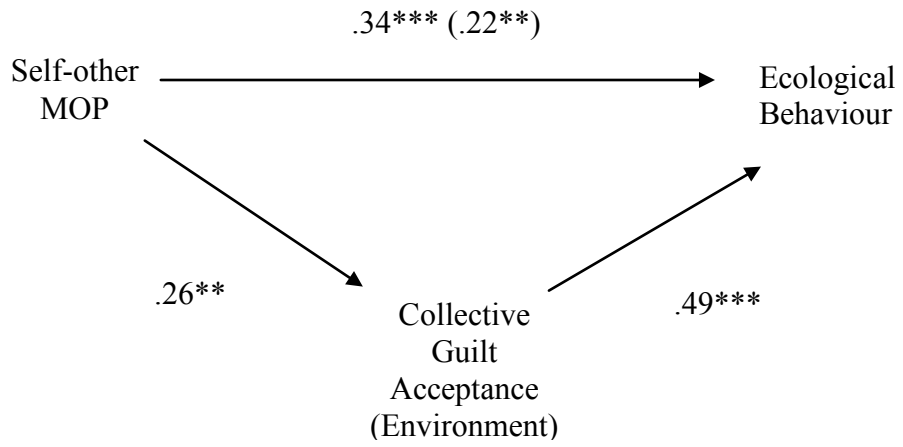

Figure 3. Partial mediation of self-other MOP by ecologically-specific collective guilt
** p <.01, *** p <.001

Mediation analysis 3: Ingroup-outgroup MOP and ecologically-specific collective guilt. Finally, MOP scores on the ingroup-outgroup narrative were a significant predictor of both ecologically-specific collective guilt (β=.21, p=.009), and ecological behaviour (β=.15, p=.048). Feelings of ecologically-specific collective guilt were also a significant predictor of ecological behaviour when ingroup-outgroup MOP was controlled (β=.49, p<.001). When

predicting ecological behaviour from self-other MOP scores, but controlling for feelings of ecologically-specific collective guilt, the relationship between ingroup-outgroup MOP and ecological behaviour failed to reach significance (β=.05, p>.05), as shown in Figure 4. This shows that feelings of ecologically-specific collective guilt mediated the positive relationship between MOP scores on the ingroup-outgroup narrative and ecological behaviour, in support of the proposed mediation model.

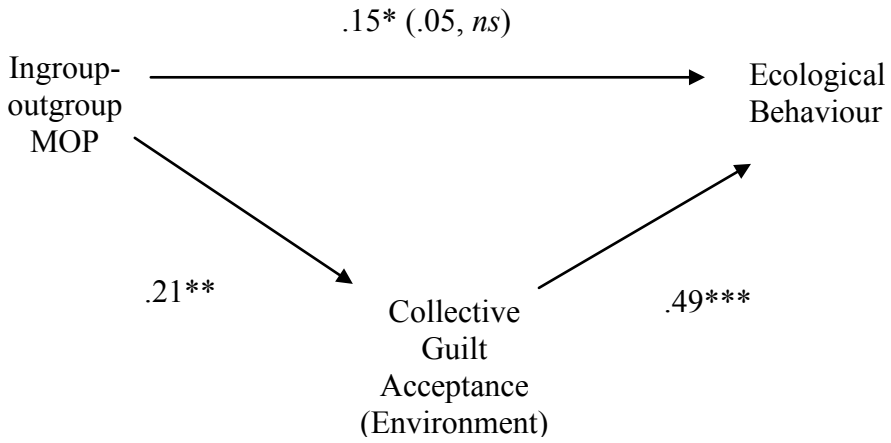

Figure 4. Mediation of ingroup-outgroup MOP by ecologically-specific collective guilt
ns= non-significant, *p <.05, ** p <.01, *** p <.001

Discussion

This study supports the notion that both the performance of ecological behaviour as well as feelings of collective guilt may be cooperative in nature. It also supports the proposition that feelings of ecologically-specific collective guilt mediate, at least partly, the effects of cooperative tendencies on ecological behaviour. It was found that feelings of ecologically-specific collective guilt, but not generic collective guilt, mediated the positive relationship between the cooperative tendencies individuals reported between their ingroup and outgroups and the performance of ecological behaviours. In a similar manner, feelings of ecologically-specific collective guilt were also found to partially mediate the positive relationship between cooperative tendencies individuals reported between the self and others and the performance of ecological behaviours.

The tendency toward making cooperative decisions seems to allow both feelings of collective guilt as well as ecological behaviour to occur. Indeed, it appears that both

ecological behaviour and feelings of collective guilt share cooperative origins. As Kollock (1998) explains, to act cooperatively involves considering the effect that one's behaviour has on others. As cooperation involves acts that are for the benefit of others, given that unecological behaviour is predicted to cause harm to a host of outgroups, those who act in consideration of, and in favour of, these outgroups are more likely to experience feelings of collective guilt for the uncooperative actions of their ingroup. These feelings of collective guilt, then, motivate ecological behaviour to lessen the harm that the outgroups will face.

The current study investigated cooperation within four different human ingroup-outgroup combinations, self-future self, self-other, ingroup-future ingroup, and ingroup-outgroup. Findings suggested that it was only tendencies toward cooperation with others (in the self-other narrative) and other groups (in the ingroup-outgroup narrative) that were related to feelings of ecologically-specific collective guilt and the performance of ecological behaviour. While the outgroups identified in Chapter 1 included, in addition to these groups, the future self as well as future ingroup as being negatively affected by the ecologically-unfriendly actions of developed nations, notions as to the innocence of these groups may explain the present findings. Indeed, other individuals and other groups are innocent in that they do not directly benefit from unecological behaviour but are still expected to experience the negative consequences resulting from the unecological actions of developed nations. The future self and future members of the ingroup, however, lack this innocence as they have gained considerable advantage as a result of ecological unfriendliness, be it at a personal or group level. Thus, the failure for the cooperation toward these others to motivate ecologically-friendly behaviour may be reflective of their lack of innocence and, therefore, their deservingness of cooperation.

It is important to note that while two choices could be made in the decision-making matrices that involved the consideration of the outgroup, that is MOP and MJP choices, only MOP choices were correlated with prosocial outcomes. It, thus, appears that while MJP choices involve the outgroup to receive better outcomes than if they acted completely selfishly, MJP choices are motivated by an ingroup focus. On the other hand, MOP decisions were found to relate to the prosocial outcomes of feelings of collective guilt and the performance of ecological behaviour. This reinforces the notion that ecological issues can be framed in terms of a commons dilemma requiring cooperation with the outgroups also sharing the resource, as well as the notion that reparative efforts stemming from collective guilt

emotions are motivated by a desire for social justice as opposed to ingroup-focussed needs to affirm positive self-regard.

This is in conflict with some prior work that has found support for the self-focussed nature of feelings of collective guilt. Indeed, this work has investigated the feelings of collective guilt in White Americans for disadvantages faced by African Americans (see Chapter 3). As stated in Chapter 3, feelings of collective guilt were found to predict compensatory actions, not equal opportunity policies (Iyer et al., 2003). Also, it has been found that the harmful actions of the ingroup being made salient evoked feelings of collective guilt, while feelings of empathy resulted from highlighting the disadvantaged status of the outgroup (Iyer et al., 2003; Powell et al., 2005). These findings combined suggest that reparations stemming from feelings of collective guilt may be motivated more so by desires for guilt alleviation, than desires for social justice.

While the current study does not necessarily support this notion, as ecologically-friendly behaviour appears to have cooperative origins, it may be proposed that dynamics between ingroups and outgroups in the current study and the Black and White Americans in Iyer et al.'s (2003) and Powell et al.'s (2005) work may explain these differences. It is reasoned that it may be that the nature of the relationship between the ingroup and the harmed outgroup influences whether feelings of collective guilt motivate compensatory or cooperative retribution. As social identity theory (Tajfel & Turner, 1979) states, individuals prefer that the ingroup be favoured over other groups (see Chapter 4). Thus, as White and Black Americans are not separated temporally or spatially from each other, cooperating with them by supporting equal opportunity policies is likely to have a salient impact on the advantaged status of White Americans. In fact, cooperative initiatives are literally designed to reduce this relative advantage. If one desires to maintain one's group's advantaged status, one may be motivated to engage in token efforts such as compensatory retribution to alleviate any feelings of collective guilt in these cases. Due to the temporal and spatial separation accompanying the harm doing of developed nations and the outgroups harmed by ecological unfriendliness (see Chapter 1), the impact of these actions on the ingroup's advantaged status may be less salient. As a result, retributions resulting from collective guilt feelings within the ecological domain may motivate efforts to create social justice instead of the corresponding token efforts at intergroup justice afforded by outgroup compensation.

Despite providing support for the cooperative origins of feelings of collective guilt and

the performance of ecologically-friendly behaviour, the current study utilised a correlational design, meaning that notions of causation cannot be confirmed. Furthermore, the current study also utilised self-reported information on imaginary scenarios which may not accurately reflect how individuals would behave if that situation were real. As a result, the results of the current study should be interpreted with some caution.

Interestingly, and in contrast to Study 1 (Chapter 6), the reporting of collective guilt appeared unrelated to socially-desirable responding. This was the case for both general collective guilt feelings, in line with Branscombe et al. (2004), as well as feelings of ecologically-specific collective guilt. This suggests that participants were not significantly influenced by social approval motivations when reporting their explicit feelings of collective guilt.

Finally, the current study included assessments of both general feelings of collective guilt and ecologically-specific feelings of collective guilt. However, unlike in Study 1 (Chapter 6), general collective guilt acceptance correlated significantly with ecologically-friendly behaviour. Despite this, ecologically-specific feelings of collective guilt were also significantly related to ecologically-friendly behaviour and, as would be expected, this relationship was considerably stronger. It is reasoned that domain-specific feelings of collective guilt should demonstrate a stronger relationship to reparative efforts in that domain, as these feelings of collective guilt correspond directly to the case of ingroup harm doing. While for general feelings of collective guilt, there is the possibility that individuals may be considering other cases of ingroup harm doing when responding to the measure. This is suggested as Australian ingroup identity correlated differently with the general and domain-specific assessments of collective guilt.

In conclusion, the present study provides support for the notion that feelings of collective guilt and the performance of ecologically-friendly behaviours have cooperative origins. Support was found for a mediation model whereby feelings of ecologically-specific collective guilt mediated, at least partially, the positive relationship between cooperative decisions involving innocent others and an individual's self-reported multi-domain ecological behaviour. It appears that when people are inclined to act cooperatively with others yet perceive the actions of their group are having or will have a negative impact on others, feelings of collective guilt may result. These feelings of collective guilt then motivate ecological behaviour to ameliorate the harm doing and relieve the feelings of guilt, in what

seems an attempt to establish a cooperative relationship with the outgroup. Thus, methods of encouraging cooperation may result in increasing collective guilt and subsequent ecological friendliness.

CHAPTER 8: STUDY 3: PREDICTORS OF ECOLOGICAL BEHAVIOUR: A COMPARISON OF KNOWN GROUPS

Studies 1 and 2 presented in the previous chapters have implicated feelings of collective guilt within the ecological domain and provided some evidence for the cooperative nature of both collective guilt feelings and ecological friendliness. The study described in this chapter will investigate how individual difference variables, including feelings of collective guilt and tendencies toward cooperation, may be differentially distributed in community groups who differ in the extent to which they are ecologically friendly. Society is comprised of many numerous groups, some of which are based on the performance of ecologically-friendly or -unfriendly behaviour. Understanding how these community groups that differ in their ecological behaviour also differ in other ways will provide some insight into both the causes of ecological friendliness as well as motivations for membership in these groups. Indeed, a comparative analysis of groups that presumably differ in their environmental behaviour, namely Environmentalists and Performance Car Enthusiasts, as well as a comparison of young, and older people will be conducted. Environmentalists are, by definition, higher in their ecological behaviour than other segments of the community, especially ones that define themselves on resource use, such as Performance Car Enthusiasts. Additionally, younger and older segments of the population may also differ in their ecological behaviour due to different motivations and life experiences, with some suggesting it should be higher (e.g., Kantola et al., 1982) and others lower (e.g., Casey & Scott, 2006; Huntley, 2006; see Chapter 2).

Several psychological variables will be investigated in this study, including feelings of collective guilt (both general and ecologically-specific feelings), tendencies toward cooperation, norms (personal and social), locus of control, self-efficacy, personal guilt, collective guilt, identification with Australia, and self-righteousness. Demographic factors including household income and highest level of education attained will also be assessed as some previous literature suggests these may have implications for ecological behaviour (see Chapter 2). Background literature on each of these variables' relationship within the ecological domain has been outlined in Chapter 2 of this thesis, and the rationale for inclusion of each of these variables is provided briefly below.

As explained, ecological friendliness is reasoned to emerge from the notion of the commons dilemma and the cooperation with the outgroups predicted to suffer the consequences of unecological behaviour (see Chapter 1). The performance of ecological behaviour, and therefore membership in Environmentalist groups, should thus be associated with greater tendencies toward cooperation, and therefore experience higher levels of both personal and collective guilt. Environmentalists should also possess higher norms (both personal and social) surrounding ecological behaviour. As their association with other Environmentalists is thought to increase expectations regarding ecological friendliness and, due to their actual involvement in ecologically-relevant groups, they are also reasoned to experience greater agency surrounding the performance of ecologically-friendly behaviours. Thus, Environmentalists should also have a more internal locus of control and higher levels of self-efficacy in comparison to Performance Car Enthusiasts. Finally, as Australian culture generally involves a high degree of consumption and non-renewable resource use, Environmentalists are reasoned to also identify with Australia to a lesser extent than Performance Car Enthusiasts. Environmentalists are, therefore, hypothesised to be more cooperative, experience higher levels of both personal and collective guilt, have higher norms (both personal and social) surrounding ecological behaviour, have a more internal locus of control, higher levels of self-efficacy, and lower levels of identification with Australia in comparison to Performance Car Enthusiasts. The notion of self-righteousness was also included to assess the possibility that Environmentalists may be engaging in ecological friendliness for self-interested reasons, as some literature (e.g., Mazar & Zhong, 2010) suggests that the performance of ecological behaviour may occur not only due to a desire to preserve the earth but also out of self-interest as a method of increasing one's moral standing (see Chapter 2).

Comparisons between young and older populations were expected to reveal only differences in locus of control (with the young sample having a more external locus of control), self-efficacy and personal guilt, with the older sample scoring higher on these variables. It was hypothesised that, due to their increased experience, older persons should possess greater degrees of agency, reflective of a more internal locus of control and higher self-efficacy. Also, due to greater accumulated life experiences, and thus more possibilities for guilt, it was hypothesised that older people would indicate greater tendencies toward personal guilt emotions.

Method

Participants and Procedure

Before the study commenced, Human Ethics Clearance was obtained (see Appendix R). A total of 124 (46 men, 78 women) Australian participants comprised the four sample groups of this study.

The Younger Sample consisted of undergraduate psychology students from James Cook University (JCU), Townsville who voluntarily participated for course credit. Thirty-five participants (8 men, 27 women), aged between 17 and 24 (M=19.26, SD=2.08) collected a copy of the questionnaire from a designated location on campus, completed it in their own time, and returned it to a designated drop-box also located on campus or contacted the investigator to arrange return.

The Older Sample included 31 voluntary participants (10 men, 21 women), aged between 55 and 91 (M=68.23, SD=8.93) from the University of the Third Age (U3A), Townsville branch. An email was sent to U3A members informing them of the study, and those interested were sent a copy of the questionnaire either via email or mailed a hard copy at their discretion. Those requesting hard copies of questionnaires were also provided with a pre-paid envelope to allow for the easy return of completed questionnaires.

The Environmentalist Sample (N=29; 12 men, 17 women; aged 20 to 77 (M=49.24, SD=16.88)) consisted of two subgroups: Members of Trees for Life and JCU's Bicycle Users Group (BUG). Members of Trees for Life aim to 'undo the damage' done to cleared land by reintroducing native plants and caring for remaining bushland. Selection criteria for these participants were that they must identify strongly with Trees for Life, and that this group was very important to them personally. The CEO of Trees for Life distributed hard copies of the questionnaire to those interested in participating. Participants completed them in their own time and returned them to the researcher in a pre-paid envelope provided. BUG members are a community of staff and students who commute via bicycle. These participants identified as BUG members, and were informed via email about the study. Those who indicated interest in participating were, at their discretion, sent a copy of the questionnaire either via email or hard copy. Once again, those requesting a hard copy of the questionnaire were also provided with a pre-paid envelope to allow for easy return once it was completed.

The Performance Car Enthusiast Sample was obtained from the Queensland Street Scene website and attendees of the July 2010 V8 Supercars events in Townsville.

Participants identified as having a keen interest in performance motor vehicles and participated voluntarily. There were 29 participants (16 men, 13 women) aged between 18 and 53 (M=29.38, SD=10.50). Queensland Street Scene participants were obtained by making a post on their website, and those interested were sent a copy of the questionnaire either via email or hard copy. The names and contact numbers of those that indicated interest in participating were gathered from attendees of the V8 Supercars events. After the event, these individuals were contacted via telephone to obtain a mailing address to which a hard copy of the questionnaire, complete with pre-paid return envelope, was sent.

Materials

In addition to demographic information including age, gender, education and household income, self-report measures of the variables of interest were included in the questionnaire delivered to participants. While a self-report survey design was utilised in this study, a measure of social desirability was not included in order to keep the length of the questionnaire to a minimum. This was considered necessary in order to encourage participant completion, especially when targeting community populations such as those used in this study. The survey pack consisted of an Information Sheet (see Appendix S) followed by an Informed Consent Form (see Appendix T), and the questionnaire with the measures presented in a counterbalanced order. The measure of ecologically-specific collective guilt was, however, presented last to avoid priming on the other scales. The measures are described below.

Measure of ecological behaviour. The New Ecological Behaviours Scale contains 22 items assessing multi-domain ecological behaviour (current sample α=.87). For example, "My purchasing decisions are influenced by whether the packaging is recyclable," with items answered on a 4-point scale; 1 (*never*), 2 (*sometimes*), 3 (*often*), 4 (*always*). The development of this scale has been presented in Chapter 5 of this thesis, and the list of items is provided in Appendix F.

Measure of social norms. Four items (current sample α=.83) were written to assess social norms surrounding ecological behaviour. Items were "To what extent would your (1) parents, (2) close friends, (3) partner, (4) other friends expect you to engage in environmentally-conscious behaviours?" answered on a 6-point scale from 1 (*not at all*) to 6 (*very highly*).

Measure of personal norms. Garling, Fujii, Garling and Jakobsson's (2003) four-item measure of personal environmental norms (current sample α=.86) was used;

for example, “I feel a moral obligation to protect the environment.” A 9-point scale from 1 (s*trongly disagree*) to 9 (st*rongly agree*) was used, with higher scores indicating greater personal norms. See Appendix U for a list of these items. Limited psychometric properties were available for this measure; however, Garling et al. (2003) reported an internal consistency reliability of .84 for their use of these items.

Measure of collective guilt. Branscombe et al.’s (2004) 20-item Collective Guilt Scale was used to assess individual differences in feelings of collective guilt across four dimensions (subscales), including the Acceptance of collective guilt (current sample α=.82), the Assignment of collective guilt to other groups (current sample α=.75), the notion that whole groups are accountable for actions of their members (Whole Group Accountability; current sample α=.60), and not denying the actions of one’s group (No Denial of Group Responsibility; current sample α=.74). Items were assessed on an 8-point scale from 1 (*strongly agree*) to 8 (*strongly disagree*). General psychometric properties of this scale have been reported in Chapter 6 of this thesis, and a copy of this scale is provided in Appendix G.

Measure of ecologically-specific collective guilt. To assess feelings of collective guilt specific to the ecological domain, eight items (current sample α=.95) were adapted from Doosje et al. (1998). For example, “I feel guilty about the negative things wealthy nations like Australia have done to the natural environment.” See Appendix N for a list of these items. Items were answered on a 9-point Likert scale from 1 (*strongly disagree*) to 9 (*strongly agree*).

Measure of Australian identity. Three items (current sample α=.86) were adapted from Doosje et al. (1998) to assess the degree of identification with Australia. Items were scored on a 9-point scale from 1 (*not at all*) to 9 (*very much*), for example “Australian people are an important group to me.” See Appendix P for these items.

Measure of locus of control. Rotter’s (1966) Locus of Control Scale (current sample α=.74) consists of 29 items in which respondents are to choose one of two options to best reflect their beliefs, including 6 filler items to disguise the purpose of the measure. For example “What happens to me is my own doing. / Sometimes I feel that I don’t have enough control over the direction my life is taking.” See Appendix V for a copy of these items. Higher scores indicate a more external locus of control. This measure has demonstrated reliability and validity, with a test-retest reliability coefficient of .55 over an eight month period, and demonstrated concurrent validity (*r*s=.37 to .48) with the MacDonald-Tseng (1971) measure of locus of control (Zerega,

Tseng & Greever, 1976). Rotter's (1966) scale has also been demonstrated to possess parallel forms reliability, whereby estimates of .72 and .88 were revealed in two different evaluations (Marsh & Richards, 1986).

Measure of personal trait guilt. Jones, Schratter and Kugler's (2000) 20-item Trait Guilt Scale (current sample α=.91) assesses individual differences in dispositional guilt. Items such as "I have made a lot of mistakes in my life," were answered on a 5-point scale from 1 (s*trongly agree*) to 5 (s*trongly disagree*), with lower scores indicating greater guilt. An internal consistency reliability coefficient of .89, as well as test-retest reliability of .72 over a ten-week period has been reported for this measure (Jones et al., 2000). A copy of this scale has been provided in Appendix W.

Measure of self-righteousness. Falbo and Belk's (1985) Self-Righteousness Scale (current sample α=.63) contains 4-items, such as "I can benefit other people by telling them the right way to live" (see Appendix X). The psychometric properties of this scale are modest, whereby an internal consistency reliability of .60 and a test-retest reliability of .54 for this measure has been reported (Falbo & Belk, 1985). Items were answered on a 5-point scale from 1 (s*trongly agree*) to 5 (s*trongly disagree*), with lower scores indicating greater self-righteousness.

Measure of self-efficacy. Chen, Gully and Eden's (2001) New General Self-Efficacy Scale was used to assess general self-efficacy (current sample α=.90). Eight items comprised this measure, for example "I will be able to achieve most of the goals that I have set for myself" (see Appendix Y). This measure of self-efficacy was chosen as it possesses more desirable psychometric properties than other measures, including Sherer, Maddux, Prentice-Dunn, Jacobs and Rogers' (1982) Self-Efficacy Scale. It is a unidimensional scale, with adequate internal consistency reliability (αs=.85 to .88) and test-retest reliability (*r*s=.62 to .66) demonstrated by Chen et al. (2001) on three occasions. Items were answered on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Measure of cooperation. Two vignettes depicting decision-making scenarios in the classic commons dilemma style were used to assess cooperation (McQueen, 2002). They include using one's air-conditioner for one's own comfort at the expense of causing an electricity shortage, and using work office supplies for personal use at the expense of others in the workplace (see Appendix Z). Limited psychometric information was available for these vignettes; however, the correlation between these

two items was .40 (p<.001) in the current sample. Responses were recorded on a scale from 1 (*definitely fully use the resources*) to 6 (*definitely limit my use of the resources*).

Results

Before the MANOVAs were conducted, analyses to detect violations of normality, outliers, linearity, homogeneity of regression, homogeneity of variance-covariance matrices, multicollinearity and singularity were conducted. The data was found to be reasonably distributed, and no significant violations of these assumptions were observed.

A Comparison of Environmentalists and Performance Car Enthusiasts

A one-way between-groups MANOVA was performed to investigate whether Environmentalists and Performance Car Enthusiasts differed on the dependent variables of: ecological behaviour, cooperation, social and personal norms, locus of control, self-efficacy, personal guilt, general collective guilt (including the subscales of acceptance, assignment, whole group accountability, and not denying ingroup actions), ecologically-specific collective guilt, self-righteousness, Australian identity, education level, and household income. There was a statistically significant difference between Environmentalists and Performance Car Enthusiasts on the combined dependent variables, $F(17,42)=12.02$ (p<.001); Wilk's Lambda=.16; partial eta squared=.80. When the results of these variables were considered separately, the only variables to reach statistical significance, using a Bonferroni adjusted alpha level of .003 were: ecological behaviour, cooperation, social norms, personal norms, locus of control, collective guilt for environmental issues, and identification with Australia. An inspection of the mean scores indicated that Environmentalists were higher on ecological behaviour, cooperation, social norms, personal norms, had a more internal locus of control, reported experiencing more collective guilt for environmental issues, and identified less with Australia than Performance Car Enthusiasts, see Table 7.

An analysis was also conducted to assess whether the two samples significantly differed by age. Indeed, an independent samples t-test revealed that the Environmentalists (M= 49.24, SD=16.88) were significantly older than the Performance Car Enthusiasts (M= 29.38, SD=10.50; t=5.38, p<.001). As a result, some caution should be utilised when drawing conclusions from these findings.

Table 7

Group Differences for Environmentalists and Performance Car Enthusiasts on the Dependent Variables

Variable	*F*	*p*	Partial eta squared	Environmentalists		Performance Car Enthusiasts	
				M	*SD*	*M*	*SD*
Ecological behaviour	66.29	<.001	.54	71.32	6.18	56.10	7.94
Cooperation	33.89	<.001	.38	5.34	0.79	3.95	1.02
Social norms	9.70	.003	.15	15.59	4.36	12.21	3.89
Personal norms	15.05	<.001	.21	34.97	2.03	31.83	3.86
Locus of control[a]	13.95	<.001	.20	8.90	3.30	12.00	3.02
Collective guilt (environment)	12.88	.001	.19	57.52	10.48	45.24	15.15
Australian ID	10.53	.002	.16	19.07	6.07	23.07	2.69

Note. N=58. [a] Lower scores indicate a more internal locus of control.

A Comparison of Young and Older People

Another one-way between-groups MANOVA was performed to investigate whether young people and older people differed on the same dependent variables. There was a statistically significant difference between younger people and older people on the combined dependent variables, $F(17,48)=3.18$ ($p<.001$); Wilk's Lambda=.47; partial eta squared=.47. When the results of these variables were considered separately, the variables that reached statistical significance, using a Bonferroni adjusted alpha level of .003, were: ecological behaviour, cooperation, locus of control, and identification with Australia. The mean scores indicated that the young people had lower ecological behaviour, lower cooperation, a more external locus of control, and identified less with Australia than the older people (see Table 8).

Table 8

Group Differences for Younger and Older People on the Dependent Variables

Variable	*F*	*p*	Partial eta squared	Young sample		Older sample	
				M	*SD*	*M*	*SD*
Ecological behaviour	20.21	<.001	.24	52.36	7.42	61.43	8.98
Cooperation	10.28	.002	.14	4.11	1.28	5.02	.96
Locus of control[a]	13.64	<.001	.18	12.83	3.85	9.42	3.62
Australian ID	10.32	.002	.14	20.77	5.36	24.35	3.32

Note. N=66. [a] Lower scores indicate a more internal locus of control.

Discussion

The results support the predictions that Environmentalists engage in greater ecologically-friendly behaviour, are more cooperative and experience more collective guilt for ecological issues. Despite the possible confound of age in this analysis, the Environmentalists also had stronger social and personal norms regarding the environment, a more internal locus of control, and identified less with Australia than Performance Car Enthusiasts. Interestingly, the results also showed that young people engage in less ecological behaviour, cooperate less, have a more external locus of control, and identify less with Australia, than do older people.

From the results, it appears that cooperation may be a key antecedent for the occurrence of ecological behaviour. Environmentalists and older people were both considerably more cooperative, suggesting they may be considering the impact of their actions on those that will suffer. As reiterated throughout this thesis, the notion of the commons dilemma and the resultant suffering of numerous innocent groups may motivate those inclined toward cooperation to be ecologically friendly.

Realising that one's actions, or one's group's actions, will negatively impact others may lead to feelings of guilt and subsequent reparative efforts. Personal guilt was not found to differ in the groups studied. This is presumably due to the much larger impact of one's group's actions in comparison to personal behaviour, and feelings of collective guilt being more strongly reported by the Environmentalists. Indeed, as explained in Chapter 3, feelings of collective guilt may emerge partly as a result of acknowledging the failure of one's ingroup to act cooperatively with other groups,

resulting in outgroup harm. It is also import to note that only feelings of ecologically-specific, not collective, guilt were significantly greater in the Environmentalists. This suggests that specific cases of intergroup harm, namely ecological harm, may motivate these specific domains of reparative action. It has also been explained that it is often the low identifiers that experience the most collective guilt, as they are not as motivated to protect the image of their group as high identifiers may be (see Chapter 3). Indeed, the Environmentalists were not as strongly identified with Australia and reported feeling collective guilt for environmental concerns; while the Performance Car Enthusiasts were strongly identified with Australia and reported low collective guilt. Thus, Performance Car Enthusiasts may be engaging in strategies such as those described by Branscombe and Miron (2004) to avoid any negative emotions associated with their group membership (see Chapter 3).

It is not surprising to find that strongly identifying with a group (Australia) that is a heavy user of unsustainable resources is associated with lower levels of ecological behaviour. Interestingly, older people also strongly identified with Australia, even though their ecological behaviour was relatively high. Roccas et al. (2006) explain that it may not be the *degree* of identification, but the *type* of identification that determines the group-based emotional response and behaviour, and they distinguish between two types of identification, glorification and a more critical attachment (see Chapter 3). In short, the Performance Car Enthusiasts may be more inclined to glorification, while the older sample may be more critically attached; however, more research is needed.

In line with previous findings (see Chapter 2), ecologically-friendly norms were associated with ecologically-friendly behaviour. Environmentalists reported greater social and personal norms than Performance Car Enthusiasts, indicating that normative influence may be an important factor for these groups to engage in, or not engage in, ecologically-friendly behaviour. Older and younger people did not, however, report differing norms indicating that they were not a factor in the differing ecologically-friendly behaviour observed for these groups.

As expected, the degree of control one feels over one's environment also differed in line with ecologically-friendly behaviour. An internal locus of control was found in both Environmentalists and older people, suggesting ecologically-friendly behaviour may be more likely in those that believe their behaviour is influential. The Performance Car Enthusiasts and the younger people demonstrated an external locus of control and, as such, may feel that their behaviour, be it either ecologically-friendly or -

unfriendly, has little impact. The external locus of control evidenced in the younger people can also assist in explaining the lower levels of collective guilt reported by this group. Indeed, the severity of the collective guilt experienced has been found to be determined by the difficulty of making reparations – if reparation is too difficult, then collective guilt emotions will be relatively low (see Chapter 3). Self-efficacy, however, was not found to differ between the groups, thus suggesting that perhaps domain-specific feelings of self-efficacy may be more likely to impact ecological friendliness. Finally, self-righteousness was not found to be higher in the Environmentalists, suggesting that they may not be engaging in ecological behaviours as a means to elevate themselves from others as has been suggested (e.g., Mazar & Zhong, 2010) and, thus, may be doing so due to a genuine concern for the outgroups that may be impacted by unecological actions.

Despite previous research which suggests that the variables of education and income positively relate to ecological behaviour (see Chapter 2 for a review), these variables were not found to significantly differ between the groups investigated in this study. This suggests that, while sampling used to obtain the participants may play some role, demographic factors such as these do not exert a significant level of influence over the performance of ecological behaviour, or motivation for membership in Environmentalist or Performance Car Enthusiast groups.

Indeed, the main limitation of this study is the sampling used to obtain the different groups, in particular the younger and older groups. University students and members of an education institution dedicated to older persons may not be representative of general young or older community populations. Due to the nature of the groups used in this study, caution should be utilised when generalising to broader groups. A larger sample size could also allow for comparisons *within* the groups, giving some insight into their variability. Future studies could investigate the reproducibility of these findings, as well as manipulating some of the variables to assess their causal role in ecological behaviours.

In conclusion, as demonstrated in the comparison of Environmentalists, Performance Car Enthusiasts, younger, and older people, these groups differed markedly in both their ecologically-friendly behaviour and psychological characteristics. Ecological validity was provided for collective guilt emotions via their greater presence in Environmentalist group members. In terms of understating ecological behaviour, cooperation seems to be a key antecedent, and may also lead to

collective guilt in those not strongly identified with the ingroup. Personal and social norms seem to encourage ecological behaviour, and an internal locus of control may enable it to occur.

CHAPTER 9: STUDIES 4, 5 AND 6: UNTANGLING COLLECTIVE GUILT AND ENVIRONMENTAL CONTINGENCIES OF SELF-WORTH: THREE TERROR MANAGEMENT STUDIES

The studies presented in Chapters 6, 7 and 8 have demonstrated that feelings of collective guilt have application in the ecological domain, that these feelings appear to have cooperative origins, and that they are ecologically valid in that they are reported more so in Environmentalist group members. This chapter presents three studies aiming to explore the role that feelings of collective guilt play within terror management theory. Terror management theory (Greenberg et al., 1986) can offer important contributions to the body of research concerning ecological friendliness, particularly in the engagement of ecological behaviour, factors that may inhibit such behaviour from occurring, or even encourage unecological behaviour. As explained in Chapter 4, terror management theory states that much human behaviour aims to distinguish people from the rest of nature, and is done, in part, to mitigate thoughts of one's inevitable mortality (Greenberg et al., 1997). Many behaviours witnessed in developed cultures can be interpreted in this manner. These include, for example, the fact that many live in sophisticated houses with climate control systems, dress in elaborate clothing, cleanse one's body regularly, as well as wear deodorants and perfumes. Terror management theory argues that behaviours such as these all serve, to some extent, to distance humans from the natural world, as this provides a reminder of one's inevitable mortality.

As explained in Chapter 4, immortality may be gained by successfully behaving within one's cultural expectations, such as in an afterlife, the production of offspring, or creation of personal legacy. As a method of coping with the anxiety that accompanies reminders of mortality (mortality salience; MS) people, in fact, increase their endorsement of beliefs and behaviours that are relevant to their culture or worldview. These behaviours, according to terror management theory, occur as an attempt to bolster self-esteem, something considered to be particularly relevant during times of MS, as these behaviours help to elevate one's existence beyond being merely mortal (Greenberg et al., 1997).

A substantial body of research has emerged around the terror management hypothesis and generally shows that reminders of mortality increase reliance on, and favourability toward one's worldview (for a review, see Greenberg et al., 1997). As presented in Chapter 4, research in terror management has also extended to the

environmental domain and, as expected, has found that reminders of mortality increase the degree individuals uphold norms and behaviours relevant to their culture. This generally translates into the increase in distancing from nature in various ways, including in the extent that one may be concerned with ecological issues. Indeed, Vess and Arndt (2008) investigated the effects of mortality salience on ecological concern, and how this relationship might be influenced by the level of personal self-esteem an individual gains from ecologically-relevant behaviours. The self-esteem an individual gains from ecologically-friendly actions is referred to as environmental contingencies of self-worth (ECSW) and is positively related to ecologically-friendly behaviour (Brook, 2005). As explained in Chapter 4, self-esteem is gained from domains in which the self is invested (e.g., Crocker & Wolfe, 2001; Tajfel & Turner, 1979). Thus, if an individual is personally invested in being concerned with the environment (those high in ECSW) then, after being reminded of their mortality (MS), terror management theory suggests they should increase endorsement in domains relevant to their self-worth. For those high in ECSW, this is ecological friendliness. For those who do not gain self-esteem from ecologically-friendly actions, that is those low ECSW, they should decrease their concern for environmental issues after MS. Indeed, this is what Vess and Arndt (2008) found; reminders of mortality increased environmental concern in those high in ECSW, and decreased environmental concern in those low in ECSW (Vess & Arndt, 2008). This demonstrates support for the terror management hypothesis and makes it clear that ecologically-relevant information that highlights mortality information does not impact all individuals equally; in fact, it may actually have the opposite effect intended in those not already invested in the ecological domain.

It also follows then that if the self is invested at the group level then determinants of self-esteem relating to ecological friendliness arising from group memberships should also demonstrate a similar effect to that found for ECSW after MS. This is because, according to social identity theory (Tajfel, 1978; Tajfel & Turner, 1979), self-esteem can also be gained from an individual's group memberships as well as from one's personal identity. This is thought to give rise to the experience of collective guilt feelings when one's ingroup has committed illegitimate harm to another group (see Chapter 4). Indeed, as Chapter 3 explains, feelings of collective guilt result when ingroup actions fail to conform to moral standards and these feelings encourage reparative efforts. Thus, the greater feelings of collective guilt for ecological matters are felt, the greater they feel their group should be engaging in ecologically-friendly

behaviours.

As individuals vary in the extent to which they feel collective guilt for ecological issues, the effects of mortality salience will differ depending on the individual's initial degree of ecologically-specific collective guilt. Namely, like that for ECSW, it is reasoned that those initially high in collective guilt for ecological issues will, after MS, show an increase in ecological friendliness, whereas those low in this collective guilt will show the opposite effect and decrease their ecological friendliness. Thus, it is predicted that collective guilt will demonstrate the same relationship between MS and ecological friendliness as that found by Vess and Arndt (2008) with ECSW. Like ECSW, it is predicted that collective guilt will moderate the relationship between MS and ecological friendliness.

As ECSW refers to self-esteem gained from ecological friendliness at the personal level of analysis, feelings of ecologically-specific collective guilt relates to ecological friendliness at the group-level. As a result, there may be different conditions in which ECSW and collective guilt may moderate the relationship between MS and ecological friendliness. Circumstances that differentiate individual as opposed to group contributions to ecologically-relevant behaviour should elucidate the differential impact of ECSW and collective guilt. It is reasoned that if attention can be taken off ingroup identification, then collective guilt levels will decline. Powell et al. (2005) have demonstrated that collective guilt levels are greater when the focus is on the privileged status of the ingroup as opposed to when one is reminded of the disadvantaged status of the outgroup, even if it was one's ingroup that caused the disadvantage. ECSW should not be affected by any such reminders of ingroup privilege or outgroup disadvantage as it relates to personal-level, not group-level, self-esteem. Thus, the incorporation of an ingroup privilege and outgroup disadvantage prime may be used to separate the effects of collective guilt and ECSW on ecological friendliness after MS. This will be by demonstrating that ECSW is important when personal-level self-esteem is relevant, whereas collective guilt will be relevant when the focus is on the ingroup.

Under conditions where there is a group-level focus, namely an ingroup privilege or an outgroup disadvantage reminder, as used by Powell et al. (2005), the effects of ECSW will not significantly differ between either ingroup privilege or outgroup disadvantage reminders. Collective guilt levels, however, will be altered by the use of an ingroup privilege or outgroup disadvantage reminder, such that reminders of the privileged status of one's ingroup will serve to increase feelings of collective guilt

and thus increase ecological friendliness after MS. A reminder that the outgroup is disadvantaged will, on the other hand, decrease feelings of collective guilt and, after MS, decrease ecological friendliness.

Overview of Studies and Predictions

Two studies were designed to be conducted, the first of which, Study 4, aimed to replicate the findings of Vess and Arndt (2008) that environmental contingencies of self-worth (ECSW) will moderate the relationship between mortality salience (MS) and ecological friendliness. It also aimed to demonstrate that feelings of ecologically-specific collective guilt will also moderate this relationship. Namely, after MS, those higher on ecologically-specific collective guilt and ECSW would demonstrate an increase in ecological friendliness, while those low on these variables would decrease ecological friendliness. An assessment of general collective guilt feelings was also included to test the possibility that these general feelings may be sufficient to moderate this relationship; however, given the results of Studies 1 and 3, it is expected that domain-specific feelings of collective guilt would demonstrate a stronger relationship with the dependent measures, and may therefore be required.

The second study, Study 5, aimed to separate the influence of ecologically-specific collective guilt and ECSW on ecological friendliness by employing a differential focus prime, focussing either on the advantaged status of the ingroup or on the disadvantaged status of the outgroup. It was predicted that by focussing on either the ingroup's advantaged status or the outgroup's disadvantaged status would impact collective guilt levels and, therefore, impact MS-induced ecological friendliness. Due to the apparent self-focussed nature of collective guilt (Powell et al., 2005), this study firstly predicted that feelings of collective guilt would be greater when ingroup members are reminded of the advantaged status of their ingroup than when they are reminded of the disadvantaged status of poorer nations. Subsequently, it was predicted that in the outgroup disadvantage condition, ecological friendliness would decrease after MS, due to the reduction in collective guilt feelings. In contrast, in the ingroup privilege condition, ecological friendliness was predicted to increase after MS, due to the increase in collective guilt feelings. Using an advantaged ingroup or disadvantaged outgroup focus was not predicted to have any effect on the relationship between ECSW, MS and ecological friendliness as it operates at the personal-level.

Studies 4 and 5 were conducted simultaneously; however, MS effects were not found in either study. As a result, Study 6 was conducted. This study used the same

materials as Study 4 with a modified procedure in an attempt to demonstrate MS effects and test the aims of Study 4.

Study 4

Ecological friendliness induced by mortality salience: Do feelings of ecologically-specific collective guilt also moderate this relationship?

This study aimed to replicate the findings of Vess and Arndt (2008) that ECSW will moderate the relationship between mortality salience and ecological friendliness. It also aimed to demonstrate that feelings of ecologically-specific collective guilt will also moderate this same relationship.

Method

Participants

Participants were 101 Australian undergraduate psychology students (31 men, 70 women) with ages ranging between 17 and 58 years (M=25.91, SD=8.85) who participated for course credit.

Materials

In addition to demographic information (age and gender), the following scales were administered to participants in a questionnaire.

Measures of collective guilt. General feelings of collective guilt emotions was measured using Branscombe et al.'s (2004) 20-item Collective Guilt Scale (see Appendix G). This scale includes four subscales, collective guilt acceptance (current sample α=.86), collective guilt assignment (current sample α=.75), the notion that whole groups are accountable for the actions of their members (current sample α=.77), and not denying the actions of one's group (current sample α=.85). Psychometric properties of this measure have been reported in Chapter 6.

To assess collective guilt specific to ecological concerns, eight items were also included in the questionnaire. These items appeared directly before the MS manipulation was presented in order to avoid priming on any of the other measures. Items were adapted from Doosje et al. (1998), for example, "I feel guilty about the negative things wealthy nations like Australia have done to the natural environment" (current sample α=.92). Items are provided in Appendix N and were answered on a 9-point Likert scale from 1 (*strongly disagree*) to 9 (*strongly agree*).

Measure of environmental contingencies of self-worth. To measure environmental contingencies of self-worth (ECSW), Brook's (2005) 10-item scale was

used. For example, “My self-esteem is influenced by how good or bad an environmentalist I am,” scored from 1 (*strongly disagree*) to 5 (*strongly agree*), see Appendix AA. An analysis of the internal consistency reliability for the 10-item scale revealed a Cronbach’s Alpha of .70; however, upon the removal of two items (item 4 and item 10) the Cronbach’s Alpha was improved to .90 and this 8-item scale has been used in the analyses.

Salience manipulation. Mortality salience was primed by instructing participants to respond to two open-ended questions about death. These questions were “Please briefly describe the emotions that the thought of your own death arouses in you,” and “Jot down, as specifically as you can, what you think will happen to you once you are physically dead” (Rosenblatt, Greenberg, Solomon, Pyszczynski & Lyon, 1989). Participants in the negative affect condition responded to the identical questions about extreme physical pain, while control participants did nothing. This method of priming for MS and Negative Affect was chosen for the current studies as it was both the method used by Vess and Arndt (2008), and it is also the most common method used in almost 80% of published studies manipulating MS within a terror management theory framework (Burke, Martens & Faucher, 2010).

Filler and distraction task. Prior research suggests that mortality salience effects occur when mortality cognitions are not held in focal attention (Greenberg et al., 1997). If they are held in conscious attention these thoughts are either suppressed (Arndt, Greenberg, Pyszczynski & Solomon, 1997), pushed into the distant future or even denied (Greenberg, Arndt, Simon, Pyszczynski & Solomon, 2000). As a result, a delay was created between the salience manipulation and the environmental measures. Four Raven’s advanced progressive matrices (RAPM; Raven, Raven & Court, 1998) were included as problem-solving tasks in which participants viewed an image of a pattern with a piece missing. Participants were instructed to select which of the options was the correct piece to complete the puzzle (see Appendix BB). It was anticipated that this task would take participants approximately five minutes to complete.

Assessments of Ecological Friendliness

Article evaluation. An article evaluation task and an information search task were the measures used by Vess and Arndt (2008) to assess ecological concern. These tasks were modified slightly to suit an Australian audience and used in the current study. In the article evaluation task, participants read a short newspaper article describing one man’s proposal to develop a piece of forest land and then indicate their concern for the

environment by how they felt about the proposed development. Changes in the names of regions, forests, and the types of animals impacted by the proposed land development were made to reflect the Australian environment. The evaluation questions were identical to those constructed by Vess and Arndt (2008), for example "To what extent do you agree with the council's decision to block the construction of the water park?" and "To what extent would you base your decision on the impact to local animals?" Participants responded to the items on a 10-point scale from 0 (*not at all*) to 100 (*totally*). These measures are provided in Appendix CC.

Information search. The information search measure was also identical to that constructed by Vess and Arndt (2008) whereby participants were provided with a copy of the results of an Internet search consisting of six articles and a brief description of each. Of the six articles, three highlighted decisions to allow, and three to prohibit, the development of nature (see Appendix DD). Participants were instructed to indicate which article/s they were interested in reading, and a "confirmation bias" score for each participant was computed by subtracting the number of "allow" articles from the number of "prohibit" articles. Higher scores indicated greater environmental concern.

Ecological behaviour intentions. A measure of ecologically-relevant behaviour intentions was also included as an additional assessment of the extent to which participants consider the ecological impacts of human actions. Participants were instructed to respond to a list of 13 "I would like to..." items to be answered on a 10-point scale from 0 (not at all) to 100 (very much), current sample α=.93. For example, "...Pay more consideration to the environmental impacts of my day-to-day activities." This measure was constructed for the current studies using a similar taxonomy used to develop the New Ecological Behaviours Scale (see Chapter 5) and also included intentions regarding the general ecological impact of one's life (see Appendix EE).

Procedure

Ethical clearance was obtained prior to the commencement of the study (see Appendix FF). The participants "signed up" to participate in an online questionnaire called "Personal Experiences, Problem Solving and Decision Making" in order to receive course credit. Once participants signed up, they were directed to a web page hosting the questionnaire which first provided them with an Information Page (see Appendix GG) and an Informed Consent Form (see Appendix HH). Participants were randomly assigned to the MS, Negative Affect, or the Control conditions. Participants completed the questionnaire in their own time and at their own pace, and were requested

to do so in a quiet and non-distracting environment.

Results

Before the moderation analyses were conducted, analyses to remove outliers and to investigate the assumptions of normality, homoscedascticity, multicollinearity and singularity were conducted. The data were found to be reasonably distributed, and no significant violations were observed.

Vess and Arndt (2008) reported a significant correlation of .30 between the article evaluation measure and the confirmation bias measure, so they combined the two measures into one "Environmental Concern" composite measure. The current study did not reveal a significant correlation between these two measures of ecological friendliness, r=.13, p>.05. It did, however, reveal a significant correlation between the measure of ecological behaviour intentions and the article evaluation measure, r=.41, p<.001. The correlation between confirmation bias and ecological behaviour intentions was also non-significant, r=.08, p>.05. As a result, the dependent measures were kept separate.

To attempt to replicate the findings of Vess and Arndt (2008) that ECSW would moderate the relationship between mortality salience and ecological friendliness, a series of regression analyses were performed. Separate regression analyses were done on each measure of ecological friendliness (article evaluation, confirmation bias, and ecological behaviour intentions) by first entering the main effects of MS (dummy coded) and ECSW (centred) followed by the MS x ECSW interaction. It was found, however, that both MS alone (βs = .03 to .15, ps>.05), and the MS x ECSW interactions (βs = -.02 to -3.62, ps>.05) were both non-significant predictors of any of the three dependent measures. As the required MS effects were not found, it was not possible to assess the prediction that ECSW would moderate the relationship between MS and ecological friendliness.

Similarly, to assess the hypothesis that feelings of ecologically-specific collective guilt would moderate the relationship between MS and ecological friendliness, regression analyses were performed on each of the measures of ecological friendliness by first entering the main effects of MS (dummy coded) and ecologically-specific Collective Guilt (CG) (centred) followed by the MS x CG interaction. Once again, however, neither MS alone (βs = .03 to .15, ps>.05), or MS x CG interactions (βs = -.02 to -1.36, ps>.05) were significant predictors of any of the three dependent measures. The same non-significant pattern of results was also found when using the

measure of general feelings of collective guilt. As the required MS effects were not found, it was not possible to assess the prediction that collective guilt would moderate the relationship between MS and ecological friendliness.

Discussion

This study aimed to demonstrate that both feelings of ecologically-specific collective guilt and ECSW will moderate the relationship between mortality salience and ecological friendliness. However, this study failed to demonstrate a significant difference or interaction in ecological friendliness between the mortality salience, negative affect and control conditions. As a result of this, it was not possible to replicate Vess and Arndt's (2008) finding that ECSW will moderate the relationship between MS and ecological friendliness, or to demonstrate that feelings of ecologically-specific collective guilt might also moderate this relationship.

There may be several factors which might account for the lack of MS effects found in this study. The most pervasive of these is in the methodology, whereby participants completed the study online and in their own time. While it was instructed that participants complete the study in a quiet, non-distracting environment, the precise environment participants completed the study was unable to be controlled by the experimenter. As such, distractions may have been present, lowering the commitment participants may have had in completing the questionnaire items, in particular the MS items. The degree of effort put into the priming items also may have been insufficient to produce MS effects. In particular, upon investigation into the extent and content of participant responses to the two items used to prime mortality and negative affect, the vast majority of participants did not write more than two sentences to answer the questions. Thus, issues pertaining to the commitment of participants in the study are reasoned to be the likely cause of the failure to demonstrate MS effects, despite the same items being used by the vast majority of others conducting MS research (see Burke et al., 2010).

As previous research suggests that mortality effects only increase worldview endorsements when they are below consciousness (e.g., Pyszcynski et al., 1999), another possible failure for MS effects to be observed includes the possibility that mortality thoughts were still in focal attention when responding on the dependent measures. Although this seems unlikely as it is estimated that the RAPM task took participants approximately five minutes to complete. This study and the failure for MS effects to be induced will be again discussed in the General Discussion at the end of this

Chapter.

Study 5

Separating the effects of environmental contingencies of self-worth and feelings of ecologically-specific collective guilt on mortality salience induced ecological friendliness

This study aimed to separate the effects of collective guilt and ECSW on ecological friendliness by employing either an ingroup privilege or outgroup disadvantage prime. As feelings of collective guilt are more likely to be reported when the focus is on the advantaged status of the ingroup as opposed to the disadvantaged status of the outgroup (Powell et al., 2005), it was predicted that feelings of ecologically-specific collective guilt would be higher in a condition providing a reminder of the ingroup's advantaged position than a condition outlining the disadvantaged status of an outgroup. It was also predicted that by focussing on the ingroup's advantaged status, ecological friendliness would increase after MS, as a result of an increase in collective guilt feelings. This is in contrast to the outgroup disadvantage condition, where it was predicted that ecological friendliness would decrease after MS due to a decrease in collective guilt feelings. Using a differential focus prime, such as focussing on ingroup advantage or outgroup disadvantage, was not predicted to have any impact on the relationship between ECSW and ecological friendliness after MS, as ECSW is concerned with individual, as opposed to group-level, self-esteem. Namely, any effects from ECSW should be equivalent in both the ingroup privilege and outgroup disadvantage conditions. In this manner, it was aimed to separate the contributions of personal and group-level sources of self-esteem, namely ECSW and ecologically-specific collective guilt, after mortality salience.

Method

Participants

Participants were 191 Australian undergraduate psychology students (50 men, 141 women) with ages ranging between 17 and 63 years (M=24.89, SD=10.05) who participated for course credit.

Materials

The materials were identical to those used in Study 1; however, an additional prime was used to prime for either the advantaged status of the ingroup (Australia), or the disadvantaged status of poorer nations. This prime was counterbalanced to occur

either before or after the mortality salience/negative affect manipulation, and the measure of ecologically-specific collective guilt was presented directly after this prime. In a similar manner to Powell et al. (2005), participants read a short paragraph outlining that Australia/Poorer nations experience relative advantage/disadvantage, have contributed more/less to climate change, and will likely suffer less/more as a result of a changing climate. They were then instructed to respond to a list of 18 items from 1 (*strongly disagree*) to 7 (*strongly agree*) outlining the advantages/disadvantages experienced by each group. Items were adapted from those used by Powell et al. (2005), and are provided in Appendix II.

Procedure

Prior to the commencement of the study, Ethical Clearance was obtained (see Appendix JJ). The participants "signed up" to participate in an online questionnaire called "World Views, Personal Experiences and Decision Making" in exchange for course credit. Once participants signed up, they were directed to a web page hosting the questionnaire which first provided an Information Page (see Appendix KK) and an Informed Consent Form (see Appendix LL). Once again, participant assignment to the various conditions was random. Participants completed the questionnaire in their own time and at their own pace, and were requested to do so in a quiet and non-distracting environment. Data was collected during the same time period as Study 4 above, based on the assumption that required MS effects would be found. Individual participation was restricted to one of either Study 4 or 5.

Results

Analyses to remove outliers and to investigate the assumptions of normality, homoscedascticity, multicollinearity and singularity were conducted prior to the moderation analyses being conducted. The data were found to be reasonably distributed, with no significant violations reported.

As for Study 4, the current study did not, once again, reveal a significant correlation between the article evaluation measure and the confirmation bias measure, r=.01, p>.05, despite Vess and Arndt (2008) reporting a significant correlation of .30 between these measures. Like Study 4, however, a significant correlation was found between the measure of ecological behaviour intentions and the article evaluation measure, r=.31, p<.001. The correlation between confirmation bias and ecological behaviour intentions was also non-significant, r=-.01, p>.05. As a result of this, the three measures of ecological friendliness were kept separate in the subsequent analyses.

Before the moderation analyses were conducted, an analysis was done to investigate whether, like Powell et al. (2005), feelings of collective guilt are reported when the focus is on the advantaged status of the ingroup as opposed to the disadvantaged status of the outgroup. Unlike Powell et al. (2005), a 3 x 2 factorial ANOVA revealed no significant difference on the amount of ecologically-specific collective guilt reported when the focus was on the advantaged status of the ingroup or the disadvantaged status of the outgroup, regardless of experimental condition (mortality salience, negative affect, control), $F(6,183)=1.012$, $p>.05$. This calls in to question the success of the differential focus prime used in this study.

To test the hypothesis that the relationship between MS and ecological friendliness when the focus is on the advantaged status of the ingroup will be moderated by ecologically-specific Collective Guilt (CG), a series of regression analyses were performed. Only the data cases that were exposed to the advantaged status of the ingroup prime were used in these analyses. Firstly, to demonstrate that CG moderates this relationship, separate regression analyses were done on each of the measures of ecological friendliness (article evaluation, confirmation bias, and environmental intentions) by first entering the main effects of MS (dummy coded) and CG (centred) followed by the MS x CG interaction. It was found that MS alone (βs = .03 to .15, ps>.05), and the MS x CG interactions (βs = -.02 to -3.62, ps>.05) were not significant predictors of any of the three dependent measures assessing ecological friendliness.

Subsequently, with the aim to demonstrate that ECSW is unsuccessful at moderating the relationship between MS and ecological friendliness when the focus is on the advantaged status of the ingroup, the same regression analyses were performed, instead using ECSW and MS x ECSW interaction variables. Once again it was found that MS alone (βs = .03 to .14, ps>.05), and the MS x ECSW interactions (βs = .25 to 1.45, ps>.05) were not significant predictors of any of the three dependent measures. As a result of this, it was not possible to assess the possibly differing moderation relationships of CG and ECSW on ecological friendliness after MS.

To test the hypothesis that the relationship between MS and ecological friendliness when the focus is on the disadvantaged status of the outgroup would be moderated by ECSW but not by Collective Guilt, a series of regression analyses were performed. Only the data cases that experienced the disadvantaged status of the outgroup prime were used. Firstly, to demonstrate that ECSW moderates this relationship, separate regression analyses were done on each of the dependent measures

(article evaluation, confirmation bias, and environmental intentions) by first entering the main effects of MS (dummy coded) and ECSW (centred) followed by the MS x ECSW interaction. It was found that MS alone (βs = -.01 to -.21, *p*s>.05), and the MS x ECSW interactions (βs = .42 to .93, *p*s>.05) were not significant predictors of any of the three dependent measures assessing ecological friendliness.

Subsequently, with the aim to demonstrate that CG is unsuccessful at moderating the relationship between MS and ecological friendliness when the focus is on the disadvantaged status of the outgroup, the same regression analyses were performed, instead using CG and MS x CG interaction variables. Once again it was found that MS alone (βs = -.03 to .14, *p*s>.05), and the MS x CG interaction terms (βs = -.02 to .60, *p*s>.05) were not significant predictors of any of the three dependent measures. As a result, it has not been possible to assess the possibly differing moderation relationships of ECSW and collective guilt on ecological friendliness after MS.

Discussion

This study aimed to further explore the implications of terror management theory in the ecological domain by attempting to separate the effects of impacts arising from personal and group-level, self-esteem, namely ECSW and feelings of collective guilt. As with Study 4, this study was also unsuccessful at demonstrating between-group differences or interaction in ecological friendliness following MS. As a result of this, the aims of this study were not able to be addressed. As discussed in Study 4, there may be several reasons as to why MS effects were not found which also apply to this study, and these will be further discussed in the General Discussion at the end of this Chapter.

This study was also unsuccessful at demonstrating a significant difference in feelings of ecologically-specific collective guilt between the ingroup advantage and the outgroup disadvantage prime groups. This is in contrast with Powell et al. (2005) who reported greater collective guilt when the focus was on the advantaged status of the ingroup. There are several factors which may account for this lack of effect, which, as discussed in Study 4, most notably include the extent of participant dedication in the study. It is reasoned that this is the most likely reason that failures for between-group differences in ecologically-specific collective guilt were also found in the current study. Once again, these factors will be further discussed in the General Discussion at the end of this Chapter.

Study 6

Ecological friendliness induced by mortality salience: A second attempt

As MS effects failed to be demonstrated in either Study 4 or Study 5, it was attempted to re-do Study 4 with a slightly altered methodology as an attempt to generate between-group (MS and Negative Affect) effects on ecological friendliness. As these studies were administered online, and it was reasoned that lack of participant commitment or focus on the manipulation materials may have led to the failure to demonstrate MS effects, it was aimed to re-do Study 4 via a more conventional pen-and-paper type survey in a controlled laboratory environment. Pen-and-paper methods appear to be the most common method of data collection for research into terror management theory and, as such, it was reasoned that this method would provide a good basis for MS effects to be found.

Method

Participants

Participants were 62 Australian undergraduate psychology students (17 men, 45 women) with ages ranging between 17 and 52 years (M=24.69, SD=7.21) who participated for course credit.

Materials

The materials used in this study were identical to those used in Study 4.

Procedure

The participants "signed up" to participate in a questionnaire called "Personal Experiences, Problem Solving and Decision Making" in order to receive course credit. Participants selected a time to participate from a list of available times in a room on the James Cook University, Townsville Campus, booked for this purpose. Participants were requested to complete the questionnaire at their own pace and were asked to request clarification for any part of the questionnaire, if required. Upon completion, participants were free to leave and were thanked for their time.

Results

Once again, before the moderation analyses were conducted, analyses to remove outliers and to investigate the assumptions of normality, homoscedascticity, multicollinearity and singularity were conducted. The data were found to be reasonably distributed, with no significant violations observed.

As for Studies 4 and 5, the current study did not reveal a significant correlation

between the article evaluation and the confirmation bias measures, r=.17, p>.05, despite Vess and Arndt (2008) reporting a significant correlation of .30 between these measures. A significant correlation was, however, revealed between the measure of ecological behaviour intentions and the article evaluation measure, r=.44, p<.001. The correlation between confirmation bias and ecological behaviour intentions was also non-significant, r=.18, p>.05. As a result of this, the measures of ecological friendliness were kept separate.

To attempt to replicate the findings of Vess and Arndt (2008) that ECSW would moderate the relationship between mortality salience and ecological friendliness, regression analyses were performed. Separate regression analyses were done on each of the environmental measures (article evaluation, confirmation bias and ecological behaviour intentions) by first entering the main effects of MS (dummy coded) and ECSW (centred) followed by the MS x ECSW interaction. It was found, however, that MS alone (βs = .01 to .13, ps>.05), and the MS x ECSW interactions (βs = -.06 to -2.14, ps>.05) were both non-significant predictors of any of the three dependent measures of ecological friendliness. As the required MS effects were not found, it was not possible to assess the prediction that ECSW would moderate the relationship between MS and ecological friendliness.

Similarly, to assess the hypothesis that collective guilt would moderate the relationship between MS and ecological friendliness, regression analyses were performed on each of the dependent measures by first entering the main effects of MS (dummy coded) and ecologically-specific Collective Guilt (CG) (centred) followed by the MS x CG interaction. Once again, however, neither MS alone (βs = .01 to .13, ps>.05), or MS x CG interactions (βs = .07 to -1.14, ps>.05) were significant predictors of any of the three dependent measures of ecological friendliness. General feelings of collective guilt also showed the same pattern of non-significance as did ecologically-specific feelings of collective guilt. As the required MS effects were not found, it was not possible to assess the prediction that collective guilt will moderate the relationship between MS and ecological friendliness.

Discussion

This study aimed to demonstrate that both ECSW and feelings of ecologically-specific collective guilt would moderate the relationship between MS and ecological friendliness. This was done by utilising a pen-and-paper version of the questionnaire used in Study 4 administered in a laboratory environment. Despite this modified

procedure, like Study 4, this study was also unsuccessful at demonstrating the effects of mortality salience on ecological friendliness. Indeed, no significant differences were found between the MS and Negative Affect groups on the measures of ecological friendliness.

Despite the items used to prime MS and Negative Affect being identical to those utilised by others (e.g., Vess & Arndt, 2008; Greenberg et al., 1990; Goldenberg et al., 2001) to induce mortality effects, it appears that this may have been insufficient to induce these effects in the current sample. This may be due to a lack of commitment or effort on behalf of the participants in responding to the questions as, once again, it was observed that the majority of participants failed to write lengthy responses to the items; however, other factors may be accounting for this. As discussed in Study 4, these factors include the mortality thoughts being held in focal attention, as opposed to being below the level of consciousness, as previous research suggests that mortality effects only increase worldview endorsements only when they are below consciousness (e.g., Pyszcynski et al., 1999). Although it seems unlikely that this was the case, as the RAPM filler task was anticipated to take approximately five minutes for participants to complete. It is, once again, reasoned that the failure for MS effects to be obtained was caused by the failure for participants to have sufficiently engaged with the manipulation items.

Further Exploration of the Data

As Studies 4, 5 and 6 failed to demonstrate differences on the dependent variables as a result of the mortality salience manipulation, as well as failed to demonstrate differences in feelings of ecologically-specific collective guilt as a result of the differential focus manipulation (Study 5), the data from these studies was combined. Descriptive statistics for the variables have been provided in Table 9. A series of correlations were performed between each of the variables as a further exploration of the data (see Table 10).

Table 9

Descriptive Statistics for Studies 4, 5 and 6

Variables	M	SD	Min.	Max.	Skewness	Kurtosis	SE
CG-AC	24.30	7.77	5	40	-.39	-.10	.41
CG-AS	19.46	6.32	5	37	-.32	-.03	.34
CG-ND	23.16	7.23	5	40	-.16	-.08	.39
CG-WGA	22.63	6.54	5	40	-.21	-.09	.35
CG-Eco	28.43	9.78	5	45	-.52	-.22	.52
ECSW	42.39	8.48	10	64	-.61	1.35	.45
AE	427.63	100.85	70	700	.09	1.1	5.39
CB	.32	1.20	-3	3	.07	-.31	.06
EBI	762.13	216.86	60	1270	-.03	.14	11.73

Note. N=354. Abbreviations: CG-AC (Collective Guilt Acceptance), CG-AS (Collective Guilt Assignment), CG-ND (Collective Guilt No Denial of Group Responsibility), CG-WGA (Collective Guilt Whole Group Accountability), CG-Eco (Ecologically-Specific Collective Guilt), ECSW (Environmental Contingencies of Self-Worth), AE (Article Evaluation), CB (Confirmation Bias), EBI (Ecological Behaviour Intentions).

Notable correlations include the positive relationship between general collective guilt acceptance and the three measures of ecological friendliness, such that those reporting accepting more collective guilt also reported greater ecological friendliness (*r*s=.11 to .37, *p*s<.05). Feelings of ecologically-specific collective guilt also varied positively with ecological friendliness, and demonstrated stronger correlations with these variables than did the general measure of collective guilt acceptance: for the article evaluation (*r*=.29, *p* <.001) and ecological behaviour intentions (*r*=.57, *p* <.001). Environmental contingencies of self-worth was also positively correlated with the measures of ecological friendliness, article evaluation (*r*=.34, *p* <.001) and ecological behaviour intentions (*r*=.57, *p* <.001). Interestingly, environmental contingencies of self-worth was also positively correlated with both general collective guilt acceptance (*r*=.59, *p* <.001) as well as ecologically-specific collective guilt feelings (*r*=.64, *p* <.001).

Table 10

Correlation Matrix of All Variables

	Variables								
Variables	CG-AC	CG-AS	CG-ND	CG-WGA	CG-Eco	ECSW	AE	CB	EBI
CG-AC	1								
CG-AS	.19***	1							
CG-ND	-.05	.08	1						
CG-WGA	.55***	.31***	-.06	1					
CG-Eco	.36***	.17***	.08	.25***	1				
ECSW	.59***	.17***	.00	.39**	.64***	1			
AE	.26***	.08	.18***	.23***	.29***	.34***	1		
CB	.11*	-.05	.13**	.07	-.02	.07	.14**	1	
EBI	.37***	.04	.19***	.18***	.57***	.57***	.44***	.12*	1

Note. N=354. Abbreviations: CG-AC (Collective Guilt Acceptance), CG-AS (Collective Guilt Assignment), CG-ND (Collective Guilt No Denial of Group Responsibility), CG-WGA (Collective Guilt Whole Group Accountability), CG-Eco (Ecologically-Specific Collective Guilt), ECSW (Environmental Contingencies of Self-Worth), AE (Article Evaluation), CB (Confirmation Bias), EBI (Ecological Behaviour Intentions). *p<.05, **p<.01, ***p<.001

These findings provide support for the notion that feelings of collective guilt encourage ecological friendliness, including across the domains of land development and everyday behaviour intentions. It appears that, unlike Study 1 (see Chapter 6), general feelings of collective guilt may be sufficient to relate to ecological friendliness; however, as with Study 2 (see Chapter 7), ecologically-specific feelings of collective guilt generally showed stronger relationships with the ecologically-friendly dependent variables.

These results also provide support for the positive influence of individual sources of ecologically-relevant self-esteem on ecological friendliness. In line with Brook (2005), the current findings revealed that the extent of personal self-esteem that participants reported gaining from ecologically-relevant action was positively related to their ecological friendliness. Thus, it appears that self-esteem derived from the ecological domain, be it personal or at the group level and manifesting in feelings of collective guilt, varies positively with the extent an individual reports ecological friendliness.

Additionally, a positive relationship was demonstrated between individual sources of ecologically-relevant self-esteem and feelings of collective guilt, both in a general sense and for ecologically-specific concerns. This suggests that the more one

gains personal self-esteem from ecologically-relevant action the more one feels collective guilt for the ecologically-unfriendly actions of their group. As explained in Chapter 1, ecological friendliness can be considered a cooperative behaviour as it stems from the notion of the commons dilemma and that ecological unfriendliness benefits the self or one's ingroup while costing others. Study 2 (Chapter 7) found support for the cooperative origins of collective guilt feelings as well as the performance of ecological behaviour as feelings of ecologically-specific collective guilt partially mediated the positive relationship between cooperative decisions involving others and self-reported everyday ecological behaviour. Indeed, the current findings seem to suggest that it may not just be group-level determinants of self-esteem, but individual-level self-esteem invested in the ecological domain may also be motivated by a desire for cooperation with those who will suffer the negative impacts of ecological unfriendliness. This reiterates the notion of ecological friendliness as having cooperative motives explained in Chapter 1 and throughout this thesis.

General Discussion

The studies in this Chapter aimed to explore the role of feelings of collective guilt within a terror management theory framework. It was aimed to demonstrate that, like ECSW (Vess & Arndt, 2008), feelings of ecologically-specific collective guilt would moderate the relationship between MS and ecological friendliness (Studies 4 and 6). Another aim was to separate the effects of contributions to self-esteem arising from individual sources (ECSW) and those from group-based sources (collective guilt) by utilising an ingroup privilege or outgroup disadvantage reminder (Study 5). Unfortunately, however, no between-groups differences were found on the ecologically-friendly dependent variables in any of the studies, or in feelings of ecologically-specific collective guilt when a differential focus prime was used (Study 5). As a result, the investigation of the predictions of these studies was not possible. As such, these studies do little to advance the understanding of terror management theory except, perhaps, that mortality salience effects may be more difficult to achieve than what may be inferred from the published literature.

In a further analysis of the data, the combined data of Studies 4, 5 and 6 revealed, as would be expected, positive correlations between feelings of collective guilt, environmental contingencies of self-worth and ecological friendliness. Positive relationships were found between both general and ecologically-specific feelings of collective guilt and the measures of ecological friendliness, as well as between

environmental contingencies of self-worth and ecological friendliness. Furthermore, a positive correlation was also found between feelings of collective guilt and environmental contingencies of self-worth in what has been reasoned to provide further support for the cooperative origins of ecological friendliness. Feelings of ecologically-specific collective guilt, in all cases, provided stronger relationships with these variables than did the general acceptance of collective guilt. Due to topic congruence, domain specific assessment should demonstrate stronger relationships with their target variables than more general ones, thus this is not an unexpected finding. In addition, the also strong relationship between the two assessments of collective guilt also attests to the validity of, particularly, the ecologically-specific measure. Thus, while not providing much insight into terror management theory, the data gathered in these studies adds further support to the notion that ecological-friendliness may be considered in an intergroup context and that feelings of collective guilt are indeed possible for ecological harm and are associated with pro-environmental outcomes.

Possible explanations for the failure to obtain mortality salience effects include, as already mentioned, a lack of effort or engagement with the stimulus items on behalf of the participant, a failure of the filler task to push mortality effects into the subconscious, and the inadequacy for the items used to prime mortality to induce mortality salience effects. As the same question items used to prime for mortality salience or negative affect that were successfully used by many others in similar samples (e.g., Goldenberg et al., 2001; Greenberg et al., 1990; Vess & Arndt, 2008) were also used in the current studies, it seems unlikely that these identical items are inadequate to prime for mortality salience in the current samples.

The possibility that MS effects were not witnessed in the current studies includes the notion that the filler task was not sufficient to push mortality thoughts into the subconscious. It has been explained that the type of defence used to counter mortality information is determined by whether or not the thoughts of mortality are within focal attention (Pyszcynski et al., 1999). When mortality is within focal attention it has been found to have proximal effects which attempt to reduce the conscious impact of being made aware of one's mortality. These effects include the denial of risk, or the pushing of the notion of death into the distant future (e.g., Greenberg et al., 2000). In contrast, when mortality thoughts are not within conscious attention but are still highly accessible they have been found to have more distal effects such as increasing reinforcement of one's worldview, as terror management theory posits (Pyszcynski et al., 1999). Thus, in

order for MS to induce these more distal effects, a delay task is often utilised in psychological studies in order to shift the mortality thoughts from focal attention to a more subconscious, yet still highly accessible, one. Greenberg et al. (2000) found that a delay of "about 3 minutes" was sufficient to shift the defences associated with mortality information from proximal to distal defences. Indeed, others (e.g., Arndt, Schimel & Goldenberg, 2003; Routledge, Arndt & Goldenberg, 2004) have demonstrated that, with a delay, the effects of mortality salience were in line with terror management theory, while consciously thinking about death induced more proximal effects that involved a more immediate dealing with the threat.

The current studies all utilised a delay between the mortality reminder and the assessments of ecological friendliness in the form of a filler task. The four Raven's Advanced Progressive Matrices (Raven et al., 1998) that were used in this task were predicted to take participants approximately five minutes to complete, a delay time identical to that successfully used by Goldenberg et al. (2001). As a result, any thoughts of mortality should not be in focal attention, yet instead below the level of consciousness. This makes it unlikely that the filler task utilised in these studies was inadequate.

Instead, and finally, it seems the most plausible reason mortality salience effects were not demonstrated in any of the three studies is due to the items used to prime for mortality being insufficient at inducing MS effects, not due to the items themselves, but due to participants' lack of sufficient engagement when responding to the items. This is also reasoned to account for the failure to demonstrate differences in feelings of ecologically-specific collective guilt in Study 5 after priming either the advantaged status of the ingroup or disadvantaged status of the outgroup. Although much less so in the third study (Study 6), it was noted that in all three studies participants generally provided very short answers to the two open-ended questions about death that were used to prime for mortality salience. This suggests that they may not have spent much time contemplating mortality and explains why MS effects were not observed. As a result, mortality effects were not observed, despite these same items being used by almost 80% of published work manipulating mortality salience (Burke et al., 2010).

Although the method used for priming mortality in the current studies is by far the most commonly used method, alternative methods for priming mortality may present as avenues for successfully investigating the aims of the current studies. Alternative methods for priming mortality can be summarised to include a subliminal

death prime, survey questions, and a host of other, creative approaches. The subliminal death prime, for example as used by Arndt et al. (1997) and in around 4% of published MS studies (Burke et al., 2010), involves presenting participants with a series of death-related words for a matter of milliseconds, too brief to be consciously reported being seen, while they complete another word-related task on a computer. Survey questions to prime for mortality have been used in approximately 7% of MS research (Burke et al., 2010). These include the Fear and Personal Death Survey (FPDS; Florian & Kravetz, 1983), the Fear of Death Scale (Boyar, 1964), the Death Anxiety Scale (Templer, 1970), and the Death Anxiety Questionnaire (Conte, Weiner & Plutchik, 1982). The most commonly used survey to prime for mortality is the FPDS (Florian & Kravetz, 1983) which consists of a series of reasons that one may fear death, with items rated on the extent to which they are correct or incorrect for the participant. Finally, some have used other methods of priming mortality, such as watching a video involving a fatality (e.g., Nelson, Moore, Olivetti & Scott, 1997), reading a story in which the character dies (e.g., Spangler & Burke, 2010), or even being interviewed in the vicinity of a funeral home or cemetery (e.g., Pyszczynski, Wicklund, Floresku & Koch, 1996). Future work may wish to investigate the aims of the current studies utilising an alternative method for priming mortality; however, these methods may only prove useful to the extent that participants are committed to their participation in the research.

CHAPTER 10: STUDY 7: NEGATIVE INGROUP HISTORY REMINDERS INCREASE "GREEN" PURCHASING, BUT WHAT HAPPENS NEXT?

Chapter 9 investigated the role of collective guilt within terror management theory. While the three studies presented failed to demonstrate the mortality salience effects required to make this possible, correlational analyses, as with Studies 1 and 2, yielded positive relationships between feelings of collective guilt and ecological friendliness. As these studies have all involved correlational analyses, the study presented in this chapter, Study 7, aimed to demonstrate the causal role of collective guilt feelings in motivating ecologically-friendly behaviour. As behaviours do not occur in a vacuum, this study also aimed to explore the consequences of engaging in ecological behaviour on subsequent ecologically-friendly behaviour, and proposes a mechanism by which the mode of ingroup identification might influence this relationship.

As explained earlier in this thesis, ecological problems, of which developed nations have extensively contributed, can be conceptualised as a social justice issue. The current consumption behaviours of these nations, if continued unchanged, are predicted to destroy the biosphere beyond habitability as it is currently experienced (see Chapter 1). Many groups that are, largely, innocent with respect to causing global environmental problems are predicted to experience great suffering as a result of the continuing actions of developed nations. As a result of this, acknowledging intergroup harm can have emotional consequences for individuals of perpetrator groups including feelings of collective guilt.

As explained in Chapters 3 and 4, in order for group-based emotions such as collective guilt to occur, individuals must first categorise themselves as a member of the particular group (Branscombe et al., 2004). The ingroup identification that accompanies this group membership may be reasonably expected to influence the experience of group-relevant emotions because ingroup identification influences how group-relevant information is treated. Indeed, some research has suggested that the *extent* of ingroup identification may determine the extent to which collective guilt emotions are experienced, such that those who are less strongly identified experience more negative ingroup emotions as they are less motivated to avoid negative emotions associated with their group membership than what higher identifiers may be (see Chapter 3 for a review). This finding, however, has been far from consistent, including within the

current volume, in Studies 1 and 2, where feelings of collective guilt and ingroup identification have shown a positive relationship.

In an attempt to better explain the influence of identification on group-relevant emotions, others have suggested that it may not be the *degree* of identification but instead the *mode*, or type of identification with the ingroup (see Chapter 3). Roccas et al. (2004, 2006) proposed two modes of identification with the ingroup, a glorification mode of attachment, and a more critical ingroup attachment. As explained in Chapter 3, these ingroup attachments differ in the way group-relevant information is treated such that a glorification type of attachment can be conceived of as a "blind attachment" to one's group, involving the belief that one's group is superior to others and that criticism should not be tolerated (Roccas et al., 2004, 2006); while in contrast, a more critical attachment also involves a love and commitment to one's group, but lacks the view of superiority.

Similarly, in their study on White South Africans, Klandermans et al. (2008) found political ideology (liberal or conservative) to moderate the relationship between degree of identification and the extent to which collective guilt emotions were experienced. That is, for those strongly identified, if they also reported a liberal political orientation, they were also found to display strong feelings of collective guilt about apartheid; while on the other hand, if they had a conservative political orientation, feelings of collective guilt were largely non-existent (Klandermans et al., 2008). This conceptualisation has similarities to the glorification and more critical attachments described by Roccas et al. (2006), whereby one's political orientation may influence the way in which group-relevant information is interpreted. Thus, for the experience of collective guilt, it seems that the extent of identification with the group may be important, as is the way group-relevant information is interpreted as a result of the way one identifies with the group, either through political ideology, or a glorification or more critical attachment.

As explained in Chapter 3, collective guilt emotions motivate reparative behaviours, some attest as a means to alleviate the feelings of guilt (e.g., Iyer et al., 2003), and to attempt to act cooperatively with the outgroup (e.g., Baumeister et al., 1994), and there is considerable research demonstrating the association of collective guilt feelings to reparative action (see Chapter 3 for a review). Feelings of collective guilt can be elicited by reminding ingroup members of their group's harmful past actions toward another group, when ingroup identity is salient (e.g., Doosje et al.,

1998). As this study aims to demonstrate the causal role of collective guilt feelings in ecological behaviour, reminding members of a developed nation (Australia) of the harmful relationship humans have had with the natural environment should lead to an increase in feelings of collective guilt and, thus, ecologically-friendly behaviour. Reminding ingroup members of ingroup harm doing, compared to a control group, is predicted to result in an increase in ecological behaviour as a means of addressing the elicited feelings of collective guilt.

As it is acknowledged that behaviours do not occur in isolation, the question remains as to what might happen after someone has performed ecological behaviour, and how instances of ecological behaviour might relate to each other. As social identity theory explains, individuals desire for positive distinctiveness; however, to achieve this may hold different requirements depending on one's mode of ingroup attachment. For ingroup glorifiers, as the definition of their ingroup attachment states, they believe their group is superior to others (Roccas et al., 2004, 2006); thus, for positive distinctiveness to be maintained, this suggests that ingroup advantage must also be maintained. As a result, they are unlikely to act cooperatively with the outgroups to improve their disadvantaged status. For those with a more critical ingroup attachment, through the possible fallibility of one's ingroup (Roccas et al., 2004, 2006), ingroup morality may be required for positive distinctiveness. This suggests that they may be more inclined toward acting cooperatively with the outgroups harmed by ingroup actions. As a result, one's mode of ingroup attachment may influence motivations underlying responses to group-relevant information. It is reasoned that an ingroup glorification attachment will reflect self-focussed motivations that maintain ingroup advantage, while a more critical ingroup attachment will reflect more cooperative motivations, due to differing perceptions of legitimacy and desires to maintain the intergroup hierarchy. As a result, the relationship between instances of ecologically-friendly behaviour may differ depending on one's mode of ingroup attachment. Indeed, there appears to be overlap between these modes of ingroup identification and notions of licensing and the foot-in-the-door, respectively.

Recently, Mazar and Zhong (2010) found that people consider ecological behaviour to be more altruistic, cooperative and ethical than the comparable conventional behaviour. Thus, engaging in ecological behaviour can lead to the justification, or licensing, of subsequent immoral behaviour, including lying and stealing money, as they demonstrated (Mazar & Zhong, 2010). Freedman and Fraser

(1966), however, have explained that the initial performance of a behaviour can increase the likelihood of that behaviour occurring again, in what is commonly referred to as the foot-in-the-door technique. A common method employed by sales persons, this technique is a well-known method of inducing compliance, whereby compliance with an initial, often small request, increases the likelihood of compliance with subsequent, often larger, requests. The mechanism of the foot-in-the-door effect is understood to be the change in cognitions involved in engaging in a particular behaviour – the person may now view themselves as the type of person who acts this way (Freedman & Fraser, 1966). Why is it then, as Mazar and Zhong (2010) suggest, that engaging in ecological behaviour can license subsequent immorality, instead of increasing altruistic, cooperative, and ethical behaviours as the foot-in-the-door would suggest?

A possible explanation comes from the notion that Mazar and Zhong (2010) *instructed* participants to engage in ecological behaviour, that is, their behaviour was not voluntary. As such, there was no need for participants to change the cognitions they have about themselves to that of someone who is more altruistic, cooperative and/or ethical, or as someone who may be ecologically friendly, because they can easily explain their behaviour by the requirements of the experiment. Performing ecological behaviour may have somewhat different effects if participants voluntarily performed the behaviour in the first instance. If individuals were to voluntarily perform ecological behaviour, this may result in a change in the cognitions that individuals have about themselves, in particular regarding performing these sorts of behaviours. Subsequent ecological behaviour might increase, as the foot-in-the-door effect would suggest, as the individuals may now view themselves as being cooperative or ethical or, more specifically, being considerate of the effects of their actions on the environment. So what might distinguish those who might fail to change their cognitions and be subject to licensing, and those that do change their cognitions to one who performs ecologically, as per the foot-in-the-door? This study proposes the influence of mode of ingroup identification as a factor that determines whether the performance of ecological behaviour decreases or increases subsequent ecologically-friendly behaviour when ingroup identity is salient. It is predicted that ingroup glorifiers would show a negative relationship between instances of ecologically-friendly behaviour, as the licensing effect suggests, whereas those more critically attached to the ingroup would show a positive relationship, as the foot-in-the-door effect suggests.

The conceptual overlap between cognitions associated with an ingroup

glorification attachment and those accompanying the licensing effect, and between a critical ingroup attachment and the foot-in-the-door effect is apparent. Both a glorification attachment and the licensing effect seem to include a failure to change cognitions despite any evidence for doing so; while a more critical attachment and the foot-in-the-door effect seem to involve cognitive change reflective of current information or behaviour. As a result, it is thought that when ingroup identity is salient, those who glorify their ingroup, upon performing ecological behaviour, may feel licensed to subsequently perform unecologically as they have failed to change how they think about their performance of ecological behaviour, even after performing such behaviour. Those with an ingroup glorification mode of attachment may be particularly unlikely to change their cognitions, as their ingroup identity suggests they are inclined to maintain their ingroup's dominant status and, therefore, to deny or legitimise outgroup harm. Thus, an elevated moral status may be achieved excusing them from further ecologically-friendly acts. This also suggests that the initial motivations for performing ecologically-friendly behaviours by ingroup glorifiers may be self-focussed in that they are motivated by the desire to alleviate the negative emotions elicited by being reminded of their ingroup's history, and possibly also by a sense of moral elevation. This contrasts to those with a more critical attachment, who may alter their cognitions to reflect one who engages in ecologically-friendly behaviour even if it was not previously part of their identity, reflective of the foot-in-the-door effect. A positive relationship between instances of ecological behaviour may also reflect cooperative aspects of an individual's self-concept or identity. As explained in Chapter 4, identity both shapes and is shaped by behaviour (e.g., Darnton, 2008); if the behaviour is relevant to the individual's identity then it may be expected to continue to occur. Thus, it appears that the repeated performance of ecologically-friendly behaviour may be motivated, at least in part, by a desire for intergroup cooperation.

Thus, the predictions for this study are that priming individuals to experience collective guilt via a reminder of the ingroup's negative history will increase ecological behaviour (green purchasing) in comparison to a control group that is exposed to a neutral ingroup history. Subsequent ecological behaviour will be determined by the amount of ecological behaviour (green purchasing) done in the first instance and the mode of ingroup identification. It is predicted that those who are prone to ingroup glorification will demonstrate a negative relationship between their green purchasing and the amount of ecological behaviour they do subsequently. Those with a more

critical ingroup attachment are, on the other hand, hypothesised to show the opposite effect, whereby the extent of their second ecological behaviour would be positively related to their previous green purchasing, illustrative of the foot-in-the-door effect. Finally, Roccas et al. (2006) also identified a positive correlation between critical attachment and glorification of the ingroup, as they suggest that those who are more strongly identified should also be more prone to also glorifying their group. As such, a similar finding is also expected in this study.

Method

Participants

Participants were 99 Australian undergraduate psychology students who participated for course credit. Two participants who spent more than $25 in the shopping task, and three who indicated suspicion were excluded from the study, such that data from 94 participants (34 men, 60 women) aged between 17 and 52 years (M=22.47, SD=8.11) were used in the analyses.

Materials

In addition to demographic information (age and gender), the following measures were administered to participants in a questionnaire.

Prime manipulation. To prime for collective guilt, a "memory" task was administered to participants whereby they were instructed to read a newspaper article that depicted the benefits humans have experienced as a result of the exploitation of the earth (negative ingroup history condition; see Appendix MM), or a neutral article depicting how the relationship between humans and the environment has remained essentially the same over centuries (no prime control condition; see Appendix NN). There was no time limit on the memory task, and participants could take as much time as they desired. As a test of participants' perceptions of the newspaper article, participants were asked "According to the newspaper article, please indicate how humans have behaved toward the natural environment." answered on a scale from 1 (*very negatively*) to 7 (*very positively*). As expected, participants rated human treatment of the natural environment in the collective guilt prime article (M=2.33, SD=1.25) significantly more negatively than the no prime control article (M=3.71, SD=1.35), $t_{(92)}$=-5.13, p<.001. To serve as the recall activity, participants were asked to answer seven multiple-choice questions about information presented in the article.

Measure of ecologically-specific collective guilt. Eight items assessing explicit collective guilt for the environment were, to disguise the purpose of the measure,

embedded in 16 filler items to form a 24-item "personality" measure. The collective guilt items included, for example, "Because of the way humans have treated the environment, I think wealthy nations like Australia owe something to the natural environment." These items were adapted from Doosje et al. (1998) and were answered on a 9-point scale from 1 (*strongly disagree*) to 9 (*strongly agree*), current sample α=.88. See Appendix N for these items.

Measures of Australian identity. Two measures of Australian identity were included, the first assessing degree of identification with Australia, and the second assessing mode of identification (glorification, or critical attachment; Roccas et al., 2006). To assess degree of identification with Australia, three items were adapted from Doosje et al. (1998). For example, "I identify with other Australians," with items answered on a 9-point Likert scale from 1 (*strongly disagree*) to 9 (*strongly agree*), (current sample α =.93; see Appendix P).

The second measure of identification included 16 items to assess whether identification with Australia involved glorification of the ingroup (8 items, current sample α=.88), or a critical attachment (8 items, current sample α=.88) to the ingroup. Items were adapted from Roccas et al. (2006) to suit an Australian sample. Items were answered on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). See Appendix OO for a list of these items.

Assessment of ecological behaviour. Ecological behaviour was assessed with an online shopping activity whereby participants were instructed that they could spend up to $25 to purchase goods from a list of products. Participants were instructed to purchase goods they would actually like to receive because one in five participants would be randomly chosen to receive the products they purchased. The product lists contained an equal mix of "green" and conventional items, and participants could only purchase a maximum of one of each item. To remove any effects due to the nature of the products, aside from whether they were green or conventional, half the participants were randomly selected to choose items from a first list, and the other half from a second list containing the complementary green or conventional item for each product type. For example, items in the first list included organic yoghurt and conventional muesli, whereas the second list included conventional yoghurt and organic muesli. Some of the products listed were identical to those used by Mazar and Zhong (2010), while others were selected that were available in Australia. The prices of the green and conventional items were controlled such that equal money could be spent on either

green or conventional products, and there was a green and conventional item for each different price used in the study. See Appendix PP for a copy of the two product lists.

Assessment of subsequent ecological behaviour. A second, "unrelated" assessment of ecological behaviour was included in the study whereby participants were given the opportunity to complete numerical 'magic square' puzzle tasks to raise money for the 'Great Barrier Reef Protection Society's' campaign to protect the Kennedy Reef. Participants were told that the 'The Australian Numerical Puzzle Co.' would donate $1 for each puzzle completed to the Great Barrier Reef Protection Society, up to a maximum of $20 per participant. The magic square tasks were a 4-by-4 matrix of numbers, of which the columns and rows added to the same total. Thirteen out of the sixteen boxes were complete, and participants were instructed to provide the numbers for the three empty squares, and were welcome to use a calculator if they wished to. See Appendix QQ for a copy of the magic square puzzles used.

Procedure

Before the study commenced, Ethical Clearance was obtained (see Appendix RR). The participants "signed up" to participate in an online questionnaire called "Memory, Recall and Shopping Online" in order to receive course credit. Once participants signed up, they were directed to a web page hosting the questionnaire where they were first provided with an Information Sheet (see Appendix SS) and an Informed Consent Form (see Appendix TT). They were then randomly assigned to the prime or control groups. The lists of products that participants selected from in the shopping activity were also randomly assigned. The questionnaire included the measures described above, up to, and including, the online shopping scenario. Participants completed the questionnaire in their own time and at their own pace, and were requested to do so in a quiet and non-distracting environment.

Once the participants completed the survey, they were directed to a separate web page hosting the second assessment of ecological behaviour. They were told that they had been randomly selected to participate in a fundraiser for the 'Great Barrier Reef Protection Society' to raise money to protect the Kennedy Reef off Bowen in North Queensland, whereby 'The Australian Numerical Puzzle Co.' would donate $1 for every puzzle completed, up to a maximum of $20 per participant. Participants were informed that their involvement in the fundraiser did not award them any extra participation credits, and they could cease their participation at any time. Both of these organisations were, in fact, bogus and were created for the study.

Suspicion was assessed by emailing each participant after the completion of the study and asking them to indicate what they thought the study was about. Participant contact details were obtained from the web site in which they "signed up" to participate in the study and was matched to the IP address of the computer used to complete the study. The debrief email has been provided in Appendix UU. Three participants indicated suspicion and were removed from the results.

Results

To test the prediction that those primed with the negative history of their ingroup will purchase more green products than those not primed, an independent samples t-test was performed. As predicted, it was found that those primed (M=2.09, SD=1.13) purchased more green products than those in the control condition (M=.43, SD=.24), t_{92}= 2.16, p=.033. Those in the prime condition (M=$10.85, SD=$5.88) also spent more money on green products than those in the control condition (M=$8.25, SD=$4.86), t_{92}=2.34, p=.022, in support of the hypothesis. Those in the prime condition (M=39.45; SD=11.50), however, did not report significantly more collective guilt on the explicit measure than the control group (M=38.80; SD=10.24), t_{92}=.29, p=.78.

To assess the effects of ecological behaviour (green purchasing) on subsequent ecological behaviour (the number of puzzle tasks completed) and the role that ingroup identification plays in this relationship, separate analyses were done for those considered glorifiers and those critically attached to the ingroup. For those considered to glorify their ingroup, correlations were made between green purchasing and number of puzzle tasks completed. Identical correlations were performed for those critically attached to the ingroup. As research into the relationship between instances of ecological behaviour and the effects of ingroup identification was novel, the size of the effect of ingroup identification on instances of ecological behaviour was unknown. As a result, data probing occurred to establish the most suitable cut-off for those considered to be ingroup glorifiers or more critically attached ingroup members. Those who were considered to be high ingroup glorifiers were selected to be at or above .6 of a standard deviation from the mean glorification score. Similarly, those considered to be high on their critical attachment to the ingroup were taken to be at or above .6 of a standard deviation from the mean critical attachment score. Findings showed that, for those who glorify their ingroup, the number of puzzles completed was negatively correlated with the proportion of green items they purchased in the shopping task, r_{25}=-.34, p=.05. This is in support of the hypothesis that the more one glorifies their ingroup the less likely

they are to engage in subsequent ecological behaviour and suggests evidence for self-focussed motivations for engaging in ecologically-friendly behaviour in those who glorify their ingroup.

For those with a critical attachment to their ingroup, the correlation between the number of puzzles completed and the number of green items purchased showed the opposite effect; the number of puzzles completed was positively correlated with the number of green items purchased (r_{27}=.44, p=.011), and amount of money spent on green items (r_{27}=.46, p=.008) in the shopping task. This is in support of the hypothesis that the performance of ecological behaviour in those who are critically attached to their ingroup positively relates to subsequent ecological behaviour and suggests evidence for cooperative motivations and the foot-in-the-door effect in those with a critical ingroup attachment.

The relationship between green purchasing and subsequent ecological behaviour as a function of ingroup identification was only significant when the roles of critical and glorification modes of attachment were considered. When examining the effects of the *degree* of ingroup identification (high versus low) at, once again, plus or minus .6 of a standard deviation from the mean score, and also at plus or minus one standard deviation from the mean score, the relationship between green purchasing and the number of puzzle tasks completed for either high or low identifiers failed to reach significance, ps >.05.

Also, similarly to Roccas et al. (2006), a positive correlation between scores on the critical attachment to the ingroup and glorification of the ingroup was also found, r_{94}=.73, p<.001. This suggests that those who are more strongly identified with their group are also more likely to glorify it.

Discussion

This study demonstrated that reminding members of a developed nation of their group's mistreatment of the environment can increase ecological behaviour, specifically increasing the purchase of ecologically-friendly consumer products. To the author's best knowledge, this is the first study to assess the direct behavioural consequences of ingroup history reminders instead of self-reported reparation attitudes or desires. Doosje et al. (1998) similarly demonstrated the effects of reminding people of harm doing committed by their group when their group membership was salient. They showed that a negative ingroup history presentation increased feelings of collective guilt and self-reported reparative efforts aimed at outgroup compensation. Similarly, the current study

found that a negative ingroup history portrayal increased reparative efforts, via the increase in green purchasing. The explicit reporting of collective guilt, however, was not significantly different between the negative history and neutral history conditions. It is reasoned, then, that feelings of *implicit* collective guilt led to the increase in ecological behaviour observed in the negative history condition. It is acknowledged, however, that it may be another group-based emotion that was instead elicited by the negative history information, or indeed the possibility that the negative ingroup history reminder served as an injunctive norm and produced the observed increase in ecological friendliness.

On the notion that implicit feelings of collective guilt may have been elicited by the negative ingroup history reminder, studies by Caouette (2010) have assessed feelings of implicit collective guilt, using a word fragment task and an implicit association task, and consistently found them to differ from self-reported explicit feelings. The relationship between implicit and explicit reports varied; however, although usually the relationship was negative. It was also found that feelings of collective guilt predicted reparative efforts only when both implicit and explicit feelings were relatively high (Caouette, 2010). The discrepancies were proposed to result from social desirability and defensiveness strategies, despite both the implicit and explicit measures not significantly correlating with the social desirability assessment used (Cauoette, 2010).

On the idea of socially-desirable responding, Sedikides (1990) found that, when engaging in interpersonal communication, individuals adjusted their communications to reflect the position held by those they were communicating with. These communications also impacted the subsequent personal position on the matter that the individual held. It was even found that these communication goal effects overcame priming effects that aimed to differentially influence the individual's communication position. These findings suggest that politeness, or socially-desirable responding, may be driving the tendency to alter communications to reflect the position of those in which one is communicating with, even if this conflicts with other information. This suggests that such social desirability concerns may explain the lack of significant between-group differences in explicit collective guilt within the current study. The reporting of collective guilt feelings may have been considered socially desirable, as Study 1 found a positive correlation between general collective guilt feelings and social desirability scores (see Chapter 6). As such, if participants are concerned about presenting themselves as socially normative, as Sedikides (1990) suggests they may inflate their

explicit feelings of collective guilt after receiving neutral ingroup information. Their implicit feelings of collective guilt are presumably still relatively low, despite explicit reports being on par with those receiving negative ingroup information. This is in line with Caouette's (2010) work which consistently showed a deviation between implicit and explicit reports of collective guilt, and that reparations were most favourable when both implicit and explicit feelings were high. This suggests that in the current study, the possible contribution of implicit feelings of collective guilt to the increase in ecologically-friendly behaviour, despite a non-significant difference in explicit feelings, remains plausible indeed. While it remains plausible that feelings of implicit collective guilt account for the increased green purchasing observed, it may, however, be other group-based emotions influencing this relationship.

Other such negative group-based emotions include feelings of collective shame and collective anxiety. It is unlikely, however, that any feelings of collective shame that may have been elicited by the article led to the increases in ecological behaviour that were observed. As Chapter 3 explains, collective shame emotions motivate withdrawal and avoidance as opposed to efforts at reparation or compensation of the outgroup (e.g., Brown et al., 2008). Collective anxiety, on the other hand, offers a more plausible explanation of the results. Feelings of personal anxiety motivate steps at preventing the undesirable outcome, but only when the intensity of the anxiety is relatively low (Brehm, 1999; Moser, 2007). It has been reasoned that this should also hold for collective anxiety (Ferguson & Branscombe, 2010). If anxiety levels are relatively high, however, avoidance and denial are more likely, and this is a common method of dealing with stimuli that induce fear and distress (Becker & Josephs, 1988). Thus, for collective anxiety to remain a plausible alternative to feelings of (implicit) collective guilt, feelings of collective anxiety must have been elicited by the negative ingroup history portrayal, but only low levels of anxiety. As the current study did not include a measure of anxiety, it is impossible to rule this out. It does seem unlikely that feelings of collective anxiety, as opposed to (implicit) collective guilt, account for the current findings because others (e.g., Ferguson & Branscombe, 2010) have shown that feelings of collective anxiety pertaining to environmental issues are not influenced by the severity of the predicted harm that will result from global warming. As such, feelings of collective anxiety should not be greater in those who have been reminded of the ingroup's negative relationship with the environment and those experiencing a more neutral account of the relationship between humans and the environment. As a result,

feelings of implicit collective guilt appear to remain a plausible account of the findings.

It must also be acknowledged that the negative ingroup history reminder may have served as a reminder of injunctive norms, increasing the green purchasing, as observed. Indeed, the negative ingroup history reminder involved a group of (ostensibly) eminent scientists outlining the negative impacts of human actions on the earth and the need for behaviour change. As a result, offering an alternative explanation for the results, participants exposed to this information may have increased their green purchasing, not out of any emotional reaction, of collective guilt or otherwise, but in response to the norms that may have been communicated by the negative ingroup history reminder.

This study also demonstrated that ecologically-relevant behaviours do not occur in isolation. It found that the performance of ecological behaviour is partially determined by previous ecological behaviour and the individual's mode of identification with the ingroup. Specifically, those high on their glorification of the ingroup (Australia) decreased their ecological behaviour relative to their previous ecologically-friendly actions. This was in contrast to those with a more critical attachment who showed the opposite effect; their initial ecological behaviour was positively related to their subsequent ecological behaviour. It is reasoned that these differences in subsequent ecological behaviour between those that glorify their ingroup and those with a more critical attachment are due to the motivations underlying their behaviour. These motivations are impacted by the differing requirements for these ingroup members to obtain positive distinctiveness, and whether previous behaviour is incorporated into one's self-image. Specifically, although no assessment of cognitions was used, it was reasoned that ingroup glorifiers interpret ecological behaviour as *not* something they generally engage in, or are likely to continue to do, and they do not alter the impression they have of themselves – to, for example, someone who engages in ecological behaviour, or who considers the environmental impact of their actions. Indeed, there may be little motivation for these ingroup members to change their cognitions if they believe their ingroup should maintain its advantaged status. For ingroup glorifiers, the need for positive identity appears to dominate the need for equity.

Thus, any ecologically-friendly behaviour ingroup glorifiers do perform might excuse them from engaging in other ecologically-friendly behaviour. This holds direct similarities to the licensing effect, of which the associated cognitions do not involve a change in the way the self is perceived (e.g., Khan & Dhar, 2006). The negative

relationship between instances of ecologically-friendly behaviour witnessed in the ingroup glorifiers suggests these individuals had self-focussed motivations for initially engaging in ecologically-friendly behaviour. This may be through the sense of moral elevation obtained from performing ecologically-friendly behaviour, or the alleviation of any negative emotions elicited by the negative ingroup history reminder. As a result, there may be little motivation for ingroup glorifiers to maintain ecologically-friendly behaviour.

In contrast, those with a more critical attachment to their ingroup appeared to have a more flexible view of themselves, one that is subject to change based on current behaviour, and one that may be less inclined toward maintaining the ingroup's current dominant status. Indeed, Darnton (2008) explains that identity is shaped by behaviour as well as shapes it (see Chapter 4). Once those with a more critical ingroup attachment initially perform ecological behaviour, they may view themselves as someone who may engage in behaviour of this sort, and comply with a future request to perform additional ecologically-friendly behaviour. This has similarities with the foot-in-the-door effect whereby compliance with requests is partially dependent upon compliance with previous requests (Freedman & Fraser, 1966). It also suggests that the performance of ecologically-friendly behaviour in those with a more critical ingroup attachment is motivated by the desire to act in consideration of the outgroups negatively affected by their group's actions. As Stets and Biga (2003) explain, behaviour is motivated by the desire to act in accordance with one's identity (see Chapter 4) which, in the case of more critically attached ingroup members, may involve taking steps to undo the harm done by one's ingroup.

Thus, when ingroup identity is salient, the performance of ecological behaviour has different consequences depending on how one identifies with the ingroup. This is potentially an important consideration if attempts at increasing ecological behaviour first make group identity salient by, for example, offering reminders of their group's role or contribution to ecological issues. These reminders may have initially positive effects on ecological behaviour, but its longevity is reliant on a critical ingroup attachment. For those who glorify their ingroup, ecological behaviour may even be a counter-productive enterprise in the long term.

Limitations and Future Directions

The current study has a major limitation in that although no between-condition differences were found in the explicit reporting of collective guilt, it was reasoned that

feelings of implicit collective guilt, although not assessed, influenced the resultant ecologically-friendly purchasing. Also, no assessment of collective anxiety was included, although less theoretically likely, the possibility that the current findings are instead due to collective anxiety, or indeed another emotion, cannot be ruled out. The lack of between-group differences in collective guilt are also possibly due to social desirability concerns and deviations between implicit and explicit feelings, suggesting that future work would benefit from assessing these variables. Additionally, this study did not investigate the actual cognitions involved in the follow-up ecological behaviour. Future work would benefit from replicating and exploring the relationship between multiple instances of ecological behaviour and to demonstrate the causal role of collective guilt emotions in increasing ecologically-friendly behaviours in those primed with negative ingroup history. Also of interest is the different types of ecologically-friendly behaviour, of which green purchasing is just one. Future work could investigate other behaviours such as transportation preferences, or consideration of environmental policies of political candidates.

Conclusion

This study demonstrated that being reminded of the negative relationship between one's group and the natural environment can have positive impacts on ecological behaviour, specifically through the increased purchasing of ecologically-friendly products. Although between-group differences in explicit collective guilt were not found, it was reasoned that, after ruling out collective shame, and the unlikelihood of collective anxiety, social desirability concerns may have elevated the explicit collective guilt reports by those receiving neutral ingroup information. Thus, the increase in green purchasing witnessed following negative ingroup information may, in fact, be due to implicit feelings of collective guilt which were presumably higher in those receiving negative ingroup information.

Support was also found for the notion that instances of ecological behaviour do not occur in isolation and, when ingroup identity is salient, are determined by an individual's previously ecologically-relevant behaviour and the mode of identification with the ingroup. Specifically, it was found that for those with a glorification mode of ingroup attachment, a negative relationship was found between two instances of ecological behaviour, indicative of the licensing effect. It is reasoned that these individuals failed to change the way in which they think about themselves and the sorts of behaviour they engage in. Their requirements to maintain positive self-regard appear

to include maintaining the ingroup's dominant status and, thus, these individuals may feel licensed to refrain from continued ecological behaviour. These findings also suggest selfish motivations for their performance of ecologically-friendly behaviour. This contrasted with those with a more critical ingroup attachment who demonstrated a positive relationship between the two instances of ecological behaviour. Reminiscent of the foot-in-the-door effect, it is thought that these individuals change the way they think about themselves to include ecologically-friendly behaviours in an effort to achieve ingroup morality, something that appears important for the positive self-regard of these ingroup members. Reminiscent of the foot in the door effect, it is thought that these individuals may incorporate their ecologically-friendly behaviour into their identity and continue to act in an ecologically-friendly manner. As a result of their more critical ingroup attachment, they may acknowledge the fallibility of their ingroup, therefore opening up the possibility for acknowledging ingroup harm doing, feelings of collective guilt, and the resultant outgroup-orientated reparative efforts. All in all, this paper demonstrates the complex nature of ecological behaviour and suggests that reminders of ingroup harm, although garnered with initially positive effects, may license subsequent unecological behaviour in some group members.

CHAPTER 11: DISCUSSION

The first section of this final chapter consists of a summary of the seven studies undertaken and highlights the main findings of each. Following this, an explanation of the findings in light of previous research is provided. The subsequent section considers the theoretical implications they make in light of the introductory chapters and the contributions of the findings within the field of social psychology. The limitations and directions for future research that may be warranted are then outlined. Finally, this discussion concludes that, while feelings of collective guilt for ecological harm are relevant, ultimately for environmental sustainability to be achieved, individuals must consider the impacts of their group's actions on the outgroups that will suffer and act cooperatively with these groups.

Summary of Findings

As an initial test of whether feelings of collective guilt were applicable in the environmental domain, the first of the seven studies investigated whether general feelings of collective guilt were associated with attitudes and behaviours in one ecologically-relevant domain, namely recycling. It was found that feelings of collective guilt, while not directly associated with self-reported recycling behaviour, were positively related to attitudes toward recycling. Social norms also showed the same trend in that they were positively associated with attitudes toward recycling, but not actual recycling behaviour. Attitudes toward recycling was the only variable found to be significantly correlated with recycling behaviour. This study showed preliminary evidence for the relationship between feelings of collective guilt and ecologically-relevant variables. However, it was reasoned that a domain-specific assessment of collective guilt may have yielded a stronger relationship between feelings of collective guilt and recycling behaviour.

The second study investigated the cooperative foundation of both ecological behaviour and feelings of collective guilt. This was done by testing the proposed model that feelings of collective guilt would mediate the positive relationship between the tendency to make cooperative decisions and the performance of ecologically-friendly behaviour. Support was found for the model whereby feelings of ecologically-specific, but not generic, collective guilt mediated, at least partially, the positive relationship between cooperative decisions made on scenarios involving the sharing of finite funds with innocent others and self-reported everyday ecological behaviour.

Study 3 attempted to gain a better understanding of community groups that were assumed to differ in their ecological behaviour, with particular interest in their tendency toward cooperation and feelings of collective guilt, as well as individual difference variables that were identified either through previous research or theoretical relevance. Comparisons between members of Environmentalist groups and Performance Car Enthusiast groups indeed revealed that Environmentalists engage in more ecological behaviour, were more cooperative, and felt more collective guilt for ecological harm. They also had stronger social and personal norms regarding the environment, a more internal locus of control, and identified less with Australia than Performance Car Enthusiasts. Comparisons between younger and older populations revealed that young people engaged in less ecological behaviour, cooperated less, had a more external locus of control, and identified less with Australia. Despite differences in both ecological behaviour and the tendency to cooperate, differences in levels of ecologically-specific collective guilt in the young and old samples were non-significant. These findings attest to the ecological validity of collective guilt emotions and suggest that cooperation may be a key antecedent for the engagement in ecologically-friendly behaviour.

Studies 4, 5 and 6 investigated implications of feelings of collective guilt within terror management theory (Greenberg et al., 1986). This was firstly done by attempting to replicate and expand the work of Vess and Arndt (2008) by showing that environmental contingencies of self-worth (ECSW) would moderate the relationship between mortality salience and environmental concern, and to demonstrate that feelings of ecologically-specific collective guilt would also moderate this relationship (Study 4). Study 5 aimed to separate the effects of ECSW and collective guilt by demonstrating that ECSW would be relevant when the focus is on the self, as it pertains to individual-level self-esteem, whereas feelings of collective guilt would be more important when the focus is on group-level behaviour. Unfortunately, mortality salience effects were unable to be obtained in either study, and an alteration of methodology and replication of Study 4 was also unable to obtain mortality salience effects (Study 6). As a result, it was not possible to replicate Vess and Arndt's (2008) finding that ECSW moderated the relationship between MS and environmental concern, or to assess a group-level influence on self-esteem, feelings of collective guilt, on ecological friendliness after mortality salience. Correlational analyses done on the data from these studies, however, revealed the expected positive relationships between ECSW and feelings of collective guilt (both general and domain-specific) and the ecologically-friendly dependent

variables.

The final study, Study 7, aimed to demonstrate the behavioural effects of collective guilt, by showing that a negative ingroup history reminder would increase green purchasing in an online store. Green purchasing was greater in the negative ingroup history condition despite the assessment of explicit collective guilt not revealing significantly higher feelings of ecologically-specific collective guilt. It was reasoned that the likely cause for the increased green purchasing witnessed was due to implicit feelings of collective guilt. This study also investigated the effects of green purchasing and ingroup identification on subsequent ecologically-relevant behaviour. Evidence was found for both self and other-focussed reparation, depending on one's mode of ingroup attachment (see Roccas et al., 2004, 2006). It was found that those with a more glorified attachment showed a negative relationship between the two instances of ecological behaviour, suggestive of self-focussed motivations for the initial engagement in ecologically-friendly behaviour, and the possibility of moral licensing. Those with a more critical attachment increased their subsequent ecologically-friendly behaviour relative to their green purchasing, that is, they showed a positive relationship between the two instances of ecological behaviour, reflective of a foot-in-the-door style effect and cooperative undertones motivating their ecologically-friendly actions.

Congruence with Previous Research

The notion that the current ecological crisis is an issue of morality stemming from the notion of a commons dilemma was supported by the research presented in this thesis. Feelings of collective guilt for ecological harm may emerge in members of developed nations when they acknowledge the immorality of ingroup actions, and appear to hold better association with ecologically-relevant dependent variables when they are ecologically-specific feelings of collective guilt as opposed to general feelings. The performance of ecologically-friendly behaviour and membership in community groups with ecological relevance also appears to be affected by individual difference characteristics, including variables of cooperation and collective guilt. Throughout the studies, feelings of collective guilt were found to be associated with ecologically-friendly dependent variables, and this friendliness appears to also be influenced by an individual's identification with the ingroup. These findings have been discussed in the following sections.

Collective Guilt: A Self-Conscious Emotion Motivating Reparation

The research presented in this thesis is broadly consistent with the body of work presenting collective guilt as a self-conscious emotion stemming from the acknowledgement of ingroup immorality, and that these feelings motivate reparation. Indeed, as stated, the studies presented in the current volume found that feelings of collective guilt were associated with increased ecological friendliness across a host of assessments. Positive relationships were found between feelings of ecologically-specific collective guilt and self-reported ecological behaviour (Studies 2 and 3), ecological concern (Studies 4, 5 and 6), and ecological behavioural intentions (Studies 4, 5 and 6), and between general collective guilt feelings and self-reported ecological behaviour (Study 2), and attitudes to ecological behaviour (recycling, Study 1). This positive relationship exists presumably as a means of making reparation for the outgroups that have been or will be harmed by ingroup actions. There is some argument, however, whether ecological friendliness induced by feelings of collective guilt are motivated by self-focussed desires for guilt alleviation, or other-focussed concerns of social justice.

Consequences of Collective Guilt: Cooperative or Selfish?

Some attest that feelings of collective guilt motivate reparative action as a means to alleviate the negative feelings of guilt (e.g., Iyer et al., 2003; Powell et al., 2005), while others explain they aim to restore justice and develop a cooperative relationship with the harmed party (e.g., Baumeister et al., 1994; see Chapter 3). Despite motivations for reparation not being assessed within the present body of work, the current series of studies still offers contributions to this question. Both propositions regarding the reparative motivations stemming from collective guilt emotions gained some support within the current series of studies.

The theoretical position on feelings of collective guilt suggests that these feelings *should* motivate cooperative retributions as they are an emotional response to immoral actions, meaning reparations should address this immorality (see Chapters 3 and 4). The theoretical perspective offered by social identity theory (Tajfel & Turner, 1979) suggests that, due to the determinants of positive distinctiveness, including the permeability of group boundaries as well as the perceived stability and legitimacy of the intergroup status hierarchy, both cooperative and self-focussed retributions may be possible. Present research findings which suggest the cooperative nature of collective guilt emotions include the results of Studies 2, 3 and 7. Study 2 (Chapter 7) found that the relationship between multi-domain ecologically-friendly behaviour and the tendency

to make cooperative decisions involving innocent others was positively mediated by feelings of ecologically-specific collective guilt, suggesting that the consideration of the effects of ingroup actions may be partly motivating engagement in ecologically-friendly behaviour. Additionally, the tendency to make cooperative decisions was also higher in groups with higher levels of ecological behaviour, including Environmentalists and Older Persons (Study 3, Chapter 8). Finally, the positive relationship witnessed between instances of ecological behaviour observed for those with a more critical ingroup attachment (Study 7, Chapter 10) also suggests that these individuals may be considering the impacts of ingroup actions on the outgroups that will suffer the effects of unsustainability. Study 7 also provided some evidence to suggest that being reminded of the negative actions of one's ingroup may instead lead to self-focussed methods of retribution. Those with a glorification mode of ingroup attachment demonstrated a negative relationship between two instances of ecologically-relevant behaviour, suggesting that the initial performance of ecologically-friendly behaviour was an effort for the individual to regain emotional homeostasis as opposed to out of the desire to achieve environmental sustainability.

In addition to ingroup identification, it is suggested that the nature of the relationship between the ingroup and the outgroup may contribute to whether feelings of collective guilt motivate compensatory or cooperative reparations (see Chapter 3). The work of Iyer et al. (2003) and Powell et al. (2005), which claimed compensatory motives for collective guilt reparations, investigated feelings of collective guilt in White Americans toward African Americans, while the current thesis investigated such feelings in Australians toward future generations, the future self, developing nations, and plants, animals and nature. The relationship between the ingroup and the outgroups is considerably different in these cases. As explained in Chapter 3, White Americans are not separated either temporally or spatially from African Americans. Thus, cooperative notions such as supporting equal opportunity policies are likely to have a salient impact on the advantaged status of the ingroup in this case. Thus, compensatory efforts by White Americans toward African Americans, as demonstrated in the studies by Iyer et al. (2003) and Powell et al. (2005) may be in an effort to do something about the outgroup's relative disadvantage, but without automatically threatening the dominant status of the ingroup. Indeed, as Chapter 4 explains, individuals prefer to perceive their group positively, and issues surrounding the perceived legitimacy and the stability of the intergroup hierarchy may impact responses to ingroup-relevant information. Despite

possibly experiencing negative emotions from the unfair advantage their group status affords them, individuals in dominant groups experience benefit from this advantaged status. While considerations of social justice may play on ingroup members' minds, ultimately they may wish for their group to remain in its dominant position. As a result, this may encourage individuals to engage in "token" efforts at retribution, as they may allow for collective guilt alleviation but fail to necessarily address the intergroup equality, as Steele (1990) and others have recognised.

In the present research, the ingroup is both temporally and spatially separated from the outgroups that will be harmed by the ingroup's unecological behaviour. Due to this separation, performing cooperative reparations toward these outgroups, even if it does require changes in the current lifestyle of ingroup members, will not threaten the current privileged status of the ingroup. Even though the lifestyle changes required for reparative action could be perceived as threats to the ingroup's current dominant status, the benefits that will be afforded to the outgroups will occur at a future time. In this case, then, the notion of maintaining one's ingroup as higher status may be less salient to members of developed nations when considering ecological friendliness because their group's status will not be directly threatened. As a result, ingroup members may be more inclined to consider acting cooperatively with the outgroups when considering ecological harm than when considering other cases of intergroup harm. Thus, it is suggested that both cooperative and compensatory reparative efforts may result from collective guilt emotions, depending on the nature of the relationship between the groups.

Thus, the relationship between the ingroup and the outgroup as well as elements of self-enhancement and the belief that one's group should be favoured over other groups may help explain that feelings of collective guilt can predict both compensatory and cooperative retribution. The preference to maintain the advantage status of one's ingroup, and therefore to engage in collective guilt-alleviating retributions, may also be influenced by an individual's ingroup identification. The effects of ingroup identification are discussed next.

The Influence of Ingroup Identification

In support for the intergroup nature of the ecological crisis, ingroup identification appears to play a role in both feelings of collective guilt and ecological friendliness. With respect to ecological friendliness, the previous section mentioned factors that may encourage self-focussed, guilt-alleviating, reparations resulting from

the desire to maintain ingroup advantage. Indeed, those with a glorification mode of ingroup attachment may be especially motivated to maintain ingroup advantage.

Those with a glorification mode of ingroup attachment, by definition, perceive their group as superior to others (see Roccas et al., 2004, 2006 or its discussion in Chapter 3). Thus, any feelings of collective guilt that these ingroup members may experience may encourage retribution strategies that maintain this advantage. Indeed, the results of Study 7, where ecological behaviour decreased after previously performing such behaviour, suggest that ingroup glorifiers may have been engaging in ecologically-friendly behaviour as a means of regaining emotional homeostasis via the alleviation of any negative emotions elicited when the history of their ingroup was presented, and may have felt excused from doing any more of such behaviour (see Chapter 10). These ingroup glorifiers, it was reasoned, failed to adjust their cognitions to incorporate their behaviour and may have felt excused from continuing to act in an ecologically-friendly manner, as their ingroup identity suggests they may perceive their advantaged status as legitimate. These findings are reasoned to indicate selfish motivations for their performance of ecologically-friendly behaviour. It also suggests that, for ingroup glorifiers, positive identity is defined, at least in part, through inequity. This was in contrast to what was found for those with a more critical ingroup attachment.

For ingroup members with a more critical ingroup attachment, a positive relationship was demonstrated between the two instances of ecological behaviour. It appears that for these individuals, the performance of ecologically-friendly behaviour was not motivated by the alleviation of negative emotions such as collective guilt, but instead about performing consistently with one's self-concept or identity. Indeed, if these more critically attached ingroup members have acknowledged that ingroup harm doing is occurring and, as their ingroup attachment suggests, they do not view their ingroup as superior to other groups, such as the outgroups being harmed, they may be motivated to attempt to act cooperatively with the harmed outgroups as a means of regaining morality. As a result, initially engaging in ecologically-relevant behaviour may have reinforced the need to act on ecological harm, and has strengthened the need for subsequent ecological friendliness to occur, in line with Freedman and Fraser's (1966) foot-in-the-door effect. While this may not automatically translate to behaviour motivated by a desire to act cooperatively with the outgroups, this desire for outgroup cooperation may have been a motivation for the initial performance of ecologically-

friendly behaviour. The performance of subsequent behaviours may have occurred due to desires to act in congruence with aspects of one's identity. However, as no assessments of motivations were made, this remains speculative and further research into this area would both add theoretical and practical contributions to the field of social psychology.

With respect to the influence of ingroup identification on feelings of collective guilt, the combined findings of the studies within the current project suggest that this relationship is a complex one. Some prior research has suggested that those less strongly identifying with the ingroup (the low identifiers) experience greater collective guilt than higher identifiers as they are less motivated to protect the positive self-perception they may have of their ingroup (e.g., Doosje, et al., 1998). While other research has failed to replicate this (e.g., Branscombe et al., 2004), or found that high identifiers were, in fact, reporting greater feelings of collective guilt (e.g., Doosje et al., 2004), others again have found evidence for the importance of not just the extent of ingroup identification, but also other factors such as the mode or type of identification (e.g., Roccas et al., 2004, 2006) or political orientation (e.g., Klandermans et al., 2008). Indeed, the findings of the current project are mixed; Study 2 (Chapter 7) found a positive relationship between the extent of ingroup identification and the inclination to accept collective guilt feelings, Study 3 (Chapter 8) revealed that identification with Australia was lower in Environmentalists than Performance Car Enthusiasts despite higher levels of ecological behaviour, and Study 7 (Chapter 10) found that, while differences in collective guilt between these individuals was not assessed, those more critically attached to the ingroup were likely to increase their ecological behaviour after previously performing ecological behaviour, whereas ingroup glorifiers were less likely to do so, and the extent of ingroup identification could not be used to explain this finding.

The inconsistencies in the findings between the extent of ingroup identification and the extent that feelings of collective guilt are reported may be due to factors such as mode of ingroup attachment or political orientation. This is due to the fact that one may identify strongly or weakly with the ingroup, but also hold a glorification or more critical attachment, or a conservative or liberal political orientation. Other factors not accounted for, such as the extent to which different collective guilt avoidance processes may be acting and the precise dependent variables under investigation adds to the complexity of assessing the role ingroup identification plays on feelings of collective

guilt. The combination of these findings suggests that the influence of ingroup identification and feelings of collective guilt for ingroup wrong doing remains complex indeed.

General or Domain-Specific Collective Guilt?

As part of this thesis it was of interest to investigate whether general feelings of collective guilt were sufficient to motivate ecological friendliness, or whether domain-specific feelings, that is, feelings of collective guilt for ecological issues, are required. Evidence was also found to support utilising domain-specific assessments of collective guilt, despite the risk of criterion contamination. Domain-specific feelings of collective guilt provided the strongest relationships with the ecologically-friendly dependent variables. Assessments of global collective guilt feelings appeared to still be relevant, albeit weaker, associates of the dependent ecologically-friendly variables. It would be expected that domain-specific feelings of collective guilt would demonstrate a stronger relationship with the dependent ecological measures than more general feelings of collective guilt. This is because processes that may be present to reduce these feelings of guilt for ingroup harm doing may not be present to the same extent for each of the various instances where the ingroup may have committed harm to an outgroup, such as regarding the environment, or against Indigenous populations, as examples. Indeed, when responding to general assessments of collective guilt, participants may be considering a specific case of intergroup harm, which may not reflect the specific case of intergroup harm under consideration. Indeed, this may have been the case in Study 2 (Chapter 7) where a deviation was observed in the relationship between general and domain-specific collective guilt and ingroup identification. Furthermore, as with attitudes, whereby they show a stronger relationship with behaviour when those feelings are in the same domain (Ajzen, 1991), it would, similarly, be expected for feelings of collective guilt. However, as explained in Chapter 3, despite the majority of prior collective guilt research utilising domain-specific assessments (e.g., Doosje, et al., 1998; Ferguson & Branscombe, 2010; Iyer et al., 2003; Powell et al., 2005), this gives rise to possible issues of criterion contamination.

Within the current series of studies, some utilised a measure of general collective guilt emotions, some a measure of ecologically-specific collective guilt, and some included measures of both. Study 1 (Chapter 6) included solely a measure of general collective guilt emotions and, while showing a positive correlation with social environmental norms and attitudes toward recycling, it failed to demonstrate a

significant relationship with recycling behaviour. This led to the suggestion that domain-specific feelings of collective guilt may be required to motivate actual ecologically-friendly behaviour. Indeed, Study 3 (Chapter 8) investigated different community groups and, while ecologically-specific collective guilt was reported more in Environmentalist group members, general collective guilt feelings were not. Study 2 (Chapter 7), which tested the model that feelings of ecologically-specific collective guilt would mediate the positive relationship between cooperative decision making and self-reported ecological behaviour, found a moderate positive correlation (r=.49; Cohen, 1988) between feelings of ecologically-specific collective guilt and ecological behaviour, while general collective guilt feelings showed a much weaker, although still significant, relationship (r=.21). The three terror management studies (Studies 4, 5 and 6, Chapter 9), while they failed to demonstrate mortality salience effects, when collapsed across conditions, yielded the expected positive correlations between the collective guilt and the ecologically-friendly dependent variables. This was the case for both general and ecologically-specific collective guilt feelings, although domain-specific feelings generally showed a stronger relationship. This suggests that, in terms of predicting actual ecologically-friendly behaviour, feelings of ecologically-specific collective guilt may be more applicable than general feelings of collective guilt. If, however, one is considering ecological concern or behaviour intentions, as opposed to actual behaviour, general collective guilt feelings may, in fact, be sufficient. Due to the threat to validity, however, caution is recommended in the sole use of domain-specific measures of collective guilt.

Contributions of the Current Research

The series of studies presented in this thesis hold contributions, both theoretical and practical, to numerous domains. In particular, these include to intergroup research including social identity theory and collective guilt, research into ecological friendliness, and terror management theory. Each of these have been discussed below.

Contributions to Intergroup Research

The combined results of the studies presented in the current thesis provide support for social identity theory (Tajfel, 1978; Tajfel & Turner, 1979). Feelings of collective guilt for ingroup wrong doing are thought to emerge from the investment of identity in numerous domains, including in the groups in which one is a member (see Chapter 4). From this, it becomes possible for individuals to experience emotions relevant to their group's behaviour, including feelings of collective guilt for the immoral

actions of other group members. These feelings of collective guilt may have subsequent consequences for ingroup members. This thesis applied the emotion of collective guilt to the ecological domain, whereby members of a perpetrator group, Australia, may experience this emotion and, as a result, may be motivated toward ecological friendliness. At the commencement of this project the application of collective guilt to ecological harm was a novel application of this emotion; however, the work of Ferguson and Branscombe (2010) has subsequently emerged also investigating this topic. While this work has demonstrated that feelings of collective guilt are applicable to ecological harm, questions still remain as to the role of collective guilt emotions in ecological friendliness, some of which were addressed in this thesis.

Aside from demonstrating the applicability of the emotion of collective guilt to the ecological domain by showing its positive association with numerous ecologically-relevant variables, the current series of studies also demonstrated the cooperative roots of both feelings of collective guilt and ecological behaviour (Study 2, Chapter 7). The majority of previous literature investigating ecological friendliness, while it may have been implied, has neglected to acknowledge the intergroup nature of ecological harm and the cooperative motivations preceding ecological friendliness and, therefore, that the effects on outgroups may be a consideration when engaging in ecological behaviour (see Chapter 2 for a review of this literature). Although correlational, the current thesis included a study which evidenced the cooperative roots of both feelings of collective guilt and ecological behaviour (Study 2, Chapter 7). Despite this, evidence was also found for selfish motivations for engaging in single instances of ecologically-friendly behaviour (Study 7, Chapter 10).

The current project also demonstrated the ecological validity of feelings of collective guilt within the ecological domain by showing that these feelings are reported more by members of Environmentalist groups than Performance Car Enthusiasts (Study 3, Chapter 8). While other research on collective guilt has investigated members of groups responsible for harm doing (e.g., Rensmann, 2004; Doosje et al., 1998), this study is the first, to the author's best knowledge, to investigate real-life groups actively invested in reparative action as to their extent of collective guilt feelings and tendencies toward cooperation. Indeed, it demonstrated that members of Environmentalist groups reported greater feelings of collective guilt for the environment and higher levels of cooperation than other community groups. The finding that feelings of collective guilt for ecological harm may be present in those who are more actively performing

ecological behaviour attests to the ecological validity of this emotion as well as to the cooperative nature of true ecological friendliness.

The outgroups in which ecological harm by developed nations is thought to impact (see Chapter 1) reflects a unique application of collective guilt emotions. As the negative consequences of the environmentally-unsustainable actions of developed nations are largely thought to be realised at some future time, the outgroups correspond to those existing at this time. Indeed, current ingroup members may even be dead by the time consequences of their group's environmentally-unsustainable actions are realised. Traditionally, the study of collective guilt has generally involved historical transgressions committed by the ingroup, resulting in the continued disadvantage of outgroup members. Thus, feelings of collective guilt for ecological harm are unique in that the temporal element separating the perpetrator from the victim is instead prospective. Secondly, the traditional application of social identity theory to intergroup relations has focussed solely on human groups; however, the current project also acknowledges that non-human outgroups including plants, animals, and nature in a broader sense as possible outgroups to which emotions such as collective guilt may be experienced.

Finally, within the current series of studies it has also been possible to assess the influence of engaging in ecologically-friendly behaviour on the subsequent ecologically-friendly behaviour (Study 7, Chapter 10). As explained, the relationship between these two instances of ecological friendliness was found to be influenced by the mode in which individuals identified with the ingroup, such that ingroup glorifiers decreased, while those more critically attached increased subsequent behaviour. It highlights the importance of ingroup identification when ingroup members consider negative group-relevant information. Indeed, when responding to group-relevant information it appears that individuals respond as group members. As the way in which one identifies with the ingroup determines how group-relevant information is treated, it suggests different motivations may be present for these group members for both the initial and subsequent performance of ecological behaviour, such that both self- and other-focussed consequences may result. It appears that ingroup glorifiers engage in behaviours that rectify the threat to their positive self-concept that negative ingroup actions pose by engaging in minimal reparation, while more critically attached ingroup members appear to attend to the threat to their self-concept by engaging in behaviours aimed at addressing the negativity of the actions themselves.

The application of collective guilt feelings to the ecological domain provides an additional exemplar of the robustness of social identity theory. It appears that collective guilt emotions hold application in the ecological domain where a prospective temporal element applies, that these feelings have cooperative origins, and that they are ecologically valid. Despite this, it appears they may motivate selfish as well as cooperative reparations, depending on both individual and intergroup circumstances.

Contributions to Ecological Research

As stated, the studies presented in this thesis support the notion that ecological problems, and their solutions, can be considered in terms of a commons dilemma. The consideration of the outgroups which are reasoned to suffer as a result of the unsustainable actions of perpetrator groups can provide positive influences on the ecologically-friendly actions of members of these groups. Indeed, Study 3 (Chapter 8) found the tendency toward cooperation to be greater in those groups performing more ecological behaviour (Environmentalists and Older Persons) than those performing less ecological behaviour (Performance Car Enthusiasts and Younger Persons). Furthermore, the tendency to make cooperative decisions in social dilemma scenarios was also found to be moderately correlated (*r*s=.15 to .34; Cohen, 1988) with self-reported everyday ecological behaviour (Study 2, Chapter 7), suggesting the theoretical importance of cooperation may also be a practical one when considering the true ecologically-friendly actions of members of developed nations.

Furthermore, a large body of previous literature has attempted to identify the characteristics of the ecologically-friendly individual as well as factors that may inhibit ecologically-friendly action (see Chapter 2). Of the studies presented in this thesis, one included an assessment of numerous psychological variables identified from this literature, in a between-groups investigation of their differential distribution in groups reasoned to be more or less invested in ecologically-relevant behaviour (Study 3, Chapter 8). After a review of this literature, it appeared that, as far as empirical investigation was concerned, the notion of ecologically-friendly behaviour emerging from the theory of the commons dilemma and the notion of intergroup cooperation, as well as emotional consequences, such as feelings of collective guilt, have largely been neglected. As a result, this study included an assessment of the tendency to which individuals are inclined to act cooperatively, and may also be inclined to feel collective guilt, both in a general sense and for ecologically-specific harm. The results were largely in line with predictions and in line with the theory on the commons dilemma

(Hardin, 1968), where it appears that cooperation may be a key variable that encourages individuals to engage in and maintain ecologically-friendly behaviours.

Additionally to cooperation, several variables were also identified in this study to be associated with the performance of ecological behaviour through their increased presence in Environmentalist group members and Older Persons, that is, groups that were found to have significantly higher levels of self-reported everyday ecological behaviour (when compared to Performance Car Enthusiasts and Younger Persons). In addition to cooperation and feelings of ecologically-specific collective guilt, Environmentalist group members were found to have higher levels of both personal and social environmental norms, as well as a more internal locus of control, and a weaker extent of identification with Australia. Adding to the complexity of understanding antecedents and motivations for ecological behaviour is the finding that these same variables were also prominent in Older Persons, with the exception of personal and social environmental norms and feelings of ecologically-specific collective guilt. In addition, their extent of identification with Australia was, despite their increased ecological behaviour, significantly greater than Younger Persons. These findings, however, attest to the importance of cooperation, whereby it is reasoned that it is this tendency to consider others that is a major factor underlying motivations to be ecologically friendly.

In terms of understanding ecological behaviour, it appears that cooperation is a crucial factor, and may also lead to collective guilt in those with a weaker or more critical ingroup attachment. Personal and social norms seem to encourage ecological behaviour, and an internal locus of control may provide the sense of agency required to enable it to occur. Due to the relatively low levels of ecological behaviour reported by the Performance Car Enthusiasts and the Younger Persons suggests that inhibitory factors are exerting at least some influence on these samples. Factors such as a lack of agency, feelings of helplessness or the inability to influence outcomes, selfishness as well as other inhibitory factors covered in Chapter 2, may be having some influence on the extent to which ecological behaviours are conducted. Indeed, some of these inhibitory factors may also have impact on members of Environmentalists and Older Persons as well.

Finally, within the current series of studies it has also been possible to assess the influence of performing ecologically-friendly behaviour on subsequent ecologically-friendly behaviour. The notion of how instances of ecological behaviour may relate to

each other is an important contribution in that it is unlikely that ecologically-relevant actions occur in isolation. Indeed, initially performing ecological behaviour may encourage subsequent friendly, or even unfriendly, behaviour. This is especially important given the recent work of Mazar and Zhong (2010) who claimed that the performance of ecologically-friendly behaviour would lead to the licensing of subsequent immoral behaviour. To the author's best knowledge, this volume includes the first investigation into the possible relationship between individual instances of ecological behaviour and proposed a mechanism where, due to the differential needs of ingroup members to gain positive self-regard, ingroup identification may differentially affect behaviour (Study 7, Chapter 10).

The results of Studies 2 and 3 (Chapters 7 and 8) combined with previous literature covered in Chapter 3 go some way to explain the performance of ecological behaviour as well as motivations for membership in these community groups. In addition, the findings of Study 7 (Chapter 10) also suggest that considering the precise situational and individual factors accompanying each instance of ecologically-relevant behaviour is also crucial to the understanding of the eventual behaviour of individuals. Ultimately, however, it appears that the most positive environmental outcomes may be achieved if the individual is inclined toward acting cooperatively.

Contributions to Terror Management Research

There were three studies within the current thesis that utilised a terror management theory framework to investigate the applicability of the mortality salience hypothesis to the ecological domain (Studies 4, 5 and 6, Chapter 9). These studies failed to induce the required mortality salience effects; however, they may offer some implications for this theory. Most pervasively is the notion that mortality salience effects may not be as easy to induce as the published literature suggests. The three studies within this thesis were all unsuccessful at yielding mortality salience effects, despite utilising the most common method of priming mortality, as utilised by some 80% of published terror management theory literature (Burke et al., 2010). These two open-ended questions ("Please briefly describe the emotions that the thought of your own death arouses in you." and "Jot down, as specifically as you can, what you think will happen to you once you are physically dead.") were accompanied by approximately half a page of space for participants to provide their response. The vast majority of participants, however, failed to write more than two sentences in response to these items. It was reasoned that these short responses appear to be responsible for the failure

for mortality salience effects to be induced. As a result, the commitment or dedication of the participants involved in the study, or their perception of the length of response requested, appears to be the most likely reason mortality salience effects were not witnessed.

It was initially reasoned that perhaps an online administration of subtle primes, such as mortality, may not be sufficient at inducing the expected effects. While the two initial studies (Studies 4 and 5) were conducted online, the third study (Study 6) was conducted in a laboratory environment to remove this possibility. As Study 6 also failed to elicit mortality salience effects, it removes the possibility that online administration was the key factor in the failure for these two studies to yield mortality salience effects. Additionally, the suggestion that mortality salience effects may be less relevant to a young adult population such as that used in the present studies is also unlikely as, indeed, a similar demographic of undergraduate participants whose participation is motivated by the allocation of a certain number of required course credits, has also been used by numerous published terror management theory studies (e.g., Vess & Arndt, 2010; Greenberg et al., 1990, 2000). As a result, it is suggested that future studies utilising the open-ended question method of priming mortality also include specific instructions as to the length of response required such that somewhat elaborate responses are obtained, particularly if samples of questionably committed undergraduate students are used.

Limitations

There were numerous limitations that were identified within the studies. Firstly, the data presented in the current series of studies was collected between the years 2008 and 2011 and, as such, reflects the attitudes and behaviours of the Australian participants during this time. There remains the possibility that, with time and possible changes in the way the ecological crisis was portrayed, presented and discussed within cultural and media spheres, including any salient media issues, may have influenced the way members of this developed nation conceived, felt and reacted to ecological harm.

Additionally, the current series of studies all utilised survey methods of data collection and, while reasoned to be a sufficient method of gathering the information required for these studies (see Chapter 5), issues of external validity apply. There remains some ambiguity, as always, as to the precise extent that the survey data gathered reflects how individuals would actually behave and, thus, the extent to which the findings of the current series of studies may be generalised. As identified in Chapter

5, one of the limitations of self-reported information is that it requires the information to be within conscious accessibility of the participants (Nisbett & Wilson, 1977). As such, the information reported is thought to reflect solely explicit information and may be influenced by implicit factors not accounted for. There was the particular possibility that this occurred in Study 7, where explicit feelings of collective guilt for the environment were not significantly higher after being primed with a negative ingroup history reminder. It was thereby reasoned that feelings of implicit collective guilt may have been motivating the increase in ecological behaviour subsequently observed. Although it is acknowledged that other variables may contribute to this observed effect, the possibility for implicit emotions to account for the findings cannot be discarded.

The non-probability sampling method of obtaining participants is an additional limitation accompanying the current series of studies. Participation in all studies was voluntary and, thus, those participating may not be representative of the broader population. As a result, some caution should be employed when interpreting the findings of these studies.

The use of non-behavioural dependent variables, such as attitudes, concern, and behavioural intentions, while reported to hold good relationships with actual behaviour (see Chapter 5), pose an additional limitation to some of the studies presented in this thesis. As the aim is to understand, predict, and ultimately change the actual behaviour of individuals in developed nations to become more ecologically friendly, the true extent to which these non-behavioural dependent variables reflect how individuals would actually behave cannot be known. Furthermore, the dependent variables in some studies within the current volume required participants to self-report how they would behave in imaginary scenarios. As a result, the extent to which they may be generalised to actual behaviour in the real-world may be questioned. Consequently, to increase the ecological validity, future work could utilise dependent variables with a more behavioural focus.

A subsequent limitation present in the current project was that some of the studies utilised a survey design using correlational analyses (Studies 1 and 2) or did not involve manipulation of independent variables (Study 3), or attempts at manipulating these variables was unsuccessful, so exploratory correlations were conducted (Studies 4, 5, and 6). Although other aspects of the current project utilised experimental designs which helped to bolster the correlational findings, those aspects utilising correlational analyses cannot make any claims of causality. As such, future work could extend the

findings from within this thesis to studies involving experimental designs utilising manipulation of the independent variables in an attempt to demonstrate the causal position of these variables.

Another limitation that was not expected to be faced involved the extent to which the participants appeared to be dedicated to their participation in the research. This was encountered in three of the seven studies presented in the current thesis, in those involving the manipulation of mortality salience within a terror management theory framework (Studies 4, 5 and 6). Unexpectedly, these studies failed to demonstrate mortality salience effects. It was reasoned that, due to the length of responses provided by the majority of participants to the short answer items used to manipulate mortality salience, most of the participants did not invest much effort into their responses. As a result, it appeared that mortality was not sufficiently primed in these participants, subsequently leading to the failure for mortality salience effects to be found and, unfortunately, the ability for the aims of these studies to be investigated.

Future Directions

This research has addressed numerous questions as to the applicability of collective guilt emotions within the ecological domain. However, it was unsuccessful at demonstrating the causal role of feelings of ecologically-specific collective guilt in increasing ecological friendliness. As a result, future research could begin by attempting to demonstrate the causal role of this emotion in influencing ecological friendliness. Additional research possibilities have also been highlighted as a result of this project, some of which have been outlined below.

Future research into the impacts of collective guilt feelings could also investigate the relationship between the ingroup and the outgroup as a possible determinant for the type of retribution any feelings of collective guilt may motivate. As discussed, if ingroup members feel as though their advantaged status will be directly threatened by cooperation with the outgroup, they may be more inclined toward outgroup compensation. If, however, cooperation with the outgroup does not immediately threaten the ingroup's dominant status, ingroup members may be more inclined to act cooperatively. This may further be impacted by any temporal separation between ingroup harm doing and the suffering experienced by outgroups (e.g., Peetz et al., 2010) as well as by the individual's mode of ingroup identification. Thus, research manipulating these variables will provide insight into the determinants, the experience, and the consequences of collective guilt.

As it appears that instances of ecologically-relevant behaviours do not occur in isolation, another avenue for future research includes assessing the relationship that instances of ecologically-friendly behaviour may have to each other and factors that may influence this relationship. As discussed, evidence was found for factors, namely the mode of ingroup identification, that show both a positive and a negative relationship between instances of ecologically-friendly behaviour. As the mode of ingroup identification determines how group relevant information is treated, namely the perspective taken on ingroup superiority and criticism, the resultant ecologically-relevant behaviour may be reflective of this. As this provides initial evidence for differential motivations in performing ecologically-friendly behaviour, there may also be other factors that influence the relationship between instances of ecologically-relevant behaviour, and future work in the ecological domain could benefit from exploring these.

Future work could also investigate the fluidity or rigidness of an individual's ingroup identification. As already stated, the mode of ingroup identification is particularly important when considering ingroup superiority and how ingroup criticism is treated. From this, it may be reasoned that the specific ingroup actions as well as the outgroup/s that these actions may impact may determine how an individual identifies with the ingroup. It may be the case that one believes their ingroup is superior to some outgroups, but not others, as well as some actions being more legitimate than others. As a result, it may be found that ingroup identification may indeed be fluid and may depend on both the ingroup actions and the specific outgroup/s that these actions may affect. As a result, future studies could investigate factors that may impact the adoption of a more critical or a glorification mode of ingroup attachment.

Finally, the emotion of collective guilt incorporates not only the acceptance of collective guilt by members of perpetrator groups, as for developed nations in this case, but also to the assignment of such guilt to perpetrator groups by members of victim groups (Branscombe et al., 2004). Given this, members of outgroups to which substantial harm will be inflicted may be inclined to assign feelings of collective guilt to members of developed nations for the environmentally-unsustainable actions of their group. Indeed, the notion that developed nations "owe" something to the victim groups as a result of their immoral treatment of the natural environment has already been acknowledged by some developing countries. For example, the World People's Conference on Climate Change and the Rights of Mother Earth (WPCCC), held in 2010

and attended by representatives from over 100 countries, identified "climate debt" as a resultant consequence of the actions of developed nations (WPCCC, 2010). As quoted at the beginning of this thesis, this notion of climate debt has been well captured by those attending the WPCCC, whereby they "demand to the countries that have over-consumed the atmospheric space to acknowledge their historic and current responsibilities for the causes and adverse effects of climate change, and to honour their climate debts to developing countries, to vulnerable communities in their own countries, to our children's children and to all living beings in our shared home – Mother Earth" (WPCCC, 2010). Indeed, they identify this debt as one that requires retribution (WPCCC, 2010); however, precisely how this is to be achieved remains a topic of considerable discussion, and also offers opportunity for further intergroup, and collective guilt, research.

Furthermore to the notion of collective guilt assignment influencing the actions of developing nations, at the 2009 United Nations Climate Change Conference in Copenhagen, China demonstrated opposition to accept emission reduction targets put forward by developing countries. They argued that the burden of the unsustainable actions of developed countries was unfairly placed upon them, and that decisions appeared at least partly motivated by the desire for these already developed nations to maintain their economic dominance (Coates & Macartney, 2009; Wintour & Watts, 2009). The notion of the assignment of collective guilt by developing nations is likely to have implications for the relationship between these nations and the developed nations thought to be largely responsible for ecological issues. It is likely that this may even extend to factors beyond the ecological domain. Indeed, the suffering of these developing nations resulting from the environmentally-damaging actions of developed nations may even prove to be an abundant source of collective guilt feelings for members of developed nations, and therefore for research by social psychologists, for generations to come.

Finally, nature, including its plants and animals, is a significant outgroup which will experience negative outcomes resulting from the ecologically-unfriendly actions of developed nations, and the effects of these actions on this group is another avenue for future research. While debate exists as to the extent that animals, and even plants, communicate and may be capable of experiencing various emotions, there is some evidence to suggest that at least some animals may be aware of the negative actions of humans around them. The possibility that some animals may hold humans responsible

for their misdoings was demonstrated, for example, in 2009 in the Kandhamal district in India, whereby a herd of elephants was found to storm a village and kill numerous of its inhabitants (De Silva, 2010). These inhabitants were identified as those who were responsible for the gruesome persecution of numerous peaceful Christian villagers a year earlier, and the attacks required the elephants to travel some 300km from their normal place of residence (De Silva, 2010). Further reports of elephants acting aggressively toward humans have also been reported in other areas in India, supposedly due to the prior actions of humans toward their herd (Highfield, 2006). Cases have been documented in which now-adult elephants have attacked villages in what was reasoned to be vengefulness resulting from the human persecution of these elephants' family members in decades prior (Highfield, 2006). Although the true motivation for the actions of these elephants remains unknown, the possibility that it was motivated by the prior misdeeds of their victims cannot be discarded.

Furthermore, crows have also been found to demonstrate the ability to hold a grudge against individual humans who have previously caused them harm (Cornell, Marzluff & Pecoraro, 2012). Additionally, this has also been found to occur in other crows that witnessed, but were not involved, in the harm, as well as to the offspring of these crows (Cornell et al., 2012). Despite these individual crows never having previously experienced the particular human responsible for the transgression, they undoubtedly learnt which humans to discriminate against from their parents. While indicative of social learning, it still remains unclear as to the true extent of the communication between crows and what, if any, cognitions and emotions that may accompany their experience of harm. Cases such as those outlined above, provide some evidence for the ability for animals to experience complex emotions, to communicate these with their peers, and indicate that they may also be inclined to act on those emotions. Although this is an area requiring considerable future research, the question remains as to the extent to which these findings may generalise from individuals responsible for particular transgressions, to transgressions on a group scale, and for complex, self-reflective, emotions such as collective guilt, as well as for complex issues such as environmental degradation. While this remains to be seen, it does not, however, make the unsustainable actions of developed nations any less immoral if it is not found to occur in other species.

Conclusion

The ecological crisis can be considered a commons dilemma whereby numerous outgroups are expected to suffer as a result of the continued unsustainable actions of developed nations. Ecological friendliness in members of developed nations is reasoned to involve at least some level of consideration of the effects of unecological behaviour, specifically the impacts of this behaviour on the outgroups that are thought to suffer. Indeed, the studies presented in this thesis provide support for the notion that feelings of collective guilt may be felt by some ingroup members for the ecologically-unsustainable actions of their group, that these feelings are associated with engagement in ecologically-relevant retributions, and that these feelings, while correlated with general feelings of collective guilt, reflect a unique case of intergroup harm and retribution. These include ecologically-friendly attitudes, behaviours, concern, and behavioural intentions, across the domains of recycling, multi-domain everyday behaviour, land development, green purchasing, and participation in fundraising for environmental organisations. Indeed, the positive relationship between ecologically-friendly actions and the tendency to make cooperative decisions involving innocent others was mediated by feelings of collective guilt for environmental harm, suggesting that conscious ecological behaviour is at least partly motivated by the consideration of the effects of ingroup actions. Despite the correlational nature of this research, it also suggests that feelings of collective guilt may indeed be motivated by a desire to act cooperatively. Unfortunately, however, utilising a negative ingroup history reminder, while successfully demonstrating an increase in ecological behaviour, failed to produce significantly greater explicit collective guilt levels. Adding to the complexity of understanding both collective guilt and ecological friendliness, it suggests the possibility that implicit feelings may also play a role. Additionally, it also appears that the variables of social and personal norms, locus of control (internal), and ingroup identification also exert some influence. Indeed, the mode of ingroup identification was found to impact the relationship between instances of ecological behaviour, with ingroup glorifiers decreasing subsequent behaviour, while an increase was observed in those more critically attached.

It is suggested that while feelings of collective guilt may or may not emerge for the environmentally-unsustainable actions of their group, ultimately, when individuals respond to group-relevant information they are responding as group members. The way in which one identifies with the ingroup appears to be important here, as it determines

how group-relevant information is treated and how positive self-regard may be regained. When faced with ingroup criticism, such as doubts as to the morality of their ingroup's ecologically-relevant actions, and opportunities to rectify this immorality, those with a more critical ingroup attachment showed commitment to the cause by consistently acting in an ecologically-friendly manner. These critically attached ingroup members are also, by definition, less likely to view their group as superior to other groups, therefore making them more inclined toward outgroup cooperation. However, it is unclear whether outgroup cooperation precedes a critical ingroup attachment, or vice versa. In contrast, for those with a glorification mode of ingroup attachment, they appeared to be motivated, not by the desire to act cooperatively with the outgroups, but by the desire to rid themselves of any negative mood state induced when the morality of their ingroup was questioned. Provided the inhibitory factors are sufficiently low, when faced with the overwhelming evidence that one's group is continuing to engage in environmentally-unsustainable practices it is this inclination toward outgroup cooperation, which may cause or be caused by a more critical ingroup attachment, that is concluded to lead to feelings of collective guilt and ultimately to ecological friendliness in members of developed nations.

Feelings of collective guilt for the ecologically-unsustainable actions of one's group have indeed been acknowledged by some members of developed nations, and it appears that efforts toward achieving environmental sustainability are being made by some members of these groups. Adding to the moral salience of this issue, members of some outgroups who are predicted to suffer as a result of the ecologically-unsustainable actions of developed nations have called for ecological issues to be addressed. Indeed, members of developed nations have the moral weight upon them to firstly "acknowledge their historic and current responsibilities" and, secondly, to "honour their climate debts" (WPCCC, 2010) as the consequences of unsustainability become increasingly germane for these outgroups. However, despite the apparent inability for these outgroups to force the behaviour change of developed nations, for developed nations to continue to act in an environmentally-unsustainable manner is indeed unjust. Feelings of collective guilt are an appropriate response if cooperation with these outgroups does not occur; although, unfortunately, these feelings of collective guilt may only emerge in some ingroup members, and under specific circumstances.

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APPENDIX A

Measure of Ecocentrism, Anthropocentrism, and Environmental Apathy (Thompson & Barton, 1994)

Using the scale below, please place the number in front of each item to indicate the extent to which you agree or disagree with each statement.

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Strongly Agree

1. ____ One of the worst things about overpopulation is that many natural areas are getting destroyed for development.
2. ____ I can enjoy spending time in natural settings just for the sake of being out in nature.
3. ____ Environmental threats such as deforestation and ozone depletion have been exaggerated.
4. ____ The worst thing about the loss of the rainforest is that it will restrict the development of new medicines.
5. ____ Sometimes it makes me sad to see forests cleared for agriculture.
6. ____ It seems to me that most conservationists are pessimistic and somewhat paranoid.
7. ____ I prefer wildlife reserves to zoos.
8. ____ I do not think the problem of depletion of natural resources is as bad as many people make it out to be.
9. ____ I find it hard to get too concerned about environmental issues.
10. ____ It bothers me that humans are running out of their supply of oil.
11. ____ I need time in nature to be happy.
12. ____ The thing that concerns me most about deforestation is that there will not be enough lumber for future generations.
13. ____ I do not feel that humans are dependent on nature to survive.
14. ____ Sometimes when I am unhappy I find comfort in nature.

15. ____ Most environmental problems will solve themselves given enough time.
16. ____ I don't care about environmental problems.
17. ____ I'm opposed to programs to preserve wilderness, reduce pollution and conserve resources.
18. ____ It makes me sad to see natural environments destroyed.
19. ____ The most important reason for conservation is human survival.
20. ____ One of the best things about recycling is that it saves money.
21. ____ Nature is important because of what it can contribute to the pleasure an welfare of humans.
22. ____ Too much emphasis has been placed on conservation.
23. ____ Nature is valuable for its own sake.
24. ____ We need to preserve resources to maintain a high quality of life.
25. ____ Being out in nature is a great stress reducer for me.
26. ____ One of the most important reasons to conserve is to ensure a continued high standard of living.
27. ____ One of the most important reasons to conserve is to preserve wild areas.
28. ____ Continued land development is a good idea as long as a high quality of life can be preserved.
29. ____ Sometimes animals seem almost human to me.
30. ____ Humans are as much a part of the ecosystem as other animals.

Note. Ecocentrism = Items 1, 2, 5, 7, 11, 14, 18, 23, 25, 27, 29, 30; Anthropocentrism = Items 4, 10, 12, 17, 19, 20, 21, 24, 26, 28; Environmental Apathy = Items 3, 6, 8, 9, 13, 15, 16, 22. Scores computed via addition of items. Higher scores indicate greater ecocentrism, anthropocentrism, and environmental apathy.

APPENDIX B

Crowne and Marlowe's (1960) Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and describe whether the statement is *true* or *false* as it pertains to you personally. Place a T if you feel the item is true, and an F if you feel the item is false on the line next to the item.

1. ____ Before voting I thoroughly investigate the qualifications of all the candidates.
2. ____ I never hesitate to go out of my way to help someone in trouble.
3. ____ It is sometimes hard for me to go on with my work if I am not encouraged.*
4. ____ I have never intensely disliked someone.
5. ____ On occasion I have had my doubts about my ability to succeed in life.*
6. ____ I sometimes feel resentful when I don't get my own way.*
7. ____ I am always careful about my manner of dress.
8. ____ My table manners at home are as good as when I eat out in a restaurant.
9. ____ If I could get into a movie without paying for it and be sure I was not seen, I would probably do it.*
10. ____ On a few occasions, I have given up doing something because I thought too little of my ability.*
11. ____ I like to gossip at times.*
12. ____ There have been times when I felt like rebelling against people in authority even though I knew they were right.*
13. ____ No matter who I'm talking to, I'm always a good listener.
14. ____ I can remember "playing sick" to get out of something.*
15. ____ There have been occasions when I took advantage of someone.*
16. ____ I'm always willing to admit it when I make a mistake.
17. ____ I always try to practice what I preach.
18. ____ I don't find it particularly difficult to get along with loud mouthed, obnoxious people.
19. ____ I sometimes try to get even, rather than forgive and forget.*
20. ____ When I don't know something I don't at all mind admitting it.

21. ____ I am always courteous, even to people who are disagreeable.
22. ____ At times I have really insisted on having things my own way.
23. ____ There have been occasions when I felt like smashing things.
24. ____ I would never think of letting someone else be punished for my wrongdoings.
25. ____ I never resent being asked to return a favour.
26. ____ I have never been irked when people expressed ideas very different from my own.
27. ____ I never make a long trip without checking the safety of my car.
28. ____ There have been times when I was quite jealous of the good fortune of others.*
29. ____ I have almost never felt the urge to tell someone off.
30. ____ I am sometimes irritated by people who ask favours of me.*
31. ____ I have never felt that I was punished without cause.
32. ____ I sometimes think when people have a misfortune they only got what they deserved.*
33. ____ I have never deliberately said something that hurt someone's feelings.

Note. *Indicates reverse scored item. Score 1 for True, 0 for False responses. Scores computed via the addition of items. Higher scores indicate greater social desirability.

APPENDIX C

Information Sheet for the Development of the New Ecological Behaviours Scale

JAMES COOK UNIVERSITY
TOWNSVILLE Queensland 4811 Australia Telephone: (07) 4781 4111

INFORMATION SHEET

Environmental Behaviours

You are invited to take part in a research project about some different personality traits of individuals, and how these may relate to environmental behaviours. The study is being conducted by Miss Pamela Pensini and will contribute to the completion of her PhD in Psychology at James Cook University.

If you agree to be involved in the study, you can complete the attached questionnaire. The questionnaire, with your consent, should only take no more than 30 minutes of your time and may be completed in your own time or in the presence of the Principal Investigator if desired.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study.

There are no risks associated with the study; however, some individuals may find some the questions a little distressing. If you do feel upset or distressed in any way, please contact the Counselling Service at James Cook University.

You may contact the Counselling Service by phone on (07) 4718 4711. Alternatively, you may come to the Counselling Service in person; it is located on the first floor of the Student Services Building, above the Bookshop on the Townsville campus.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and presentations, and the Principal Investigator's PhD thesis. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator or her Supervisor on the details below.

Principal Investigator:
Miss Pamela Pensini
School of Psychology
James Cook University
Phone: (07) 4781 6022

Supervisor:
A/Prof Ben Slugoski
School of Psychology
James Cook University
Phone: (07) 4781 5174

If you have any concerns regarding the ethical conduct of the study, please contact Tina Langford, Ethics Officer, Research Office, James Cook University, Townsville, Qld, 4811. Phone: 4781 4342, Tina.Langford@jcu.edu.au

APPENDIX D

Informed Consent Form for the Development of the New Ecological Behaviours Scale

This administrative form has been removed

APPENDIX E

Human Ethics Clearance for the Development of the New Ecological Behaviours Scale

This administrative form has been removed

APPENDIX F

New Ecological Behaviours Scale

Using the scale below, please place the number in front of each item to indicate the extent to which you agree or disagree with each statement.

1	2	3	4
Never	Sometimes	Often	Always

1. ____ I sometimes volunteer my time to environmental organisations.
2. ____ I feel bad when I know I am not acting in the most ecologically friendly way.
3. ____ In the past, I have pointed out to someone his or her unecological behaviour.
4. ____ My purchasing decisions are influenced by whether the packaging is recyclable.
5. ____ Instead of automatically throwing packaging away, I save it for reuse.
6. ____ Recycling is not an issue that I am very much concerned with.*
7. ____ If I am offered a plastic bag in a store, I will always take it. *
8. ____ When grocery shopping, I bring my own bags.
9. ____ When grocery shopping, I purchase locally grown and in-season vegetables and/or fruits.
10. ____ I have short showers to limit water use.
11. ____ I take my unwanted clothing, furniture, and household items to a charity bin or second-hand store, or give them to friends and family.
12. ____ I use phosphate free laundry detergent.
13. ____ I avoid using harsh chemicals to clean my home.
14. ____ I often talk with friends about problems related to the environment.
15. ____ I consider purchasing second-hand goods if they are appropriate for my needs.
16. ____ I turn off electrical items (e.g., microwave, tv, stereo) in my home when not in use.
17. ____ The ecological performance of car/s that I own or have owned in the past has played a key role in my decision of which car to purchase.
18. ____ I follow news stories in the media relating to the natural environment.
19. ____ I think that Australia should stay firm in its target to reduce emissions, as per

the Kyoto Protocol, during this time of economic uncertainty.

20. ____ I consider the environmental policies of candidates when voting.
21. ____ I consider the electricity efficiency star rating when buying new electrical appliances.
22. ____ If I know a few of my friends/family are going to the same place as me, I try to organise a car pool.

Note. *Indicates reversed scored item. Scores computed via addition of items. Higher scores indicate greater everyday multi-domain ecologically-friendly behaviour.

APPENDIX G

Branscombe et al.'s (2004) Collective Guilt Scale

Using the scale below, please place the number in front of each item to indicate the extent to which you agree or disagree with each statement.

1	2	3	4	5	6	7	8
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Slightly Disagree	Slightly Agree	Somewhat Agree	Moderately Agree	Strongly Agree

1. ____ Other groups have benefited at the expense of my group for generations.
2. ____ I feel regret for my group's harmful past actions towards others.
3. ____ If I didn't personally do it, I'm in no way responsible for it.*
4. ____ I can see holding people responsible for the harmful things their group has done.
5. ____ Other groups that have benefited at the expense of my group owe us now.
6. ____ I believe that I should repair damage caused to others by my group.
7. ____ I accept no responsibility for anything my ancestors may have done.*
8. ____ If a group's actions harm members of another group, then that whole group should feel guilty.
9. ____ It distresses me that my group suffers today because of the wrongs of former generations of another group.
10. ____ I feel guilty about various things my ancestors did to other groups.
11. ____ I am not responsible for the negative consequences of actions done by my group.*
12. ____ A group ought to be held responsible for the actions of its members.
13. ____ It makes me upset that my group has been used to benefit other groups throughout history.
14. ____ I feel regret for some of the things my group has done to others in the past.
15. ____ I am not responsible for correcting the harm to other groups that has been done by my group.*
16. ____ Whole groups, like individuals, ought to be held accountable for their actions.
17. ____ I feel entitled to concessions for past wrongs that other groups have done to ours.

18. ____ I can easily feel guilty for bad outcomes brought about by members of my group.
19. ____ I am not responsible for the long term harm done to others by my group.*
20. ____ I think that individual members of a group are accountable for what other people in their group do.

Note. *Indicates reverse scored item. Collective guilt acceptance = Items 2, 6, 10, 14, 18; Collective guilt assignment = Items 1, 5, 9, 13, 17; No denial of group responsibility = Items 3, 7, 11, 15, 19; Whole group accountability = Items 4, 8, 12, 16, 20. Scores computed via the addition of items.

APPENDIX H

Human Ethics Clearance for Study 1

This administrative form has been removed

APPENDIX I

Information Sheet for Study 1

JAMES COOK UNIVERSITY

TOWNSVILLE Queensland 4811 Australia Telephone: (07) 4781 4111

Recycling Behaviours

Miss Pamela Pensini, PhD student in the School of Psychology at James Cook University, is conducting a study examining the effect of some personality variables and a person's current recycling behaviours. As a participant of this experiment, you will be requested to complete brief measures of demographics, assorted personality scales, as well as your current recycling behaviour. Data from this study may help us to understand individual difference factors affecting recycling behaviours, although no identifying information of participants will be recorded or appear in the results. The experiment should take approximately 30 minutes to complete.

As a participant you are free to choose not to answer any questions, and may withdraw from the experiment at any time without penalty.

You are required to sign the Informed Consent form to indicate that you have read this information sheet and are participating in this experiment at your own free will.

The outcomes of this project will be used for the Principle Investigator's Psychology PhD thesis and may be presented at conferences or published as a journal article; however no identifying information will be recorded or will appear in the results.

If you have any questions or request further information regarding this study for any reason, please contact the chief investigator or supervisor of the study on the details below. You may keep this information sheet for future reference.

Principle Investigator

Pamela Pensini
Ph: 0429 332 803
Email: pamela.pensini@jcu.edu.au

Research Supervisor

Ben Slugoski
Ph: 4781 5174
Email: ben.slugoski@jcu.edu.au

If you have any questions regarding the ethical conduct of the experiment, please contact: Tina Langford, Ethics Administrator, Research Office, James Cook University, Townsville 4811. Ph: (07) 4782 4342; Fax: (07) 4781 5521; Email: tina.langford@jcu.edu.au

APPENDIX J

Informed Consent Form for Study 1

This administrative form has been removed

APPENDIX K

Information Sheet for Study 2

JAMES COOK UNIVERSITY
AUSTRALIA

INFORMATION SHEET

Decision Making, Emotions and the Environment

You are invited to take part in a research project about how people make decisions, and how this may relate to emotions and the environment. The study is being conducted by Miss Pamela Pensini and will contribute to her PhD research in Psychology at James Cook University.

If you agree to be involved in the study, you will be invited to complete a questionnaire. In total, this study should take only 30 minutes to complete.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study.

There are no risks associated with the study; however, some individuals may find some the questions a little distressing. If you do feel upset or distressed in any way, please contact the Counselling Service at James Cook University.

You may contact the Counselling Service by phone on (07) 4781 4711. Alternatively, you may come to the Counselling Service in person; it is located on the first floor of the Student Services Building, above the Bookshop on the Townsville campus.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and presentations, and the Principal Investigator's PhD thesis. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator (Miss Pamela Pensini) or her Supervisor (A/Prof Ben Slugoski) on the details below.

Principal Investigator:
Miss Pamela Pensini
School of Psychology
James Cook University
Phone: 4781 6022
Email: Pamela.Pensini@jcu.edu.au

Supervisor:
A/Prof Ben Slugoski
School of Psychology
James Cook University
Phone: 4781 5174
Email: Ben.Slugoski@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Sophie Thompson, Human Ethics and Grants Administrator, Research Office,
James Cook University,
Townsville, Qld, 4811. Phone: 4781 6575, Sophie.Thompson@jcu.edu.au

APPENDIX L

Informed Consent Form for Study 2

This administrative form has been removed

APPENDIX M

Measure of Cooperation (Adapted from Tajfel et al., 1971)

Imagine that you just won a large sum of money playing lotto. We'd like to know how you would spend the money. You have the option of some combination of spending the money now and saving it for later. What you don't spend now will earn interest for the future.

Below are presented two different scenarios for how the money can be spent.

The numbers below are millions of dollars.

For example, in Scenario 1, if you choose to spend $16mil now (top row), that will mean you will have $7mil left for later (bottom row).

Scenario 1

Have now	19	18	17	16	15	14	13	12	11	10	9	8	7
Have later	1	3	5	7	9	11	13	15	17	19	21	23	25

Scenario 2

Have now	1	3	5	7	9	11	13	15	17	19	21	23	25
Have later	19	18	17	16	15	14	13	12	11	10	9	8	7

1. **Scenario 1:**

   I would spend the money… $million

2. **Scenario 2:**

   I would spend the money… $million

Figure M1. The brief narrative and accompanying choice matrices assessing self-future self cooperation.

Now, imagine that you had to spend ALL of the money you won now. You can spend it on yourself in any way you like, or you can give the money to a charity of your choice. Please note that the Government has recently introduced a scheme that it will contribute a certain percentage of private donations to charities (for donations of at least $100,000) to that charity as well, increasing how much money the charity receives.

Once again, below are presented two different scenarios for how the money can be spent.

The numbers below are millions of dollars.

Scenario 1

Myself	19	18	17	16	15	14	13	12	11	10	9	8	7
Charity	1	3	5	7	9	11	13	15	17	19	21	23	25

Scenario 2

Myself	1	3	5	7	9	11	13	15	17	19	21	23	25
Charity	19	18	17	16	15	14	13	12	11	10	9	8	7

1. **Scenario 1:**

   I would spend the money…

   $million

2. **Scenario 2:**

   I would spend the money…

   $million

Figure M2. The brief narrative and accompanying choice matrices assessing self-other cooperation.

Now, just imagine you are in charge of how Australia spends its money. Australia has recently come by a Mining windfall of several million dollars as a result of a booming global market and resource prices. You have the option of spending this money now and saving it for Australia's future. What you don't spend now will earn interest in the future.

Below are presented two different scenarios for the money Australia received, and different ways they can be spent.

The numbers below are millions of dollars.

Scenario 1

Australia now	19	18	17	16	15	14	13	12	11	10	9	8	7
Australia later	1	3	5	7	9	11	13	15	17	19	21	23	25

Scenario 2

Australia now	1	3	5	7	9	11	13	15	17	19	21	23	25
Australia later	19	18	17	16	15	14	13	12	11	10	9	8	7

1. **Scenario 1:**

   I would spend the money… $million

2. **Scenario 2:**

   I would spend the money… $million

Figure M3. The brief narrative and accompanying choice matrices assessing ingroup-future ingoup cooperation.

Once again, just imagine you are in charge of how Australia spends its money. Australia has recently come by a Mining windfall of several million dollars as a result of a booming global market and resource prices. You have the option of spending the money in Australia and spending it on Foreign Aid. The United Nations (UN) has stated that, on top of Australia's contribution, it will donate a certain percentage on top of Australia's donation.

Below are presented two different scenarios for the money Australia received, and different ways they can be spent.

The numbers below are millions of dollars.

Scenario 1

Australia	19	18	17	16	15	14	13	12	11	10	9	8	7
Foreign Aid	1	3	5	7	9	11	13	15	17	19	21	23	25

Scenario 2

Australia	1	3	5	7	9	11	13	15	17	19	21	23	25
Foreign Aid	19	18	17	16	15	14	13	12	11	10	9	8	7

1. **Scenario 1:**

   I would spend the money…

   $million

2. **Scenario 2:**

   I would spend the money…

   $million

Figure M3. The brief narrative and accompanying choice matrices assessing ingroup-outgroup cooperation.

APPENDIX N

Measure of Ecologically-Specific Collective Guilt (Adapted from Doosje et al., 1998)

Please respond to each of the following items to indicate the extent to which you agree or disagree with each statement.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Moderately Agree	Strongly Agree

1. ____ I feel guilty about the negative things wealthy nations like Australia have done to the natural environment.
2. ____ I feel regret for Australia's harmful past actions toward the natural environment.
3. ____ I feel regret about the impact of the things that Australia has done in the past to the natural environment.
4. ____ I believe that I should repair the damage that has been caused to the natural environment.
5. ____ I can easily feel guilty about the bad outcomes that will be received by the natural environment that were brought about by wealthy nations like Australia.
6. ____ I think wealthy nations like Australia owe something because of the things done to the natural environment.
7. ____ I think wealthy nations like Australia should make more effort to help ensure that a decent quality of life may be possible in the future because of the things done to the natural environment.
8. ____ I should personally do more to ensure that a decent quality of life is possible on earth in the future because of the things done to the natural environment.

Note. Scores computed via the addition of items. Higher scores indicate greater feelings of ecologically-specific collective guilt.

APPENDIX O

Strahan and Gerbasi's (1972) Shortened Version of the Crowne and Marlowe (1960) Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and describe whether the statement is true or false as it pertains to you personally.

	True	False
I like to gossip at times.	◠	◠
There have been occasions when I took advantage of someone.	◠	◠
I'm always willing to admit it when I make a mistake. *	◠	◠
I always try to practice what I preach. *	◠	◠
I sometimes try to get even, rather than forgive and forget.	◠	◠
At times I have really insisted on having things my own way.	◠	◠
There have been occasions when I felt like smashing things.	◠	◠
I never resent being asked to return a favour. *	◠	◠
I have never been irked when people expressed ideas very different from my own. *	◠	◠
I have never deliberately said something that hurt someone's feelings. *	◠	◠

Note. *Indicates reverse scored item. Score 0 for True, 1 for False responses. Scores computed via the addition of items. Higher scores indicate greater social desirability.

APPENDIX P

Measure of Australian Identity (Adapted from Doosje et al., 1998)

Using the following scale, please answer these 3 questions about how you feel as an Australian.

1	2	3	4	5	6	7	8	9
Not at all								Very much

1. ____ I identify with other Australians.
2. ____ Australian people are an important group to me.
3. ____ Being an Australian is an important part of how I see myself at this moment.

Note. Scores computed via the addition of items. Higher scores indicate greater identification with Australia.

APPENDIX Q

Human Ethics Clearance for Study 2

This administrative form has been removed

APPENDIX R

Human Ethics Clearance for Study 3

This administrative form has been removed

APPENDIX S

Information Sheet for Study 3

JAMES COOK UNIVERSITY
TOWNSVILLE Queensland 4811 Australia Telephone: (07) 4781 4111

INFORMATION SHEET

Personality and Environmental Concern

You are invited to take part in a research project about some different personality traits of individuals, and how these may relate to concern for the natural environment. The study is being conducted by Miss Pamela Pensini and will contribute to the completion of her PhD in Psychology at James Cook University.

If you agree to be involved in the study, you can complete the attached questionnaire. The questionnaire, with your consent, should only take approximately 1 hour of your time and may be completed in your own time or in the presence of the Principal Investigator if desired.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study.

There are no risks associated with the study; however, some individuals may find some the questions a little distressing. If you do feel upset or distressed in any way, please contact the Counselling Service at James Cook University.

You may contact the Counselling Service by phone on (07) 4718 4711. Alternatively, you may come to the Counselling Service in person; it is located on the first floor of the Student Services Building, above the Bookshop on the Townsville campus.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and presentations, and the Principal Investigator's PhD thesis. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator or her Supervisor on the details below.

Principal Investigator:
Miss Pamela Pensini
School of Psychology
James Cook University
Phone: (07) 4781 6022

Email: pamela.pensini@jcu.edu.au

Supervisor:
A/Prof Ben Slugoski
School of Psychology
James Cook University
Phone: (07) 4781 5174
Email: ben.slugoski@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact Tina Langford, Ethics Officer, Research Office, James Cook University, Townsville, Qld, 4811. Phone: 4781 4342, Tina.Langford@jcu.edu.au

APPENDIX T

Informed Consent Form for Study 3

This administrative form has been removed

APPENDIX U

Garling et al.'s (2003) Measure of Personal Environmental Norms

Using the scale below, please answer the following 4 questions.

1	2	3	4	5	6	7	8	9
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Moderately Agree	Strongly Agree

1. ____ I feel a moral obligation to protect the environment.
2. ____ I feel that I should protect the environment.
3. ____ I feel it is important that people in general protect the environment.
4. ____ Our environmental problems cannot be ignored.

Note. Scores computed via addition of items. Higher scores indicate greater personal environmental norms.

APPENDIX V

Rotter's (1966) Locus of Control Scale

For the following pairs of statements, please circle the one that you believe to be the most accurate, not the one you wish was most true. Remember, there are no right or wrong answers.

1. a. Children get into trouble because their parents punish them too much.*

   b. The trouble with most children nowadays is that their parents are too easy with them.*

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognised no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.

   b. Most students don't realise the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks, one cannot be an effective leader.

   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try, some people just don't like you.

   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.*

   b. It is one's experiences in life which determine what they're like.*

9. a. I have often found that what is going to happen will happen.

   b. Trusting fate has never turned out well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely, if ever, such thing as an unfair test.

    b. Many times, exam questions to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have influence in government decisions.

    b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.*

    b. There is some good in everybody.*

15. a. In my case getting what I want has little or nothing to do with luck.

    b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability – luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

    b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realise the extent to which their lives are controlled by accidental happenings.

    b. There really is no such thing as "luck."

19. a. One should always be willing to admit mistakes.*

    b. It is usually best to cover up one's mistakes.*

20. a. It's hard to know whether or not a person really likes you.

    b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

    b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.*

    b. A good leader makes it clear to everybody what their jobs are.*

25. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.*

    b. Team sports are an excellent way to build character.*

28. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run the people are responsible for bad government on a national as well as on a local level.

Note. *Indicates filler item. Score one point for each of the following: 2.a, 3.b, 4.b, 5.b, 6.a, 7.a, 9.a, 10.b, 11.b, 12.b, 13.b, 15.b, 16.a, 17.a, 18.a, 20.a, 21.a, 22.b, 23.a, 25.a, 26.b, 28.b, 29.a. A high score = An external locus of control; A low score = An internal locus of control.

APPENDIX W

Jones et al.'s (2000) Trait Guilt Scale

Please work through the following items, and indicate the extent to which you agree or disagree with each item. The scale to be used is as follows.

1	2	3	4	5
Strongly Agree	Slightly Agree	Undecided	Slightly Disagree	Strongly Disagree

1. ____ I have made a lot of mistakes in my life.
2. ____ If I could do certain things over again, a great burden would be lifted from my shoulders.
3. ____ I have never felt great remorse or guilt.*
4. ____ There is something in my past that I deeply regret.
5. ____ Frequently, I just hate myself for something I have done.
6. ____ My parents were very strict with me.
7. ____ I often feel "not right" with myself because of something I have done.
8. ____ If I could live my life over again, there are a lot of things I would do differently.
9. ____ Guilt and remorse have been a part of my life for as long as I can recall.
10. ____ Sometimes, when I think about certain things I have done, I almost get sick.
11. ____ I do not believe that I have made a lot of mistakes in my life.*
12. ____ I often have a strong sense of regret.
13. ____ I worry a lot about the things I have done in the past.
14. ____ There are few things in my life that I regret having done.*
15. ____ I sometimes have trouble eating because of things I have done in the past.
16. ____Sometimes I can't stop myself from thinking about things I have done which I consider to be wrong.
17. ____ I never have trouble sleeping.*
18. ____ Guilt is not a particular problem for me.*
19. ____ There is nothing in my past that I deeply regret.*
20. ____ If I had my life to being over again, if would change very little, if anything.*

Note. *Indicates reverse scored item. Scores computed via the addition of items. Lower scores indicate greater personal trait guilt.

APPENDIX X

Falbo and Belk's (1985) Self-Righteousness Scale

Using the scale below, please place the number in front of each item to indicate the extent to which you agree or disagree with each statement.

1	2	3	4	5
Strongly Agree	Slightly Agree	Neutral	Slightly Disagree	Strongly Disagree

1. ____ People who disagree with me are wrong.
2. ____ I can benefit other people by telling them the right way to live.
3. ____ I am excited by the free exchange of ideas.
4. ____ I enjoy hearing different points of view.

Note. Scores computed via the addition of items. Lower scores indicate greater self-righteousness.

APPENDIX Y

Chen et al.'s (2001) New General Self-Efficacy Scale

Please work through the following items, and indicate the extent to which you agree or disagree with each item. The scale to be used is as follows.

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

1. _____ I will be able to achieve most of the goals that I have set for myself.
2. _____ When facing difficult tasks, I am certain that I will accomplish them.
3. _____ In general, I think that I can obtain outcomes that are important to me.
4. _____ I believe I can succeed at almost any endeavour to which I set my mind.
5. _____ I will be able to successfully overcome many challenges.
6. _____ I am confident that I can perform effectively on many different tasks.
7. _____ Compared to other people, I can do most tasks very well.
8. _____ Even when things are tough, I can perform quite well.

Note. Scores computed via the addition of items. Higher scores indicate greater general self-efficacy.

APPENDIX Z

Measure of Cooperation (McQueen, 2002)

In this part of the survey, we are interested in your decision making. Please read each of the scenarios and answer the questions that follow.

Scenario 1

You are a part-time employee at a large, profitable organisation. Each employee has access to the resources in the company (office equipment and supplies, telephone, hardware, internet time, excess or damaged stock, etc.). Although this costs the company money, management allows each employee to use the resources within reason. You are currently trying to set up a home business and you consider using some of the company's resources to do so. If you limit your use of the company resources the cost to the company will not be excessive, but it will cost you more to set up your home business. If you fully use the resources it will be much easier to set up your home business. However, if the overall use of company resources at the end of the month is excessive, management will place restrictions on all employees for the following month, and make it harder for everyone to benefit from the resources. You would really like to take advantage of your company's resources but you wouldn't want management to impose restrictions. Would you? (please circle)

1	2	3	4	5	6
Definitely fully use the resources.					Definitely limit my use of the resources.

Scenario 2

It is a very hot summer in Townsville and everyone is using their air conditioners heavily. Because of the excessive drain on the local power supply the energy company has advised everyone to use their air conditioners only if it is absolutely necessary. If you try and sleep with your air conditioner off the power is less likely to cut out, but you will have a very uncomfortable night, and will not get enough sleep for the day's work ahead. If you sleep with your air conditioner on, the benefit to you is great and the small amount of power you consume is insignificant compared to the total power usage. If too many air conditioners are used the power supply will cut out during the night due to excess load, and there won't be any power in the morning. You really want a good night's sleep, but you don't want the power to cut out. Do you? (please circle)

1	2	3	4	5	6
Definitely use your air conditioner as you require it.					Definitely limit the use of your air conditioner.

Note. Scores computed by averaging the scores on the two scenarios. Higher scores indicate greater cooperation.

APPENDIX AA

Brook's (2005) Measure of Environmental Contingencies of Self-Worth

Please respond to each of the following statements using the scale from "1 = Strongly disagree" to "7 = Strongly agree." If you haven't experienced the situation described in a particular statement, please answer how you think you would feel if that situation occurred.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Moderately Agree	Strongly Agree

1. ____ My self-esteem is influenced by how good or bad an environmentalist I am.
2. ____ Supporting environmental causes gives me a sense of self-respect.
3. ____ I feel badly about myself when I think about how my lifestyle hurts the environment.
4. ____ My opinion about myself isn't tied to being an environmentalist.
5. ____ My self-esteem gets a boost when I feel like a good environmentalist.
6. ____ My self-esteem drops if I feel like a bad environmentalist.
7. ____ Being an environmentalist is related to my sense of self-worth.
8. ____ I feel better about myself when I know I'm taking action to benefit the environment.
9. ____ When I am not able to help environmental causes, my self-esteem suffers.
10. ____ My overall opinion of myself is unrelated to how good or bad an environmentalist I am.

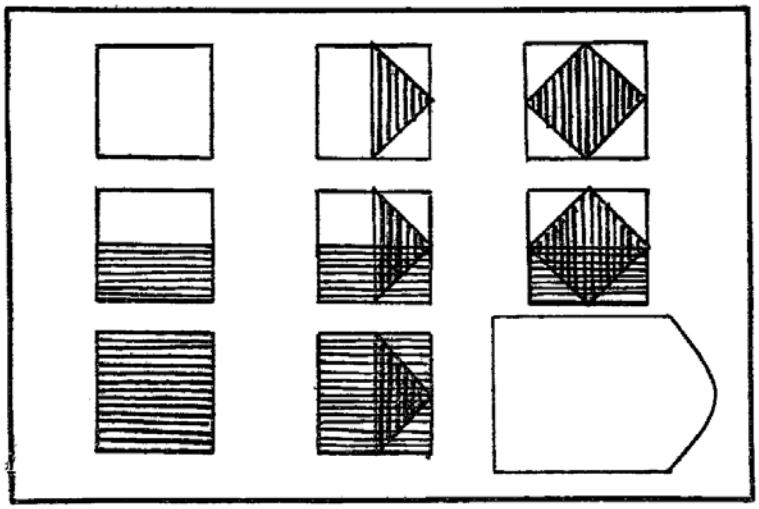
Note. Scores computed via the addition of items. Higher scores indicate greater environmental contingencies on self-worth.

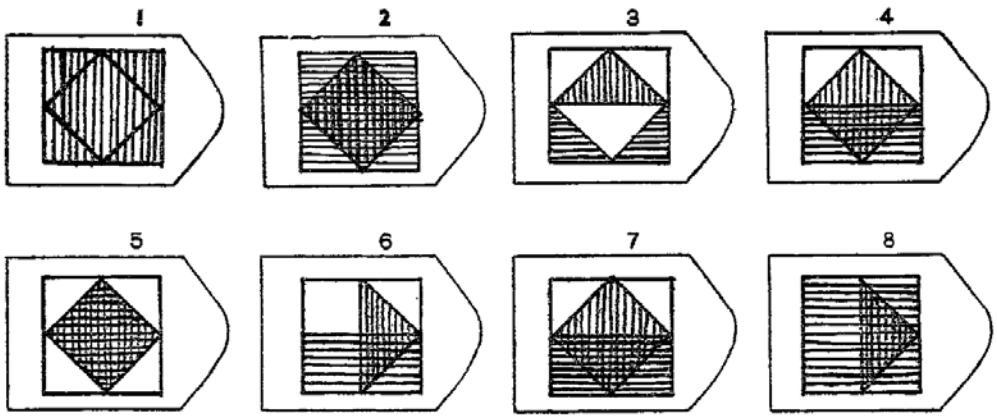
APPENDIX BB

Raven et al.'s (2008) Advanced Progressive Matrices Used in Studies 4, 5 and 6

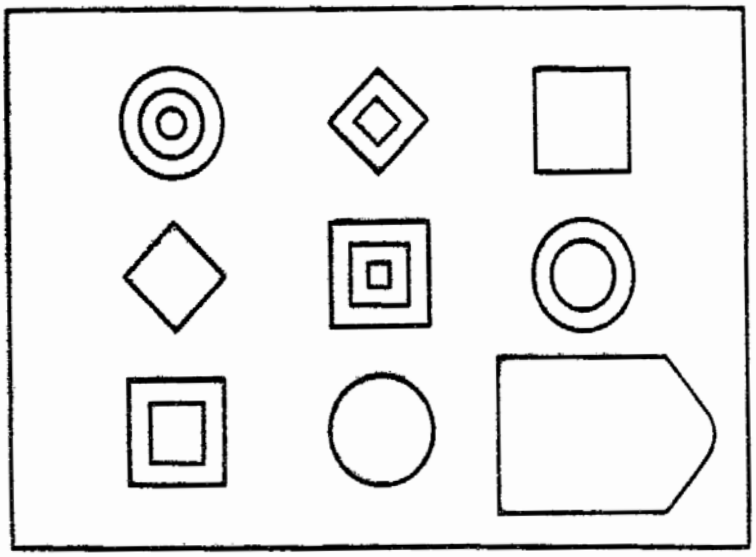
There are 4 problems that follow. The top part of each problem is a pattern with a piece missing. Look at the pattern, and think what the piece needed to complete the pattern correctly both along and down. Then find the correct piece out of the six pieces shown below. Only one piece is perfectly correct. Please circle this piece.

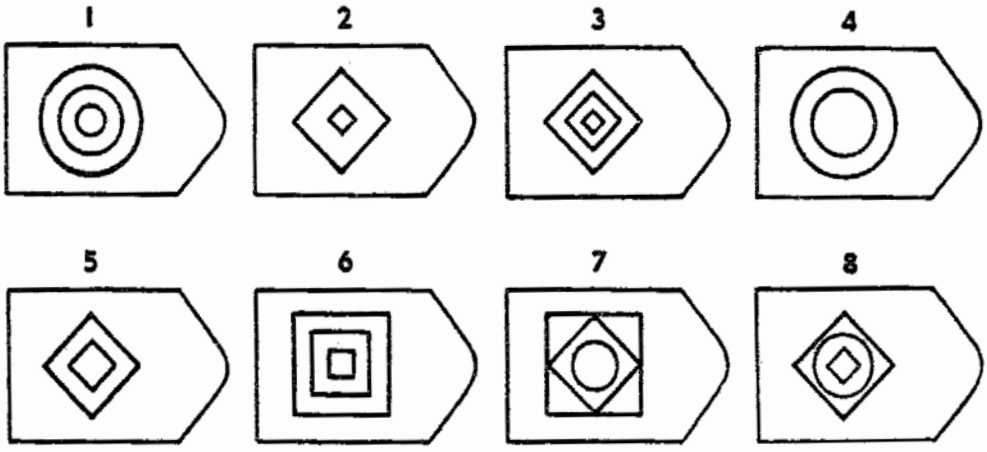
Question 1



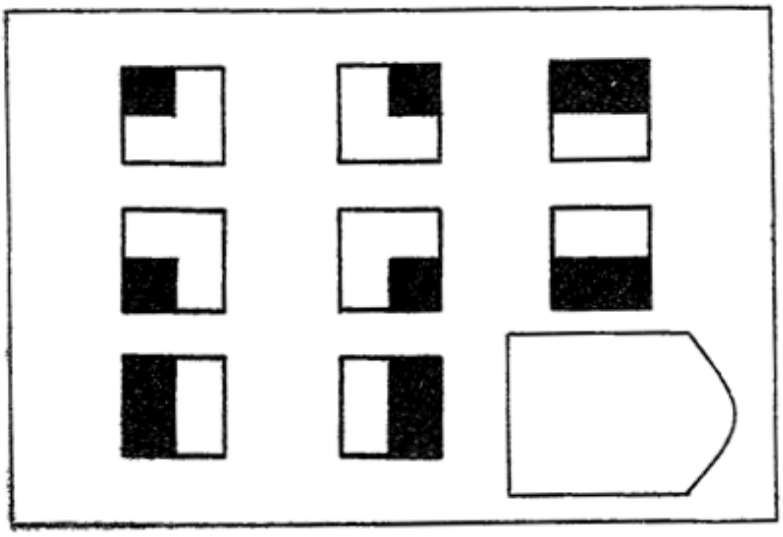


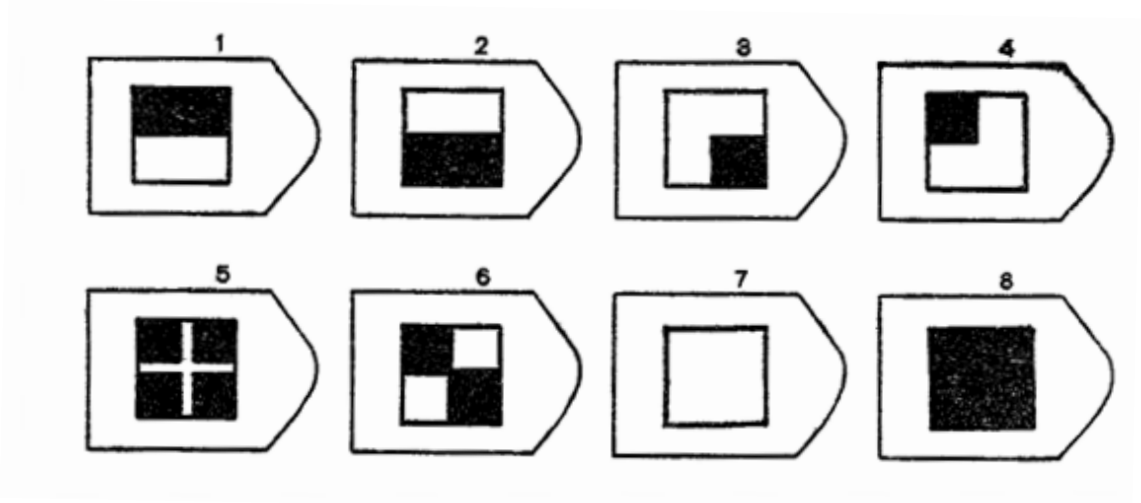
Question 2



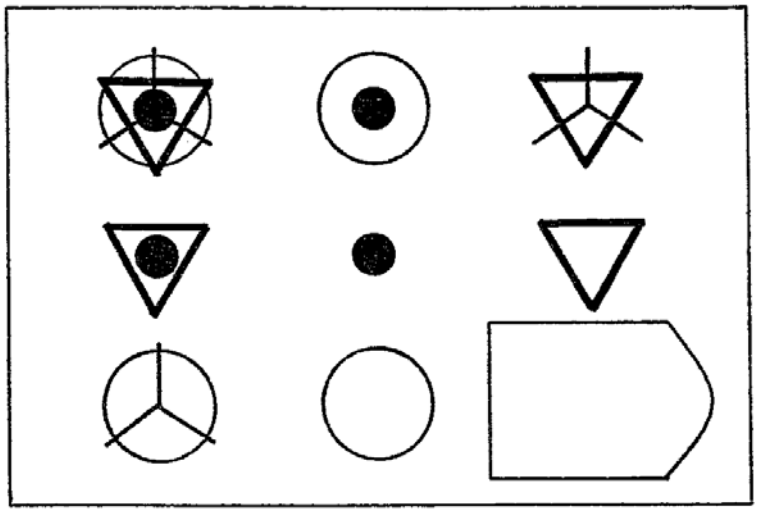


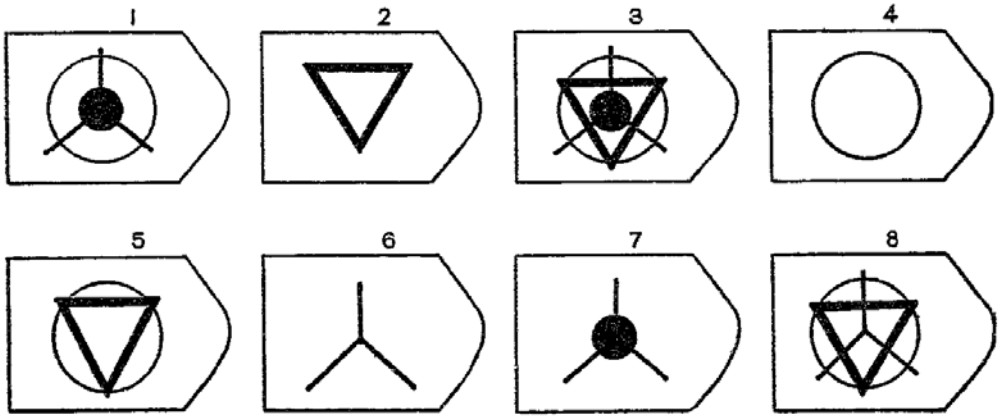
Question 3





Question 4





APPENDIX CC

Article Evaluation (Adapted from Vess and Arndt, 2008)

Please read the following online newspaper article, and answer the questions that follow.

The Cardwell Tribune

Hinchinbrook Shire's Most Popular Online Newspaper

Area Man Appeals City Council's Decision

Tuesday, March 31, 2009 2:32 PM

KURRIMINE BEACH (NQ) -- Lawyers met with Judge Williams on Tuesday to discuss Andrew Martin's appeal of city council's recent decision to prohibit Martin's plans to construct a water park on a recently purchased plot of land bordering the Hinkson Forest. Council members rejected his proposal based on concerns that the construction plans would negatively impact the local eco-system.

Offering a statement on their decision, councilman Jason Binegar stated, "We feel that the construction of this complex would be a severe threat to the livelihood of many species that live in and around the Hinkson Forest, including cassowaries, sugar gliders, and scrub turkeys. This wilderness area has been untouched by the influence of humans for centuries and it is our opinion that we are no more entitled to the use of that land than the plants and animals which call that area home."

Appealing the council's decision, Martin contests that he has the right to develop that plot of land. In a statement released earlier, Martin commented, "It makes little sense to me. I invested a lot of money into that land with the hopes of providing a much needed service to the community and achieving personal economic stability and success. The land is pretty much useless to me if I'm not permitted to develop it in a way that produces some sort of financial return. Steps could be taken to reduce the potential impacts on the local environment. It's just frustrating to think that my rights as a landowner are being outweighed by concerns that a few animals might have to relocate to another portion of the forest."

A ruling by the Court of Appeals is expected to come sometime next month.

The following questions are in response to the newspaper article that you read. Please answer each question honestly with your first, natural response.

1. To what extent do you agree with the council's decision to block the construction of the water park?

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Totally)

2. To what extent do you think the construction will harm the environment?

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

3. To what extent do you think that the animals are more entitled to that plot of land?

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Totally)

4. To what extent do you think the plans to develop the land are justified? *

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Totally)

5. If you were the judge ruling on this appeal, how likely is that you would overturn the council's decision? *

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Extremely)

6. To what extent would you base your decision on the impact to local animals?

○	○	○	○	○	○	○	○	○	○	○
0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Totally)

7. To what extent would you base your decision on the rights of individuals to develop land as they wish? *

○	○	○	○	○	○	○	○	○	○	○
0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Totally)

Note. *Indicates reverse scored item. Scores computed via addition of items. Higher scores indicate greater environmental concern.

APPENDIX DD

Vess and Arndt's (2008) Information Search

Prior research suggests that one way media can be evaluated is by exploring the kinds of alternative articles that individuals are interested in reading. Following are descriptions of twelve alternative articles, similar to the one that you just read, that were compiled via an internet search. Please read over the following search results and indicate which articles you would be interested in reading by placing an "X" in the box next to the description.

☐ Plans for School Passed
The plans to **construct** a new school in a portion of Wayne National **Forest** were approved by city officials**...** Officials agreed that the forest land was the best location **...**
www.woodcounty.gov.au/education/news.html - 17k - Cached – Similar Pages

☐ Media Release: **Environment** wins over mining...
Environment wins over mining. Permit **Denied** for Quarry at Mellon Lake Conservation Reserve **...** Minister denies aggregate permit on **environmental grounds**. **...**
Sierralegal.org/m_archive/pr05_05_19.html - 22k - Cached - Similar pages

☐ Local Man Allowed to **Build** Road Through **Nature Area**
.... Township trustees approved the plan … argued that the road was necessary to join properties … rights of land owners to have access …
www.gazette.com.au/Features/2004/2004Sep.htm - 67k - Cached - Similar pages

☐ Development of Community Beach Will Not Happen
The board rejected Schafer's proposal to **cut down** 20 acres of **forest** to construct a community beach and picnic area on Lake Tweed... feared **disruption** of local **wildlife …**
www.thetribunal.com/topstories/2003.htm - 32k - Cached - Similar pages

☐ Benefits to the Community Trumps **Environment**
…Officials decided that the recreation center would benefit the community greatly...benefits outweighed the **impact** that the **construction** would have on the **environment**...
www.lowellcnty.com/news//index.php?showtopic=5632 - 45k - Cached - Similar pages

☐ Skate Park Plans on Hold
... community members are strongly against the plans to **build** the skate park next to the protected **wilderness** area **...** planning commissioners worried that the park will lead to multiple problems for **local wildlife ...**
www.lynchfieldnews/topstories.htm - 25k - Cached - Similar pages

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Note. Articles allowing the development of nature = The first, third and fifth articles. Articles prohibiting the development of nature = The second, fourth and sixth articles. A confirmation bias score computed by subtracting the number of "allow" articles from the number of "prohibit" articles. Higher scores indicate greater environmental concern.

APPENDIX EE

Measure of Ecological Behaviour Intentions

Now we would like you to think about behaviours you would like to engage in. Please read and answer the following questions.

I would like to:

1. Immerse myself in nature.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

2. Help a pro-environmental organisation by donating money or offering my time to help them.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

3. Distance myself from environmental issues. *

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

4. Decrease my consumption of non-renewable resources.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

5. Take public transport, ride a bike, or walk, instead of driving more often.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

6. Pay more consideration to environmental policies of candidates when voting.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

7. Pay more consideration to the environmental impacts of my day-to-day activities.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

8. Reduce my impact on the environment.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

9. Travel only when I need to, not just for the sake of it.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

10. Become more involved in environmental issues affecting my local community.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

11. Not care about my personal impact on the environment. *

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

12. Live a frivolous lifestyle, without care for environmental consequences. *

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

13. Act in the most ecologically friendly way I can.

0	10	20	30	40	50	60	70	80	90	100
(Not at all)										(Very Much)

Note. *Indicates reverse scored items. Scores computed via addition of items. Higher scores indicate greater ecologically-friendly behaviour intentions.

APPENDIX FF

Human Ethics Clearance for Study 4

This administrative form has been removed

APPENDIX GG

Information Page for Study 4

JAMES COOK UNIVERSITY
AUSTRALIA

INFORMATION SHEET

Personal Experiences, Problem Solving and Decision Making

You are invited to take part in a research project about some personal experiences, and how this might relate to problem solving and the decisions you make. The study is being conducted by Miss Pamela Pensini and will contribute to her PhD research in Psychology at James Cook University.

If you agree to be involved in the study, you will be invited, in a questionnaire, to consider some personal experiences you have had, or be requested to imagine them occurring, complete some brief problem solving tasks and give your opinion on a decision making scenario. In total, this study should take only 20 minutes to complete.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study.

There are no risks associated with the study; however, some individuals may find some the questions a little distressing. If you do feel upset or distressed in any way, please contact the Counselling Service at James Cook University.

You may contact the Counselling Service by phone on (07) 4718 4711. Alternatively, you may come to the Counselling Service in person; it is located on the first floor of the Student Services Building, above the Bookshop on the Townsville campus.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and presentations, and the Principal Investigator's PhD thesis. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator (Miss Pamela Pensini) or her Supervisor (A/Prof Ben Slugoski) on the details below.

Principal Investigator:
Miss Pamela Pensini
School of Psychology
James Cook University
Phone: 4781 6022
Email: Pamela.Pensini@jcu.edu.au

Supervisor:
A/Prof Ben Slugoski
School of Psychology
James Cook University
Phone: 4781 5174
Email: Ben.Slugoski@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Sophie Thompson, Human Ethics and Grants Administrator, Research Office,
James Cook University,
Townsville, Qld, 4811. Phone: 4781 6575, Sophie.Thompson@jcu.edu.au

APPENDIX HH

Informed Consent Form for Study 4

This administrative form has been removed

APPENDIX II

Differential Focus Prime (Adapted from Powell et al., 2005)

For the last two decades, academics have given considerable attention to matters surrounding environmental justice. Despite increased attention to this issue, most social scientists agree that as a result of Australia's, and other similarly industrialised nation's, exploitation of the environment, Australians enjoy many privileges that poorer nations do not. Both Australians and poorer nations will suffer the effects of climate change, although it is likely that Australians will suffer less so. Below is a list of privileges that Australians experience, compiled from sociological, psychological, and economic research.

Please use the scale below to answer the following questions.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. ____ Australians can easily feed their families with a wide variety of foods, including out of season produce and items from around the world.
2. ____ Most Australians can easily afford to own and use their own car instead of walking or using cheaper means of transportation.
3. ____ Most Australians can travel for a holiday every two years.
4. ____ Australians can purchase almost anything they desire, as there is an extremely wide range of goods available.
5. ____ Australians have the luxury to use items like fabric softener and air fresheners if they would like to use them.
6. ____ Most Australians have the income to purchase new goods instead of second-hand ones to meet their needs.
7. ____ Australians have access to appliances that make life easier around the home, such as a microwave and vacuum cleaner.
8. ____ Australians have ample access to computers and the Internet in their daily lives.
9. ____ Australians have, and use, heating and/or cooling systems in their houses, which allow for comfortable living, regardless of climatic conditions.

10. ____ Australians have unlimited access to electricity, and often leave lights on and appliances running when not in use.
11. ____ Many Australians are reliant on using clothes dryers, instead of the sun, to dry their clothing.
12. ____ Australians dispose of many products such as bags, bottles and boxes, despite them being reusable.
13. ____ Australians can afford to, and do, use many "disposable" items.
14. ____ Most Australians "eat out" at least once a week.
15. ____ Most Australians buy many infrequently used items, instead of borrowing or hiring them from others.
16. ____ Most Australians eat meat and animal products regularly.
17. ____ Most Australians have and use TVs or/and entertainment systems in their homes.
18. ____ Most Australians purchase new clothing before it is worn and needs replacing.

Figure III. The short paragraph outlining Australia's relative advantage and the 18 items outlining the advantages experienced by this group.

For the last two decades, academics have given considerable attention to matters surrounding environmental justice. Despite increased attention to the issue, most social scientists agree that as a result of Australia's, and other similarly industrialised nation's exploitation of the environment, poorer nations suffer many disadvantages that Australians do not. Although both poorer nations and Australians will both suffer the effects of climate change, it is likely that poorer nations will suffer even more so. Below is a list of disadvantages that poorer nations experience, compiled from sociological, psychological, and economic research.

Please use the scale below to answer the following questions.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. ____ People in poorer nations often have difficultly feeding their families, and have difficulty accessing and being able to afford out of season produce and items from around the world.
2. ____ People in poorer nations often cannot afford to own or use their own car, and instead walk or use cheaper means of transportation.
3. ____ Most people in poorer nations cannot afford to travel for their holidays.
4. ____ People in poorer nations cannot purchase anything they desire, and there is a much more limited range of goods available to what Australians experience.
5. ____ Most people in poorer nations cannot afford or have limited access to luxury items like fabric softener and air fresheners, even if they would like to use them.
6. ____ Most people in poorer nations do not have the income or opportunity to purchase new goods, and instead must find second-hand ones to meet their needs.
7. ____People in poorer nations do not have access to appliances that make life easier around the home, such as a microwave and vacuum cleaner.
8. ____ People in poorer nations do not have ample access to computers and the Internet in their daily lives.
9. ____ People in poorer nations do not have heating or cooling systems in their houses, and they must endure the temperature fluctuations of their climate.

10. ____ Many people in poorer nations have limited access to electricity, and do not leave lights on and appliances running when not in use.
11. ____ Most people in poorer nations do not have access to clothes dryers, and are reliant on using the sun to dry their clothing.
12. ____ People in poorer nations reuse many products such bags, bottles, and boxes, that would otherwise be disposed of in places like Australia.
13. ____ People in poorer nations usually cannot afford to, and do not, use many "disposable" items.
14. ____ People in poorer nations "eat out" very rarely.
15. ____ People in poorer nations must borrow or hire infrequently used items from others, instead of buying them.
16. ____ People in poorer nations eat meat and animal products infrequently.
17. ____ Most people in poorer nations do not have TVs or entertainment systems in their homes.
18. ____ Most people in poorer nations do not have the option to purchase new clothing before it is worn and needs replacing.

Figure II2. The short paragraph outlining the relative disadvantage of poorer nations and the 18 items outlining the disadvantages experienced by this group.

APPENDIX JJ

Human Ethics Clearance for Study 5

This administrative form has been removed

APPENDIX KK

Information Sheet for Study 5

JAMES COOK UNIVERSITY
AUSTRALIA

INFORMATION SHEET

World Views, Personal Experiences and Decision Making

You are invited to take part in a research project about the way you view the world, some personal experiences, and how this might relate to the decisions you make. The study is being conducted by Miss Pamela Pensini and will contribute to her PhD research in Psychology at James Cook University.

If you agree to be involved in the study, you will be invited to complete a questionnaire on the way you view the world, consider some personal experiences you have had, or be requested to imagine them occurring, and give your opinion on a decision making scenario. In total, this study should take only 45 minutes to complete.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study.

There are no risks associated with the study; however, some individuals may find some the questions a little distressing. If you do feel upset or distressed in any way, please contact the Counselling Service at James Cook University.

You may contact the Counselling Service by phone on (07) 4718 4711. Alternatively, you may come to the Counselling Service in person; it is located on the first floor of the Student Services Building, above the Bookshop on the Townsville campus.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and presentations, and the Principal Investigator's PhD thesis. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator (Miss Pamela Pensini) or her Supervisor (A/Prof Ben Slugoski) on the details below.

Principal Investigator:
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Supervisor:
A/Prof Ben Slugoski
School of Psychology
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If you have any concerns regarding the ethical conduct of the study, please contact:
Sophie Thompson, Human Ethics and Grants Administrator, Research Office,
James Cook University,
Townsville, Qld, 4811. Phone: 4781 6575, Sophie.Thompson@jcu.edu.au

APPENDIX LL

Informed Consent Form for Study 5

This administrative form has been removed

APPENDIX MM

Negative Ingroup History Reminder

30 THE AUSTRALIAN FRIDAY, AUGUST 20, 2010

Humans benefit from 'exploitation' of the earth

By TANYA FUTURE
environmental affairs reporter

SCIENTISTS from around the world have growing concerns about the impacts of human actions on the health of the biosphere, and the failure for most to change their behaviour.

At the recent Committee on the Science of Climate Change (CSCC) conference saw environmental scientists from 11 countries, including Japan, England, Denmark, the United States, and Australia, gather to talk about the specific impacts of mankind's actions.

CSCC spokesperson and representative from Denmark, Dr Harold Olsen discussed human impact on the environment in an emotional speech to the press on Sunday.

Olsen said that 'man impacts the natural environment in hundreds of ways, across hundreds of domains. Unfortunately, our impact is great.'

He went on to list these impacts: Carbon emissions causing thinning of the ozone layer, land clearing resulting in soil degradation and extinction of species, production of millions of tons of waste and, of course, the big one, climate change. But 'there are hundreds more', he stated 'and it's heartbreaking.'

Olsen said that 'despite the harm being caused to the environment, humans gain great benefit from their exploitation' and went on to harshly state what humans gain from their unsustainable use of the earth's resources.

'A comfortable lifestyle, with almost every available luxury well and truly beyond what is necessary for survival and happiness. The way we're all living. It's just not sustainable. And the planet is suffering. It's as simple as that.' he said.

Olsen hopes that these recent CSCC discussions encourage policy makers to place environmental concerns above economic ones and make changes.

The CSCC conference makes it clear that despite best efforts for scientists across the globe to develop technological solutions to address our increasing resource demands, the answer truly lies in people changing their behaviour.

APPENDIX NN

Neutral Ingroup History Reminder

30 THE AUSTRALIAN FRIDAY, AUGUST 20, 2010

Humans haven't really changed in 200,000 years

By DONALD HALL
local affairs reporter

ARCHAEOLOGISTS estimate that modern humans have been on earth for almost 200,000 years, and our mode of living has undergone some major changes. But what of the relationship between humans and the environment?

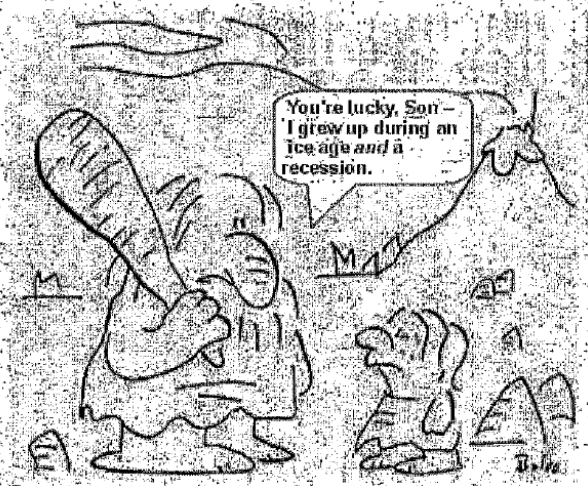
The recent Society of Historical Archaeology (SHA) conference saw archaeologists from around the world, including Japan, England, Denmark, the United States, and Australia gather to talk about the relationship between humans and the environment over the course of human existence.

'Human interaction with the environment may seem to have come a long way since the time of nomadic cultures, but essential elements remain the same,' SHA archaeologist Dr Aaron Thompson said.

Thompson said 'Humans have interacted with the environment in many ways – from nomadic hunter-gatherers, to agriculture and domestication of animals, to what we see today – a mix of all these – elaborate agriculture, as well as sophisticated hunting and fishing techniques.'

'One thing, however, has remained constant throughout history – humans have always engaged in modifying their environment' he said.

Thompson went on to explain that this altering is often deliberate, in order to improve accessibility of food, increase thermal comfort, increase material wealth, or to improve ease of access to resources or other human settlements.



'Human habitats may be modified by urban planning, construction, deforestation, irrigation, desertification, and landscape planting – and these methods remain the same today.' Thompson said.

'Humans have also been engaging in protection and conservation for at least 100,000 years, and there's evidence of revegetation and purposely placed rocks to prevent erosion in South American societies.' he said.

It seems that there have been changes in the way things might be done, but the essential aspects of human life and our relationship with the environment has remained the same over thousands of years.

APPENDIX OO

Measure of Mode of Ingroup Attachment (Adapted from Roccas et al., 2006)

Using the following scale, please answer the following questions about how you feel as an Australian.

1	2	3	4	5	6	7
Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. ____ I love Australia.
2. ____ Other nations can learn a lot from us.
3. ____ Being an Australian is an important part of my identity.
4. ____ The interests of Australia should come first, before considering other countries.
5. ____ It is important to me to contribute to my nation.
6. ____ The Australian flag and the Southern Cross are sacred symbols of the Australian way of life.
7. ____ It is important to me to view myself as an Australian.
8. ____ Any criticism of Australia is likely to be unfounded.
9. ____ I am strongly committed to my nation.
10. ____ Relative to other nations, we are a very moral nation.
11. ____ It is important to me that everyone will see me as an Australian.
12. ____ It is disloyal for Australians to criticise Australia.
13. ____ I would serve my country if required.
14. ____ Australia is better than other nations in all respects.
15. ____ When I talk about Australians I usually say “we” rather than “they.”
16. ____ Criticism of Australia should not be tolerated.

Note. Glorification mode of ingroup attachment = Even numbered items; More critical ingroup attachment = Odd numbered items. Scores computed via addition of items. Higher scores indicate greater ingroup attachment.

APPENDIX PP

Product Lists Used in the Online Shopping Activity

Figure PP1. The first of two product lists participants were randomly assigned to purchase items from.

Figure PP2. The second of two product lists participants were randomly assigned to purchase items from.

APPENDIX QQ

List of Magic Square Puzzles

Puzzle 1

1	a	15	16
13	14	3	4
12	7	10	b
8	c	6	9

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 2

9	a	6	8
4	14	b	c
5	7	10	12
16	2	15	1

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 3

3	1	a	14
b	15	4	2
8	6	9	11
10	12	5	c

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 4

7	12	a	10
b	15	4	13
11	6	c	8
14	1	16	3

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 5

a	3	14	8
5	10	7	12
16	b	2	1
4	6	c	13

The number to complete the box is:

a

b

c

Puzzle 6

2	12	a	15
11	b	9	8
14	3	16	1
7	13	c	10

The number to complete the box is:

a

b

c

Puzzle 7

10	13	4	7
8	a	9	b
1	3	16	14
c	12	5	2

The number to complete the box is:

a

b

c

Puzzle 8

13	4	1	16
6	9	8	a
b	c	10	5
3	14	15	2

The number to complete the box is:

a

b

c

Puzzle 9

2	14	15	3
11	a	8	6
5	7	b	12
16	c	1	13

The number to complete the box is:

a

b

c

Puzzle 10

10	12	5	7
3	14	a	2
13	4	1	b
c	11	6	9

The number to complete the box is:

a

b

c

Puzzle 11

13	3	16	3
7	a	6	9
b	15	1	14
10	5	11	c

The number to complete the box is:

a

b

c

Puzzle 12

9	a	12	b
2	14	15	3
16	4	c	13
7	11	6	10

The number to complete the box is:

a

b

c

Puzzle 13

8	9	5	a
b	15	3	14
11	c	10	7
13	4	16	1

The number to complete the box is:

a

b

c

Puzzle 14

a	9	8	5
6	7	b	11
13	16	1	4
3	2	c	14

The number to complete the box is:

a

b

c

Puzzle 15

15	9	8	2
a	4	13	11
10	b	1	7
3	5	c	14

The number to complete the box is:

a

b

c

Puzzle 16

a	5	12	b
11	4	c	6
7	16	1	10
2	9	8	15

The number to complete the box is:

a

b

c

Puzzle 17

a	9	2	8
6	4	11	b
3	c	14	12
10	16	7	1

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 18

a	b	8	9
2	15	c	5
11	6	1	16
7	10	13	4

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 19

5	14	3	12
a	11	6	b
16	7	10	c
9	2	15	8

The number to complete the box is:

a ☐

b ☐

c ☐

Puzzle 20

10	11	8	5
2	a	16	13
15	b	9	4
7	14	c	12

The number to complete the box is:

a ☐

b ☐

c ☐

APPENDIX RR

Human Ethics Clearance for Study 7

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APPENDIX SS

Information Sheet for Study 7

JAMES COOK UNIVERSITY
AUSTRALIA

INFORMATION SHEET

Memory, Recall and Shopping Online

You are invited to take part in a research project about how well people recall environmental information, and how they feel about this information. The study is being conducted by Miss Pamela Pensini and will contribute to her PhD research in Psychology at James Cook University.

If you agree to be involved in the study, you will be invited to read a newspaper article on environmental issues. You will then be requested to recall, as accurately as possible, the article provided, and answer some questions asking how you feel about this information. In total, this study should take only 20 minutes to complete.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. You may also withdraw any unprocessed data from the study.

There are no risks associated with the study; however, some individuals may find some the questions a little distressing. If you do feel upset or distressed in any way, please contact the Counselling Service at James Cook University.

You may contact the Counselling Service by phone on (07) 4718 4711. Alternatively, you may come to the Counselling Service in person; it is located on the first floor of the Student Services Building, above the Bookshop on the Townsville campus.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and presentations, and the Principal Investigator's PhD thesis. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator (Miss Pamela Pensini) or her Supervisor (A/Prof Ben Slugoski) on the details below.

Principal Investigator:
Miss Pamela Pensini
School of Psychology
James Cook University
Phone: 4781 6022
Email: Pamela.Pensini@jcu.edu.au

Supervisor:
A/Prof Ben Slugoski
School of Psychology
James Cook University
Phone: 4781 5174
Email: Ben.Slugoski@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Sophie Thompson, Human Ethics and Grants Administrator, Research Office,
James Cook University,
Townsville, Qld, 4811. Phone: 4781 6575, Sophie.Thompson@jcu.edu.au

APPENDIX TT

Informed Consent Form for Study 7

This administrative form has been removed

APPENDIX UU

Debrief Email

This administrative form has been removed