

**Attitudes toward global warming, climate change and other
environmental issues among young Queenslanders**

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Abstract

A representative longitudinal sample of 16 to 17 year olds drawn from schools across Queensland shows young Australians to be strongly supportive of action to prevent the impact of human induced global warming and more likely than the OECD country average to favour practices that promote sustainable development. Social background is an important determinant of environmental attitudes. Young women are more concerned about environmental issues than young men, including global warming and climate change, and are more likely to view global warming as a serious threat to Australia. The level of trust in environmental groups has declined over time, although again, female students are more trusting than males. Students whose parents are university educated and those planning to attend university after leaving school exhibit pro-environmental attitudes to a greater extent than other students, demonstrating the importance of childhood socialisation in the formation of pro-environmental attitudes.

Introduction

This paper offers a unique perspective on young Australians' attitudes toward contemporary environmental issues. We use data from the third wave of the 'Our Lives' study, a longitudinal study of the life pathways of young people in Queensland¹, to explore attitudes toward global warming, controlling emissions from motor vehicles and factories, reducing waste material production, support for renewable energy and other environmental issues. The third wave data were collected in 2010 and respondents involved in the study aged 17 to 18. Our analysis focuses on four major research questions. First, what proportion of young people believe that global warming and climate change are actually occurring? Second, to what extent do they believe that global warming is due to human activity, and do they see it as comprising a serious threat to Australia? Third, how much trust do young people place in environmental groups, and does this change as they age? Fourth, how much influence does social background, including gender, parental education level and region impact upon environmental attitudes?

Social Determinants of Environmental Issues

Existing research into the social bases of environmentalism among adults has shown several social characteristics are associated with environmental issue support and pro-environmental behaviour. Women tend to express greater concern over environmental issues than men (e.g. Zelezny et al. 2000: 444-45) with Rootes (2004: 617) also claiming women 'play more

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prominent roles in grass-roots mobilisations'. The highly educated, particularly graduates from humanities and social science disciplines, are more likely to be environmental activists and to engage in protest actions than non-graduates (Tranter 1997). Ronald Inglehart (1990) also maintains that younger people who tend to hold postmaterial value orientations are more supportive of environmental initiatives than their more traditionally-oriented counterparts (see also Inglehart and Welzen 2005; Tranter 2010, 1996). In Australia, environmentalists also tend to be employed in professional occupations, are not religiously aligned and are politically left of centre (Tranter 2004, 1996). This is consistent with Inglehart's (1997: 142) and Kriesi's (1989) view that new social movements are underpinned by what he refers to as a 'new class' of highly educated technocrats. However, Mertig and Dunlap (2001: 132) found little support for such claims among the supporters of environmental social movements in Western Europe and the United States, while support for the 'new class' hypothesis in Australia is also weak (Tranter 1996). Rootes (1995: 227) claims that tertiary education is a key factor underlying environmental support rather than a new class, and this also appears to be the case in Australia (Tranter 1996: 73).

While far less research has been conducted into the environmental attitudes of young people, in a study of 15 years olds from 56 countries, Boeve-de Pauw and Van Petegem (2010: 143) also found that 'girls have more environmentally positive attitudes than boys' as did children from families with 'greater cultural capital', although parental education level and occupation were not associated with pro-environmental attitudes among children. However, as Boeve-de Pauw and Van Petegem's (2010) research was a multilevel study that accounted for country and school level variation, and as tertiary education is such a consistent predictor of environmentalism in Australia, we expect pro-environmental parental attitudes to be passed on to children.

Based on findings in the literature and given the nature of the data we are analysing, our research hypotheses are:

1. Girls will exhibit pro-environmental attitudes to a greater extent than boys; while, to a greater extent than other children:
2. Those who believe in the veracity of human induced climate change will exhibit pro-environmental attitudes;
3. The children of highly educated parents will exhibit pro-environmental attitudes;
4. Those who plan to attend university following completion of school will exhibit pro-environmental attitudes, and;
5. Those who identify with the Australian Greens or the Australian Labor Party will exhibit pro-environmental attitudes to a greater extent than Coalition identifiers.

After providing a description of our data and methods our research questions are examined by analysing data from the Our Lives survey.

Data and Method

The main source of data analysed here are from the third wave of the Our Lives survey, a longitudinal study of young people in Queensland, although first and second wave data are also shown for comparative purposes. The first wave of the survey was collected in 2006 (n=7031) a representative sample of high school students enrolled in Grade 8 (i.e. aged 12 to 13). The second wave was collected in 2008 (n=3653) and the third in 2010 (n=3139). The sample was drawn from the 457 secondary schools in the state of Queensland, Australia. Seventy one

schools refused permission to administer surveys but our school sample is representative of Queensland schools by sector and region, with a school response rate of 55% (i.e. 213 of the 386 schools that were approached participated in the study). The average response rate for students in schools in the first wave was 34%. A multi mode administration was used comprising internet surveys and surveys administered in the classroom. The questionnaire items included attitudes, beliefs, values, orientations and behaviours of Queensland secondary students and socio demographic background. For the second wave students were contacted directly using contact details provided at the first wave, and the survey was again conducted in both online and hardcopy formats. The second wave response rate was 58% (n=3653) amongst those students with usable contact information (n=6298). The third wave of data collection expanded the multi-mode approach to include a final stage of Computer-Assisted Telephone Interviewing in order to minimise attrition. An attempt was also made to recruit all respondents regardless of whether or not they had participated in wave 2. Those who did not participate in wave 2 were only required to complete a shortened “core” version of the survey questionnaire. Amongst those with usable contact information (n=5434), there was a response rate of 77% (n=2378) for wave 2 completers and 49% (n=761) for wave 2 non-completers, resulting in an overall response rate of 58% (n=3139) of the original wave 1 cohort. Students in the third wave of the study were aged 16 to 17 at the time of data collection.

Dependent variables

Several attitudinal questions related to environmental issues are analysed in regression models using data from the third wave of the Our Lives study. The first two questions have Likert type responses. The first and relate to global warming as a risk factor: ‘Global warming is a serious

threat to Australia', while the second question taps beliefs about the manner in which these processes are occurring: 'The planet is warming because of human activity producing greenhouse gases' (responses: 5 point scale strongly agree to strongly disagree with a 'don't know' option included). These are combined as a additive scale as they are correlated strongly (Spearman's correlation .80).

A third and related question considers beliefs in the veracity of climate change/global warming: 'On a scale of 1 to 10, where 1 is don't believe at all and 10 is completely convinced, how convinced are you that climate change (or global warming) is actually happening?' This scale is analysed both as a dependent and an independent variable, in the latter case it is used as a predictor of other environmental attitudes in Table 4. A further question that asks respondents 'How much Trust do you have in...Environmental Groups?' is useful in a comparative sense as it is repeated across all three surveys (responses a great deal, quite a lot, not much, or none).

Finally, a set of Likert type questions included in the third wave of the Our Lives survey repeat questions from the 2006 Program for International Student Assessment (PISA) study (Caygill 2008), allowing comparisons with 15 year old New Zealand students and other OECD countries: 'It is important to carry out regular checks on the emissions from cars as a condition of their use; It disturbs me when energy is wasted through the unnecessary use of electrical appliances; I am in favour of having laws that regulate factory emissions even if this would increase the price of products; To reduce waste, the use of plastic packaging should be kept to a minimum; Industries should be required to prove that they safely dispose of dangerous waste materials; I am in favour of having laws that protect the habitats of endangered species; Electricity should be produced from renewable sources as much as possible, even if this increases the cost' (responses: 4 point

scale strongly agree to strongly disagree). These variables were combined as a scale for regression analyses (Cronbach's Alpha .83).

Independent variables

Several known correlates of pro environmental attitudes and behaviour are examined, including sex, parental education level, students' plans in the next two years (i.e. to attend university or travel) non-religious and political party identification. These are all coded as dummy (1/0) variables that are interpretable in relation to their respective reference categories. We also use Trapnell's (1994) 'smart' scale, as a reliable self-assessed IQ measure, an additive scale constructed from four items to control for IQ. Respondents were provided with four statements that comprise the scale and asked how well each fits them: 'I'm considered exceptionally or unusually intelligent'; 'I'm considered a very "brainy", scholarly person'; 'I'm considered extremely "gifted" or talented at academic things'; 'My school grades have usually been near the top of every class' (responses on a 4-36 scale where 4 = 'not at all' and 36 = 'very well'). The scale is highly reliable with a Cronbach's Alpha of .92.

Analyses

We begin our analyses by considering responses on two attitudinal statements tapping aspects of global warming (Table 1). The majority of young Queenslanders are concerned about the potential impact of global warming. Responses to these two questions are virtually identical with around 26% to 27% of young people strongly agreeing and a further 35% agreeing that

global warming poses a serious threat to Australia and also that the planet is warming because of greenhouse gases produced by human activity.

Table 1: Attitudes toward Global Warming and Climate Change (per cent)

Global warming is a serious threat to Australia		The planet is warming because of human activity producing greenhouse gases
Strongly agree	26.2	26.8
Agree	34.7	34.8
Neither agree, nor disagree	21.3	20.8
Disagree	7.8	6.9
Strongly disagree	4.5	4.8
Don't know	4.9	5.9

Source: Our Lives (2010)

In Table 2 the Our Lives responses are placed in comparative perspective with New Zealand and OECD data, by considering the proportion of students who agree with attitudinal statements on environmental issues used in the PISA study of 15 year olds across OECD and other countries (Caygill 2008). Young Queenslanders show greater environmental concern on four of the six questions. A larger proportion of Queenslanders, compared to New Zealanders (61% to 49%) are also in favour of regulating factory emissions, although both are lower than the OECD average of 69%. Notably, Queenslanders are far less likely to favour 'regular checks on the emissions from cars as a condition of their use'.

Table 2: Attitudes toward Environment Issues in Comparative perspective (per cent)

	Our Lives	NZ	OECD
I am in favour of having laws that protect the habitats of endangered species	97	92	92
Industries should be required to prove that they safely dispose of dangerous waste materials	96	90	92
It is important to carry out regular checks on the emissions from cars as a condition of their use	78	90	91
To reduce waste, the use of plastic packaging should be kept to a minimum	94	83	82
It disturbs me when energy is wasted through the unnecessary use of electric appliances	72	58	69
I am in favour of having laws that regulate factory emissions even if this would increase the price of products	61	49	69

Source: Our Lives (2010); PISA (2006)

Table 3 suggests that there has been a decline decrease in levels of trust in environmental groups from 2005 to 2007. In 2005, 60% of Queensland students placed a great deal or quite a lot of trust in environmental groups, however, there was a small decline to 57% in 2007, then a more substantial drop in trust in 2009 to 50%. It is also worth mentioning that while the overall levels of trust in environmental groups have declined across the three surveys, there are also clear gender differences regarding trust in environmental groups. Analyses (not shown), suggest that girls are significantly more likely than boys ($p < .05$) to trust environmental groups in each of the three survey waves.

Table 3: Trust in Environmental Groups over Time (per cent)

Year	2006	2008	2010
A great deal of trust	16.7	10.9	6.7
Quite a lot of trust	42.9	45.8	42.5
Not very much trust	31.3	35.2	41.5
None at all	9.1	8.0	9.3
N	6,918	3,593	3,156

Source: Our Lives (2006, 2008, 2010)

Table 4: Social and Political Background of Environmental Issues (OLS)

	Climate change is happening	Global warming scale	Environmental scale
Intercept	43.57	51.62	24.90
Women	4.85***	6.88***	4.66***
Mother has Degree	2.50*	-0.06	-2.27*
Father has Degree	5.50***	3.65**	1.53**
Smart scale	0.15*	0.04	0.16**
Uni. in next 2 years	4.67***	1.28	1.85**
Travel in next 2 years	1.23	2.90*	2.22**
Non-religious	0.84	0.26	0.66
Labor ID	14.48***	14.88***	1.76
Green ID	24.31***	22.82***	10.10***
No Party ID	9.51***	9.09***	-0.36
Climate Change scale	-	-	3.58***
R ²	.13	.12	.29
N	2,270	2,103	2,262

Notes: * p < 0.05; ** p < 0.01; *** p < 0.001

Estimates are from OLS regressions with scale dependent variables coded 0 to 100.

Source: Our Lives (2010)

Finally, in Table, the results of three regression models are presented to demonstrate the impact of social background upon three attitudinal dependent variables. The first is a scale that measure student responses to the question ‘On a scale of 1 to 10, where 1 is don’t believe at all and 10 is completely convinced, how convinced are you that climate change (or global warming) is

actually happening?’. The second is a scale derived from two questions (described above) that measures the perceived risk of global warming. The third is an additive scale comprised of six items from the PISA 2006 survey that were included in Our Lives, wave 3. All three dependent variables have been rescaled to range between 0 and 100 for comparative purposes.

Several independent variables show consistent effects, in particular, gender, fathers’ education level and political party identification. Women tend to score higher than men on all three scales. For example, women score approximately 7 points higher than men on the 0 to 100 global warming scale. Mothers’ education level has a far weaker impact upon the environmental attitudes of children than fathers’ education, with children whose fathers have a degree scoring higher on all scales than other children, controlling for other variables in the equations.

Identification with the Australian Greens is associated with higher scores on all three scales than Coalition supporters, while Labor identifiers and those who do not identify with any party are more likely than Coalition supporters to believe that climate change is occurring and that it also poses a risk to Australians. Unlike in adult samples, religious affiliation (or rather the lack of it) has no significant impact here, while those who propose to travel overseas after leaving school appear to literally exhibit a more ‘global’ perspective, at least in terms of their attitudes toward planetary warming. Finally, the climate change scale is added as an independent variable (scored 1-10) in the third column in order to predict general environmental issue concern. A change of 1 unit on the 0 to 10 scale climate change independent variable results in a change of 3.58 on the 0-100 environmental issue scale, suggesting concern over the impact of global warming drives attitudes on other environmental practices, social and political background held constant.

Conclusion

These results from a representative longitudinal sample of 16 and 17 year olds drawn from schools across Queensland, show that young Australians both recognise human induced global warming as posing a serious risk to Australia and are also strongly supportive of action to attenuate the impact of global warming and climate change. Young Australians tend to be more concerned about sustainable development than the OECD average on most comparable measures relating to practices that promote sustainable development and also more concerned than New Zealand students on almost all of these indicators.

All five of our research hypotheses are supported. Young women are more concerned about environmental issues than are young men. They are far more concerned than young men about the risks of global warming and climate change, and are more likely to view climate change as a serious problem for Australia. While levels of trust in environmental groups has declined over time, once again, young women are more trusting in all three surveys, which parallels the gender based pattern of interpersonal and institutional trust in Australia (Tranter and Skrbis 2009).

Unlike Boeve-de Pauw and Van Petegem (2010), we found that students with university educated parents were more concerned about environmental issues than others (although fathers are more influential in this regard than mothers), as are those who plan to attend university after leaving school. We also found political identification to be an important determinant of pro-environmental attitudes among young Australians, not only their adult counterparts. This research demonstrates the importance of childhood socialisation in developing positive environmental attitudes, and, we suspect, also strongly underpins pro-environmental behaviour.

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