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EXECUTIVE SUMMARY

Preliminary results from an online survey of more than 5000 participants show that most people think that climate change is happening, but there is a lack of consensus about its cause, with only about half of participants considering it to be human-induced.

Big-polluting nations are considered to be the major contributor to climate change – they are also charged with the most responsibility to act on reducing its impacts. Many people consider that the Australian government is not doing enough to reduce climate change. While most people profess low levels of trust in government, there still emerges a strong link between voting intention, climate change belief, and climate-related behaviours.

People tend to trust their friends and family for information on climate change – for those who don’t consider climate change to be human-induced, family and friends are trusted more than every other source of climate change information except university scientists. People who thought human-induced climate change was occurring are more likely to exhibit pro-environmental behaviours than others.

These results have important implications for communicating about climate change as a means to influence behaviour. Emotions and cognitions associated with climate change suggest that, for those who simply don’t believe in climate change or consider it to be a natural occurrence, a ‘switch off’ response will pose a challenge for science communicators.

The survey is part of a research program that seeks to understand the ways in which Australians understand climate change and climate change adaptation. Such understandings are important to consider in constructing climate change communication strategies, and are key to mobilising widespread behaviour change. The survey is due to be repeated in July 2011 and July 2012.
1. INTRODUCTION

A survey of 5036 people from across Australia was undertaken in July and August of 2010. The survey is part of a research program that seeks to understand the ways in which Australians understand climate change and climate change adaptation. Such understandings are important to consider in constructing climate change communication strategies, and are key to mobilising widespread behaviour change. The survey is due to be repeated in July 2011 and July 2012.

The survey was administered online using a representative group of participants sourced from a research-only panel. Below are some preliminary results from the survey.

2. GENERAL ATTITUDES TOWARDS CLIMATE CHANGE

2.1 Belief in climate change

An initial question asking about the existence of climate change revealed that more than four in five respondents thought that climate change was indeed happening (Figure 1).

There was a statistically significant association between gender and belief in climate change, with women more likely than men to answer yes, though the association was small. Those in capital cities were more likely to believe in climate change than those in regional towns or rural areas, although again the effect size was small. There was a very weak correlation (.082) between age and belief in climate change, with older people more likely to believe that climate change is happening than younger people ($p < .001$). Income was unrelated to belief in climate change.
Respondents were asked to rate which of a series of statements most accorded with their point of view (Figure 2). Responses to this question revealed that just over half thought about climate change as caused by human activities. More than 40% thought of climate change in terms of natural temperature variability. This suggests a lack of consensus regarding the causes of climate change, and a possible polarisation of beliefs.

![Figure 2: Typological breakdown of thoughts about climate change (n=5036)](image)

**What best describes thoughts about climate change?**

- **I don’t think that climate change is happening**
- **I have no idea whether climate change is happening or not**
- **I think that climate change is happening, but it’s just a natural fluctuation in Earth’s temperatures**
- **I think that climate change is happening, and I think that humans are largely causing it**

2.2 Harm, worry, experience & importance

Respondents were asked a series of general questions about their attitudes towards climate change and its impacts. Figure 3 and Figure 4 suggest that the majority of people are only a little or moderately concerned with climate change and do not see it as posing a great deal of personal harm. As one would expect, levels of worry and expected harm were greater for those who thought climate change was human-induced, than for those who thought climate change was a natural phenomenon.
Participants rated their level of personal experience with climate change and how important they thought the issue was. Figure 5 suggests that the majority of people consider that they have had little or no personal experience with the effects of climate change, although a large
proportion (38.1%) of those who consider climate change to be human-induced thought they had experienced moderate effects.

The perceived importance of climate change varied according to whether people thought it was human-induced or natural, with larger levels of importance cited by those who considered it human induced (Figure 6).
2.3 Trust and responsibility

Respondents were asked to rate their levels of trust in different sources to provide them with truthful information about climate change (Figure 7). There were significant differences in ratings according to climate change belief-type, with those who considered it a natural process recording lower levels of trust than those who considered it human-induced in all sources but car and oil companies.

While University scientists topped the rankings in trust, government fared relatively poorly – outranking only car and oil companies. Interestingly, friends and family were rated highly (second amongst the natural process respondents). Not surprisingly, car companies and oil companies fared poorly for both belief-types.

The survey also sought views on what entities people considered most responsible for causing climate change (Figure 8).
A question was also asked regarding which entities people considered had the greatest responsibility for responding to climate change. Figure 9 shows that greatest rating of responsibility was given to big-polluting countries; the responsibility of the individual was rated significantly lower than the others.
Table 1 displays the strength of correlations between people’s rankings of responsibility for causing and responsibility for responding to climate change for the two main belief-types. A lower correlation coefficient indicates a greater dissimilarity in ratings between cause and response. Global organisations were rated most disparately, with relatively low ratings for causing climate change, but relatively high ratings for responding to it.

<table>
<thead>
<tr>
<th></th>
<th>Happening but natural $r_s$ coefficient</th>
<th>Happening and human-induced $r_s$ coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global organisations such as the UN</td>
<td>0.38</td>
<td>0.24</td>
</tr>
<tr>
<td>The Federal government</td>
<td>0.52</td>
<td>0.38</td>
</tr>
<tr>
<td>State governments</td>
<td>0.54</td>
<td>0.42</td>
</tr>
<tr>
<td>Wealthy countries</td>
<td>0.56</td>
<td>0.48</td>
</tr>
<tr>
<td>Local governments</td>
<td>0.56</td>
<td>0.43</td>
</tr>
<tr>
<td>Normal individuals</td>
<td>0.58</td>
<td>0.51</td>
</tr>
<tr>
<td>Big-polluting countries</td>
<td>0.59</td>
<td>0.47</td>
</tr>
<tr>
<td>Multi-national corporations</td>
<td>0.62</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Respondents were asked to select a statement that most accorded with their point of view about the Australian federal government’s actions on climate change (Figure 10). The majority considered that not enough was being done about climate change, with a further quarter considering that what was being done was the wrong thing.

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1 At the time of the survey, the federal Australian Labor Party held office.
3. CLIMATE CHANGE AND BEHAVIOUR

Participants were asked 17 questions relating to behaviour relevant to greenhouse gas emissions (Figure 11). Behaviours ranged from personal transport choices to diet and purchasing decisions. An aggregated score was calculated for each respondent to capture the total number of behaviours engaged in. Motivations for performing carbon-friendly behaviours were also accounted for.
Figure 11: Percentage of respondents engaging in climate change relevant behaviours

- I have a vegetarian (or vegan) diet
- I have taken part in a political campaign about an environmental issue
- I have contacted a government member about climate change
- I am on Green Power electricity
- I live within 5 kilometres of my workplace
- I usually walk/cycle/carpool/take public transport to work
- I have a front-loading washing machine
- I try to buy products that are second-hand
- I grow a lot of my own vegetables
- Most of my cleaning products are environmentally friendly
- I have switched to products that are more environmentally friendly
- Where possible, I buy products that are made locally
- I have reduced the amount of gas and/or electricity I use around the house
- I will usually try to fix things rather than replace them
- I have reduced the amount of water I use around the house and garden
- I recycle my household waste
- I switch lights off around the house whenever possible

Legend:
- Orange: No action
- Blue: Mostly for other reasons
- Green: Mostly for environmental reasons
3.1 Behaviour, climate change belief, and political voting intentions

Figure 12 displays the average aggregated behaviour score for respondents from each climate change belief group. People who thought human-induced climate change was happening scored significantly higher on average on pro-environmental behaviours than other participants. The average pro-environmental behaviour score for those who thought that climate change wasn’t happening was lower than for all other groups.

![Figure 12: Pro-environmental behaviour scores by climate change belief (n=5036)]

Participants were asked to nominate who they intended to vote for in the upcoming federal election. Voting intentions were related to pro-environmental behaviours (Figure 13), with those intending to vote for the Greens scoring higher on pro-environmental than other participants, followed by those intending to vote for the Labor Party.

![Figure 13: Pro-environmental behaviour scores by political voting intentions (n=5036)]
Voting intentions were also related to belief-type (Figure 14), with participants who intended to vote for the Greens and Labor more likely to state belief in human-induced climate change. Those intending to vote Liberal, National or for the Independents, were more likely to state that climate change was happening due to natural variations in Earth’s temperatures.

Figure 14: Belief in climate change as a percentage of respondents intending to vote for each party

4. HOW PEOPLE THINK AND FEEL ABOUT CLIMATE CHANGE

4.1 Emotions

Participants were asked to rate a list of emotions, on a scale of 1 (strongly disagree) to 5 (strongly agree), according to how climate change made them feel. Average ratings are provided in Table 2. The most highly rated emotions for each belief-type are presented in Table 3.
Table 2: Mean ratings of agreement with emotions prompted by climate change (n=5036)

<table>
<thead>
<tr>
<th>Emotion Descriptor</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angry</td>
<td>3.12</td>
<td>1.01</td>
</tr>
<tr>
<td>Hopeful</td>
<td>3.07</td>
<td>0.95</td>
</tr>
<tr>
<td>Fearful</td>
<td>3.03</td>
<td>1.09</td>
</tr>
<tr>
<td>Powerless</td>
<td>2.97</td>
<td>1.05</td>
</tr>
<tr>
<td>Irritated</td>
<td>2.94</td>
<td>1.12</td>
</tr>
<tr>
<td>Ashamed</td>
<td>2.90</td>
<td>1.08</td>
</tr>
<tr>
<td>Confused</td>
<td>2.85</td>
<td>1.04</td>
</tr>
<tr>
<td>Guilty</td>
<td>2.74</td>
<td>1.05</td>
</tr>
<tr>
<td>Despairing</td>
<td>2.68</td>
<td>.99</td>
</tr>
<tr>
<td>Bored</td>
<td>2.52</td>
<td>1.10</td>
</tr>
<tr>
<td>Excited</td>
<td>2.24</td>
<td>.89</td>
</tr>
<tr>
<td>Joyful</td>
<td>2.08</td>
<td>.84</td>
</tr>
</tbody>
</table>

Table 3: Most highly rated emotion descriptor for each belief-type

<table>
<thead>
<tr>
<th>Belief type</th>
<th>Most highly agreed with emotion descriptor</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t think that climate change is happening (n=283)</td>
<td>Irritated</td>
<td>3.52</td>
</tr>
<tr>
<td>I have no idea whether climate change is happening or not (n=189)</td>
<td>Confused</td>
<td>3.50</td>
</tr>
<tr>
<td>I think that climate change is happening, but its just a natural variation in Earth’s temperatures (n=2,024)</td>
<td>Irritated</td>
<td>3.09</td>
</tr>
<tr>
<td>I think that climate change is happening, and I think that it has largely been caused by humans (n=2,540)</td>
<td>Fear</td>
<td>3.53</td>
</tr>
</tbody>
</table>
4.2 Cognitions

Participants were asked to rate their agreement with several statements on a scale of 1 (strongly disagree) to 5 (strongly agree) about how they thought about climate change and what some of its potential impacts might be. Average ratings for each statement are provided in Table 4, in order of most agreed with to least agreed with. Responses to this series of statements suggest that people hold both positive and negative thoughts about the potential impacts of climate change.

Table 4: Mean ratings of agreement with cognitive evaluations of climate change

<table>
<thead>
<tr>
<th>Statement (n=5036)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responding to climate change will cost Australia a lot of money</td>
<td>3.61</td>
<td>1.01</td>
</tr>
<tr>
<td>Doing something about climate change is an opportunity to be part of something bigger than ourselves</td>
<td>3.57</td>
<td>0.99</td>
</tr>
<tr>
<td>Climate change will result in financial hardship for many people</td>
<td>3.45</td>
<td>1.00</td>
</tr>
<tr>
<td>The challenge of climate change will provide people with a sense of purpose</td>
<td>3.26</td>
<td>0.94</td>
</tr>
<tr>
<td>Climate change will mean better weather in some parts of the world</td>
<td>2.96</td>
<td>0.97</td>
</tr>
<tr>
<td>Climate change will foster greater community spirit and connectedness</td>
<td>2.95</td>
<td>0.99</td>
</tr>
<tr>
<td>Trying to do something about climate change will mean a lot of people lose their jobs</td>
<td>2.79</td>
<td>1.02</td>
</tr>
<tr>
<td>Climate change may mean that wealth and resources end up being distributed more fairly</td>
<td>2.61</td>
<td>0.99</td>
</tr>
<tr>
<td>There's nothing Australia can do about climate change that will make a meaningful difference</td>
<td>2.47</td>
<td>1.23</td>
</tr>
</tbody>
</table>
5. CONCLUDING REMARKS

Despite a strong majority of people believing that climate change is a real phenomenon, there was a lack of consensus regarding its underlying causes. It is these beliefs about underlying causes that are linked to levels of concern, perceived threat and importance placed on climate change, as well as to behaviour. Interestingly, while a considerable portion of people considered climate change to be a natural fluctuation in Earth’s temperatures, as a group these people still viewed countries, governments and global organisations as at least partly responsible for causing climate change. This suggests a level of confusion, indecisiveness, and/or inconsistency amongst Australians about the root causes of climate change and how to respond to it.²

While most people professed low levels of trust in government, the link between voting intention, climate change belief, and climate-related behaviours is strong. There are several explanations as to why this might be the case. The survey was administered just prior to and during a federal election campaign where addressing climate change was a key, contentious, policy platform. It is plausible that some people’s voting intentions were influenced by each political party’s stance on climate change. An alternative proposition is that, despite low levels of reported trust, people’s attitudes towards climate change are based largely on the stance taken at any given time by the political party they intend to vote for. Political affiliations are often based on beliefs, values and epistemic needs (Jost et al., 2003); how people think about climate change may be a more superficial and therefore malleable attitude, prone to alteration when a link with more deep-seated ways of viewing the world is made.

With regards to trust, family and friends rated relatively highly, especially amongst those who considered climate change as natural, where friends and family outranked every source other than university scientists. This may reflect the complexity and uncertainty that is uniquely associated with climate change, or that people’s attitudes and opinions about it are not well-formed or entrenched. The emphasis on family and friends provides a focal opportunity for research and communication through paths and networks of social influence within communities.

The survey demonstrated that much everyday behaviour relevant to climate change is undertaken for reasons other than environmental considerations, consistent with international research (Whitmarsh, 2009). This reiterates the importance of exploring alternative routes to behaviour change, by appealing to motivations and benefits beyond the public environmental sphere.

Finally, the emotions and cognitions associated with climate change present as a mixture of the empowering and disempowering. For those who simply do not believe in climate change or consider it to be a natural occurrence, a ‘switch off’ response will pose challenging for science communicators. For the human-induced climate change believers, typically disabling responses such as fear and powerlessness rated highly. A sense of hope and opportunity in the face of climate change also emerged strongly. Harnessing these latter sentiments and overcoming the former may be the key to enabling broad-scale and meaningful behaviour change.

² An alternative explanation is that this group of people hold government, countries and organisations responsible for causing widespread belief in the notion of human-induced climate change.
REFERENCES


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