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Two interventions for mitigating the harms of greenwashing on consumer perceptions

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Abstract

Growing demand for environmentally friendly products has led to an increase in companies exaggerating their environmental credentials, a practice commonly referred to as “greenwashing.” To identify the impact of greenwashing, and to test potential interventions, we designed an online experiment featuring a series of three advertisements featuring hypothetical companies. A representative sample of 2,352 participants were randomised into a control group or one of two intervention groups. Intervention groups saw either a literacy or prebunking intervention, both designed to enable participants to identify common greenwashing strategies. We find that greenwashing is effective: participants were significantly more likely to agree that fictional companies in greenwashed ads had higher green credentials compared to companies depicted in non-greenwashed ads. This effect was most pronounced for those with higher levels of self-reported environmental concern. We also find that our interventions reduce the impact of greenwashing: participants in both intervention groups rated the green credentials of companies with greenwashed ads significantly lower than participants in the control group. This effect appears to be driven partly by increasing general scepticism of the green credentials of firms, and partly by increasing scepticism specifically towards greenwashed claims.

JEL codes: M37, Q40

Keywords: Greenwashing, misinformation, green advertising, perceived greenwashing

Two interventions for mitigating the harms of greenwashing on consumer perceptions

1. Introduction

Climate change is an existential threat requiring urgent action to minimise the risk of harm to the environment. As consumer awareness of climate change has increased, so too has the market for environmentally friendly products. However, this growing demand for environmentally friendly products has also led to a parallel increase in companies attempting to take advantage of the trend by exaggerating or overstating their environmental credentials, a practice commonly referred to as “greenwashing”.

To identify the impact of greenwashing, and to test potential interventions, we designed an online experiment to compare a series of three advertisements featuring hypothetical companies. Participants in our study were randomised into a control group or one of two intervention groups. The two intervention groups received a short intervention designed to highlight common strategies used by companies when they attempt to greenwash, both drawn from the disinformation literature - a literacy intervention and a prebunking intervention. Our study involves an order of magnitude more participants than most extant greenwashing studies, and involves adults that are representative of the broader population (as opposed to undergraduate university students) with a representative sample of 2,352 Australians.

2. Background and literature review

2.1 Greenwashing

“Greenwashing” has a range of definitions (see, for example, Parguel et al., 2011; TerraChoice, 2010; Lyon & Montgomery, 2015), but in general, it involves making claims about the environmental practices of a company, or the environmental sustainability of a product or service, which are either unable to be substantiated or are actively misleading. It can include a variety of communications strategies and practices that create false positive perceptions of an entity’s environmental performance. Importantly, greenwashing includes

both intentionally and unintentionally misleading consumers. It is distinct from green advertising or green marketing, when companies promote products or services based on legitimate environmental benefits.

A significant strand of previous work on greenwashing has focused on categorising and classifying greenwashing (de Freitas Netto et al., 2020; Gallicano, 2011; Gatti et al., 2019; TerraChoice, 2010). From this work, and from our scan of media, we identified two prevalent types of greenwashing: (1) misrepresenting core business, and (2) promoting individual responsibility. Misrepresenting core business involves organisations making a specific environmental claim, which distracts audience attention from the environmental impact of the organisation's wider operations. The most common form of misrepresenting core business involves promoting vague or scientifically disputable net zero emissions goals. For example, fossil fuel companies may promote efforts to reduce emissions in their operational offices or car fleets whilst ignoring the fact that the majority of emissions are generated by the use of their products.

Promoting individual responsibility involves encouraging individuals to take action to mitigate climate change. While individual actions by consumers and citizens play an important role in mitigating climate change, their contribution to global emissions pale in comparison to the impact that large corporations have. For instance, the 2018 fossil fuel emissions from Australia's six top coal carbon majors alone were equivalent to the whole of Australia's domestic emissions (Moss & Fraser, 2019).

2.2 The impact of greenwashing

Another major strand of research has attempted to identify the impacts of greenwashing on consumers. A number of studies have argued that greenwashing may have potential negative effects on firms when it is correctly identified by consumers, such as reduced brand credibility and purchase intentions (Akturan, 2018; Berrone et al., 2017; H. Chen et al., 2019; Y.-S. Chen & Chang, 2013; Szabo & Webster, 2021). However, many consumers rely on heuristics and mental shortcuts when making judgements (Tversky & Kahneman, 1974), and as such are not likely to deeply evaluate claims made in advertisements. This means that greenwashing could be effective at swaying consumers to purchase less environmentally friendly products if they are unable to accurately identify instances of greenwashing. Indeed, it appears that some types of greenwashing can be highly effective at confusing consumers,

even those with higher levels of environmental knowledge (Parguel et al., 2015; Schmuck et al., 2018).

A broader concern of greenwashing is that it may lead to a "crowding-out" effect, whereby consumers may perceive that sufficient progress is being taken to mitigate climate change, and thus this might lead to lower support for greater action by governments or industry to combat climate change (Werfel, 2017). Recent research has suggested that whilst individual climate change mitigation behaviour does not have this crowding-out effect (Carrico, 2021; Lacroix et al., 2022; Maki et al., 2019; Sparkman et al., 2021; Willis & Schor, 2012), it is unclear whether this extends to perceptions of industry and/or government behaviour on climate change.

2.3 Strategies to combat greenwashing

Research on how to protect consumers from greenwashing has typically focused either on the role of public shaming through NGOs (Berrone et al., 2017; Markham et al., 2014) or direct government intervention (Feinstein, 2013; Gatti et al., 2019; Riccolo, 2021). However, greenwashing can be considered a type of misinformation, and thus one way to combat it may be to draw on insights from the misinformation literature.

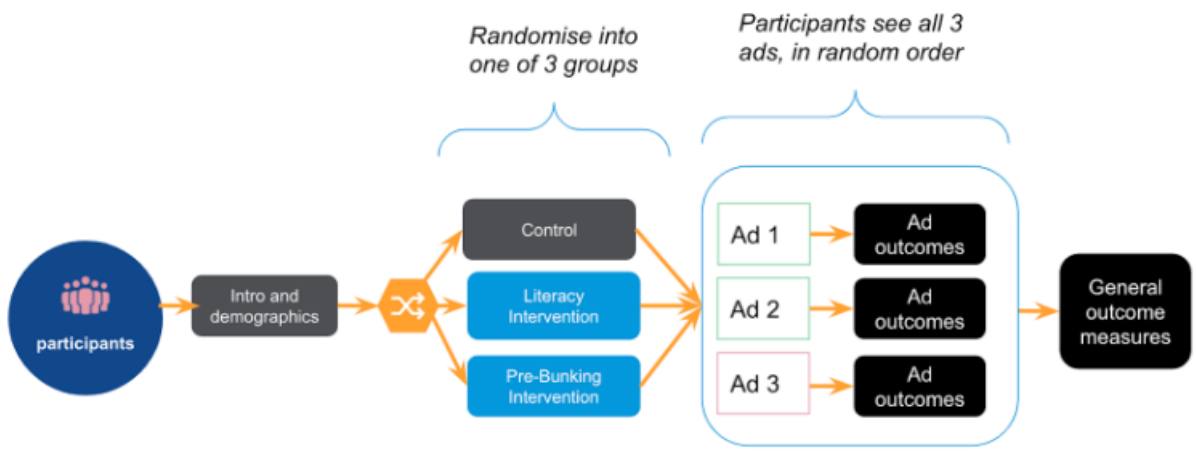
When approaching greenwashing as misinformation, literacy interventions have received the most empirical attention to date out of the greenwashing specific interventions (Eng et al., 2021; Fernandes et al., 2020; Mather et al., 2001). Literacy interventions are designed to improve knowledge about common tactics used by advertisers, to help consumers identify them more accurately. Results demonstrate that the effects of literacy interventions are mixed. For example, text-based literacy tips do appear to increase individuals' ability to classify an advertisement as deceptive, and are made more effective when engagement with information is increased by presenting one tip per screen, or with an interactive quiz delivered after the information is presented. However, interventions appear to be less effective when customers are faced with the increased cognitive load of having to decide between different products (Fernandes et al., 2020). Similarly, when participants are quizzed on their ability to identify greenwashing after initial exposure to an informative text, their self-confidence in identifying greenwashing lowers - despite the fact that this method of knowledge consolidation through quizzing seems effective in increasing literacy (Naderer & Opree, 2021).

Another approach common in other misinformation spaces is prebunking, which seeks to help people recognize and resist subsequently encountered misinformation, even if it is novel (Ecker et al., 2022). The key idea of prebunking is to expose individuals to small amounts of misinformation in order to "build up" their resistance to more sinister strains of misinformation. While this specific intervention has not previously been applied to the context of greenwashing, prebunking strategies have been used effectively to mitigate the impacts of COVID-19 and climate change misinformation (Basol et al., 2021; Maertens et al., 2020).

3. Method

A total of 2,352 participants were recruited via an online panel provider (Pureprofile). A representative sampling procedure was applied that stratified across the same age and sex subgroupings used in the most recently available Australian census and sampled participants in each subgroup in proportion to the national adult population. After collecting demographics and a measure of environmental concern, we randomly assigned participants to one of the three conditions (see Figure 1).

Figure 1: Trial procedure



The control group received no intervention, whilst the other two groups received interventions designed to combat greenwashing. The two interventions were a prebunking intervention and a literacy intervention (see Appendix A for full text of interventions and all questions).

Prior to completing the main task, participants in the two intervention conditions were first shown introductory text:

> **"Greenwashing" is the practice of organisations misleading consumers by presenting themselves as more environmentally friendly than they actually are.**
>
> Consumers today are increasingly concerned about the environmental impact caused by the products or services that they either directly or indirectly consume.
>
> Many organisations whose core business practices have detrimental impacts on the environment have become increasingly wary of these consumer concerns about the environment, and look for ways to acknowledge them without changing their core business practices. These organisations often use advertising or messaging tactics to mislead consumers about the environmental benefits of the products or services they provide. This allows organisations to acknowledge these consumer concerns without changing their core business practices.

Participants in the Literacy Intervention condition were then presented with further information on the two forms of greenwashing we selected for the trial:

> While greenwashing can come in a number of different forms, two practices that are commonly used include:
>
> 1. Misrepresenting the company's core business; and
> 2. Promoting an individual's responsibility for environmental sustainability (instead of the organisation's actions and responsibility)
>
> The next few pages will go through each of these in more detail, and how they may be misleading.

After reading this section, participants were presented with a more detailed description of each form of greenwashing, alongside a mock-up ad portraying it (see Appendix A).

Participants in the Prebunking Intervention condition were not presented with descriptions of the two forms of greenwashing in advance. Instead, immediately after reading the introductory text, they were asked to select one advertisement (out of a selection of three) that they thought would be most effective in achieving a specified greenwashing goal. Response validation logic was used to only allow participants to advance to the next screen when they selected the advertisement that corresponds to the specific form of greenwashing that serves the motivation described. Participants who chose an incorrect option were informed that their answer was incorrect, and were asked to select a different option before

they could proceed. Once participants selected the appropriate response option, they were provided immediate feedback on why the specific advertisement was misleading. No specific feedback about the "incorrect advertisement" responses was provided to participants.

Participants were then shown an introduction to the main task, which involved sequentially viewing three mock ads by fictional energy companies (see Appendix A), two of which had been "greenwashed". Specifically, the greenwashed ads made claims of the types highlighted in the intervention. One ad highlighted that the corporate offices were using green energy (misrepresenting the core business), whilst the other ad encouraged the reader to calculate their carbon footprint using an online calculator (promoting an individual's responsibility for environmental sustainability). The remaining non-greenwashed ad focused on the fact that the business was creating thousands of jobs. The three ads were presented in a randomised order. After each ad they responded to a series of multiple choice questions to measure the psychological impact of these ads. This included questions about the perceived green credentials of the company in the ad, perceived reliability of the green credentials, and perceived economic and community credentials (economic and community credential questions were included to ensure that we did not overly prime participants to think about the environment and to have some questions that would be more relevant for the third, non-greenwashed ad). Once participants responded to the ad outcomes for all three ads, participants completed a selection of follow-up questions, including questions about their perceptions of responsibility of different actors to mitigate climate change (individuals, governments, and companies). Finally, participants in all three conditions received a short explanation of greenwashing, and were asked about their opinions on a series of questions related to greenwashing.

3.1 Measures

Level of environmental concern. We adapted elements from the environmental attitudes inventory (Milfont & Duckitt, 2010) to identify individual differences in consumers' level of concern about environmental issues. Specifically, consumers were asked whether they agreed or disagreed with the statements on a 1-7 scale (where 1 = strongly disagree and 7 = strongly agree) with the following statements:

- "I am concerned about the impacts of climate change."

- "More needs to be done to protect and preserve the natural world."
- "Controls should be placed on industry to protect the environment from pollution, even if it means things will cost more."
- "If things continue on their present course, we will soon experience a major ecological catastrophe."
- "I think that it is important to buy products and services from companies that are environmentally friendly. "

Participants' responses on these statements were averaged, such that higher scores indicated higher levels of environmental concern (α = .94).

Green Credentials. To identify greenwashing, we measured consumers' perceptions of the eco-friendly or "green" practices of the featured company, adapted from previous work (Hartmann & Apaolaza-Ibáñez, 2009). Since the ads were deliberately greenwashed in a way that was designed to increase the green credentials, any difference between the arms would help us identify the potential impacts of greenwashing, and of our interventions. Specifically, consumers were asked whether they agreed or disagreed with the statements on a 1-7 scale (where 1 = strongly disagree and 7 = strongly agree) with the following three statements: "This company helps protect the environment"; "This company is actively reducing its impact on climate change"; and "This company is environmentally friendlier than other competing brands". Consumers' responses on these items were averaged such that higher scores indicated consumers perceived the company has having higher green credentials (α = .91).

Perceived Reliability. Consumers' perceptions of the relevant advertisement as a reliable source of information about the featured company's green credentials. Specifically, consumers were asked how reliable the advertisement was as an indicator of the company's environmental practices on a 1-7 scale (where 1 = extremely unreliable and 7 = extremely reliable). This is a common measure used when assessing the impact of misinformation.

Perceptions of responsibility to mitigate climate change. How much responsibility different groups (individuals, private companies, governments) were perceived to have to mitigate climate change. Specifically, participants were asked to rate the responsibility for

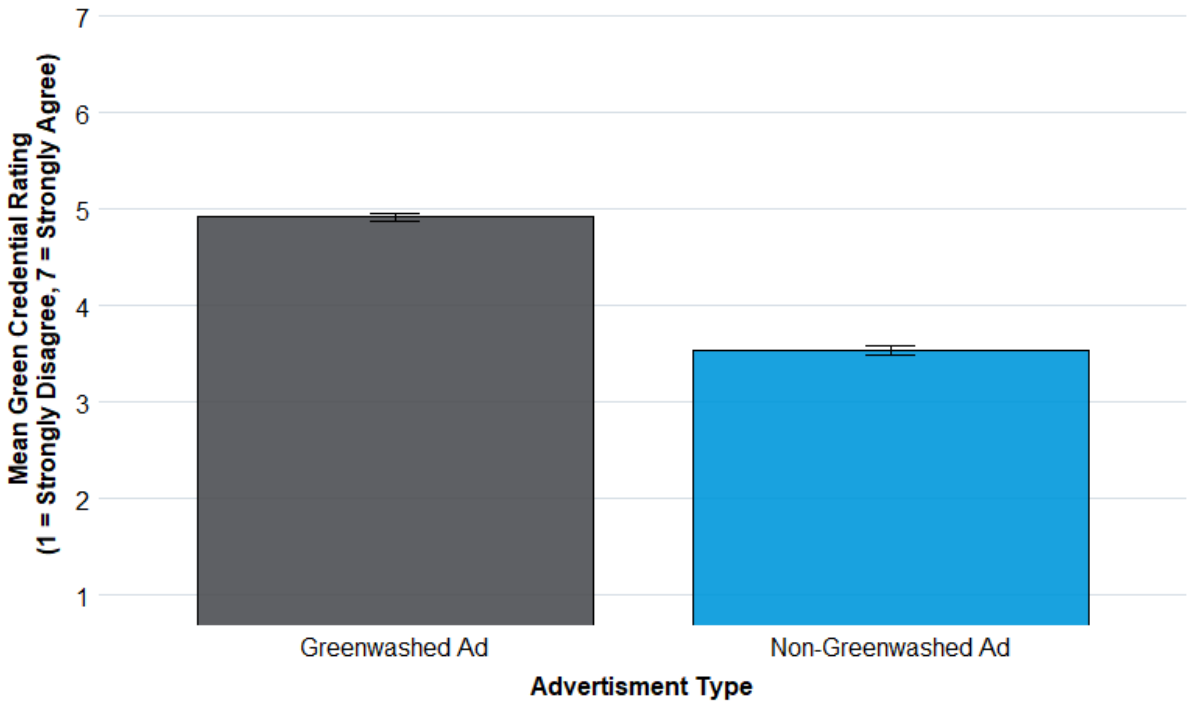
each group on a 1-7 scale (where 1 = None of the responsibility and 7 = All of the responsibility).

4. Results

4.1 Greenwashing effect

After viewing greenwashed advertisements, consumers were, on average, more likely to agree that the featured company had strong green credentials (4.97 out of 7), compared to companies depicted in a non-greenwashed advertisement (3.54 out of 7) (see Figure 1). Over half (57%) of consumers in the control condition believed that greenwashed claims were a reliable source of information about a company's eco-practices.

Figure 2: The effect of greenwashed vs non-greenwashed ads on perceived green credentials - Control condition participants only.



4.2 Green Credentials

Participants in both intervention groups rated the green credentials of the hypothetical firms lower than those in the control group. We conducted a simple OLS regression, as well as a model including a set of covariates (age, gender, education level, household income, who they voted for in the last federal election, self-rated political lean on social issues, self-rated political lean on social issues, and level of environmental concern). Results for the two greenwashed ads (ads 1 and 2) were compared between the control and intervention groups.

On average, participants agreed less with statements about the green credentials of the fictional companies shown in the greenwashed ads. They resulted in an 0.58 (literacy, $p < .001$) and 0.61 (prebunking, $p < .001$) point shift on a 7 point scale, moving participants from on average “slightly agree” (5) to part way between “neither agree nor disagree” (4) and “slightly agree” (5) (see Table 1). Note that despite our intervention, consumers on average still were slightly inclined to agree with the statements about green credentials.

Table 1: Average green credentials of companies featured in greenwashed ads, by treatment

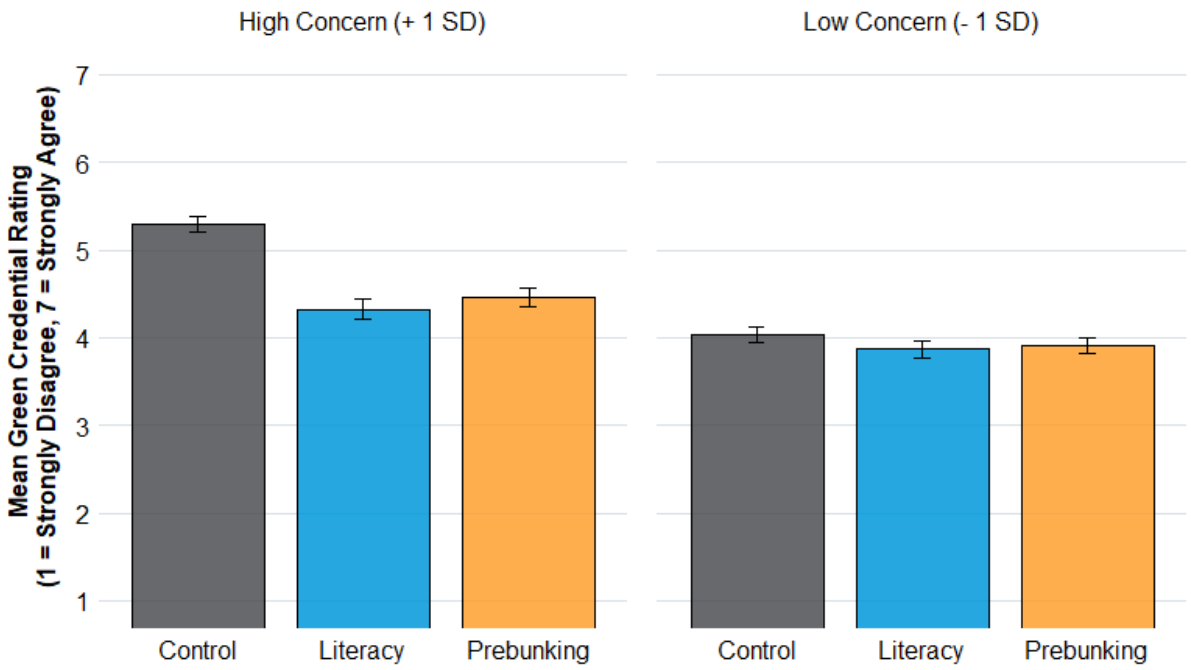
	Unadjusted OLS (1)	OLS with controls (2)
Control	4.92***	3.24***
	(0.04)	(0.21)
Literacy	-0.58***	-0.58***
	(0.06)	(0.05)
Prebunking	-0.65***	-0.61***
	(0.06)	(0.05)

*+ p <0.1, * p < .05, ** p < .01, *** p < .001 (two-tailed test). Standard Deviations appear in parentheses below the means.*

Interestingly, while respondents in the control group were generally more likely to agree that the companies in greenwashed ads had stronger green credentials (compared to treatment

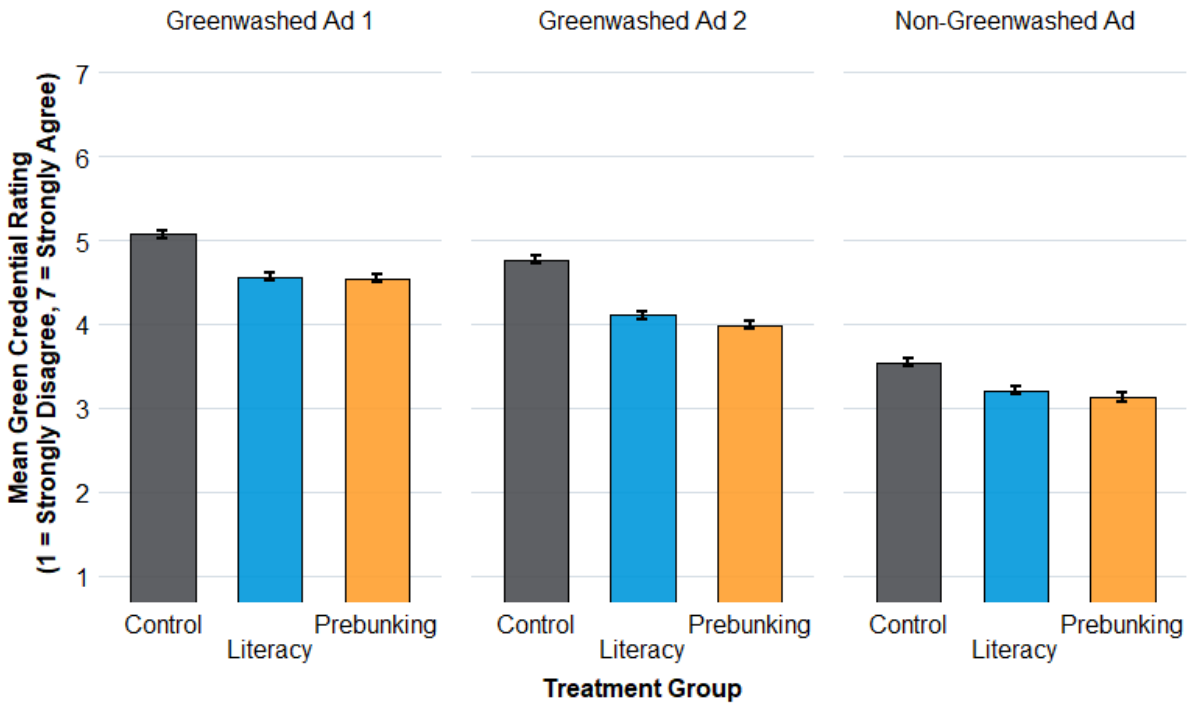
groups), this was particularly pronounced among those with high concern for the environment (+1 SD) as compared to those with lower concern (-1 SD) (see Figure 2).

Figure 3: Effect of the interventions on consumers with “high” (+ 1 SD) or “low” (- 1 SD) levels of environmental concern



Digging deeper, it appears that the effect of the interventions occurs through two mechanisms. First, they appear to generate a general level of scepticism of green credentials. This is evidenced by the fact that the green credential rating of the third ad (which does not make any environmental claims) is lower in both intervention groups than the control. However, the interventions also appear to be especially effective at generating scepticism of environmental claims - the effect of both the literacy and prebunking interventions were larger for the greenwashed ads than for the non-greenwashed ad. However, it is unclear whether this greater scepticism towards environmental claims applies only to greenwashed claims (as in the ads shown), or it applies to all environmental claims.

Figure 4: Participants' ratings of green credentials of companies, by advertisement and treatment



4.3 Reliability

The literacy and prebunking interventions also increased doubt towards claims in greenwashed ads (ads 1 and 2). Participants who received the literacy intervention were significantly less likely than those in the control group to agree that greenwashed advertisements were reliable indicators of a company's environmental practices (0.56 point reduction on the 7 point scale, $p<.001$), as were those in the prebunking intervention (0.50 point reduction on the 7 point scale, $p<.001$). Notably, in this case, we were able to shift respondents from being slightly positive, to being almost totally neutral, moving from an average of 4.57 in the control group to an average of approximately 4 in the intervention groups (corresponding with a value of "neither agree nor disagree").

Table 2: Reliability of environmental claims of greenwashed ads, by treatment

	Unadjusted OLS (1)	OLS with controls (2)
Control	4.57***	3.45
	(0.04)	(0.22)
Literacy	-0.56***	-0.57***
	(0.06)	(0.06)
Prebunking	-0.53***	-0.51***
	(0.06)	(0.05)

*+ p <0.1, * p < .05, ** p < .01, *** p < .001 (two-tailed test). Standard Deviations appear in the parentheses below the means.*

4.4 Perceived climate mitigation responsibility

Overall, consumers think that the government is most responsible for addressing climate change, followed closely by companies, and then individuals. Notably, the interventions did not change consumers' attitudes about perceived responsibility to mitigate climate change. This suggests that whilst greenwashing can be effective at increasing the green credentials of a company, it is unlikely to lead to a "crowding-out" effect, or diminish perceptions about how much companies or governments need to do to combat climate change.

Table 3: Perceived responsibility of different groups to combat climate change, by treatment

	Individual responsibility		Companies' responsibility		Government responsibility	
	Unadjusted OLS (1)	OLS with controls (2)	Unadjusted OLS (3)	OLS with controls (4)	Unadjusted OLS (5)	OLS with controls (6)
Control	4.94 ***	2.14 ***	5.45 ***	3.01 ***	5.73 ***	3.52 ***
	(0.05)	(0.24)	(0.04)	(0.23)	(0.05)	(0.25)
Literacy	-0.06	-0.05	-0.03	0.00	-0.01	0.02
	(0.07)	(0.06)	(0.06)	(0.05)	(0.07)	(0.06)
Prebunking	-0.12 +	-0.08	-0.08	-0.03	-0.11 +	-0.06
	(0.07)	(0.06)	(0.06)	(0.05)	(0.07)	(0.06)

*+ p <0.1, * p < .05, ** p < .01, *** p < .001 (two-tailed test). Standard Deviations appear in the parentheses below the means.*

5. Discussion and conclusion

The aim of this study was to identify the potential impacts of greenwashing, and to test whether two potential interventions could be effective at overcoming its effects. Our results showed that greenwashing can work to increase the perceived green credentials of firms that engage in the practice. Across all experimental groups, the control group consistently rated the hypothetical firms as having higher environmental credentials than those in the treatment groups. Note that the firms were entirely fictional, and one of the advertisements did not even make any specific claim about the firms environmental practices; it merely suggested using an online calculator to calculate a person's carbon footprint. Nonetheless, the imagery alone was enough to substantially increase perceptions of green credentials.

Most notably, the effect appears to be the strongest for those with greater levels of self-reported environmental concern. That is, the consumers who are most likely to be

focused on environmental issues are the ones that are most likely to have their perceptions of firms' green credentials improved by greenwashing. However despite these effects, there was no change in participants' perceptions of who was responsible for taking action against climate change: perceptions of individual, company and governmental responsibility were consistent across all groups.

Our results also show that there are strategies that can effectively mitigate the impacts of greenwashing to some extent. Both interventions caused statistically significant decreases in perceived green credentials of companies that engaged in greenwashing, compared to the control. Looking more closely at the result, this overall effect appears to occur in two parts. First, it engenders an overall scepticism of environmental credentials of all companies, with participants in the intervention groups rating the green credentials of the company in the third ad lower than participants in the control group, despite the third ad making no environmental claims whatsoever. Second, it also appears to have an additional impact on firms making greenwashed claims. The first two ads saw an even larger difference between control and treatment groups' ratings of green credentials than the third ad.

Nonetheless, whilst this is a promising and exciting result, there are still many unresolved questions and there is significant scope for further research. For example, whilst greenwashing is clearly an undesirable practice, there are nonetheless many companies that engage in legitimate environmentally friendly activities, and are keen to use these as a point of difference. Our current intervention appears to make consumers generally sceptical of the environmental credentials of companies, but particularly sceptical of greenwashed claims. However, the only environmental claims shown were greenwashed. It may be that the intervention simply makes consumers more sceptical of all environmental claims, greenwashed or legitimate. Further research could consider whether consumers react differently to legitimate environmental claims, and whether the interventions need to be modified to enable this. Finding a way to deliver an intervention that enables consumers to both detect greenwashing whilst also identifying legitimate environmental claims is likely to be of particular interest to those firms engaged in legitimate green practices, as well as to policymakers more broadly.

Second, the trial focused on hypothetical companies, in order to avoid any preconceptions about specific brands that consumers might have. But ultimately greenwashing occurs with real brands.A key area for further research is therefore understanding whether this research

replicates on real-world examples of greenwashed advertisements with mainstream brands or corporations.

Third, whilst we have shown that greenwashing appears to shift the perception of green credentials, particularly for those consumers concerned about the environment, it is not entirely clear how that might translate into purchasing decisions or how much our interventions might blunt those effects. Some research has considered the impact of environmental credentials on brand trust and intentions to purchase, but further research could involve discrete choice experiments to understand the potential dollar impacts of greenwashing and our potential interventions.

There are also avenues to investigate the practical policy applications of this work. For example, the experiment involved showing consumers the interventions and then immediately showing potentially greenwashed ads. However, in reality, consumers are likely to see greenwashed ads long after any potential intervention. Testing whether the effects of the interventions persist over a longer period of time - such as a period of weeks or months - will reveal whether the results are sustained in the long term, and whether this represents a viable way of combating greenwashing.

Similarly, the interventions as currently designed are still reasonably involved, and require consumers to dedicate some time and attention to them. Finding a way to distil the interventions such that they are shorter and sharper would be of great interest to policymakers and NGOs - creating a version of the interventions that can appear “on the side of a bus” would enable them to be scaled significantly.

Importantly, further research may reveal that our interventions are unable to fully mitigate the impacts of greenwashing, which means that there is a need for stronger interventions or even regulatory action to combat greenwashing.

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Appendix A - full text of survey and interventions

At the start, randomise participants into one of 3 treatment groups. Some items to be shown only to certain treatment groups (see below).

1. What is your gender? *[gender]* *[single forced choice]*

    - o Woman [woman]
    - o Man [male]
    - o Non-binary / gender diverse [nonbi]
    - o My gender identity isn't listed. [other]
    - o I'd prefer not to say [nores]

2. What is your age? *[age]* *[single forced choice]*

    - o 18 - 24 [1]
    - o 25 - 29 [2]
    - o 30 - 34 [3]
    - o 35 - 39 [4]
    - o 40 - 44 [5]
    - o 45 - 49 [6]
    - o 50 - 54 [7]
    - o 55 - 59 [8]
    - o 60 - 64 [9]
    - o 65+ [10]

3. Which state do you live in? [state] *[single forced choice]*

    - o Australian Capital Territory [1]
    - o New South Wales [2]
    - o Victoria [3]
    - o Queensland [4]
    - o South Australia [5]
    - o Western Australia [6]
    - o Tasmania [7]
    - o Northern Territory [8]
    - o Other [9]

4. What is your highest level of education? *[education]* *[single forced choice]*

    - o Some high school [1]
    - o Completed high school [2]
    - o TAFE/trade certificate [3]
    - o TAFE diploma [4]
    - o University undergraduate degree [5]
    - o University postgraduate degree [6]

5. What is your household annual income before tax? *[income]* *[single forced choice]*

    - o Less than $20,000 [1]
    - o $20,000-$39,999 [2]
    - o $40,000-$59,999 [3]

- o $60,000-$79,999 [4]
- o $80,000-$99,999 [5]
- o $100,000-$119,999 [6]
- o $120,000-$139,999 [7]
- o $140,000-$159,999 [8]
- o $160,000-$179,999 [9]
- o $180,000-$199,999 [10]
- o $200,000 or more [11]
- o Prefer not to say [12]

6. Which party did you vote for in the House of Representatives at the most recent Australian federal election? *[vote]* *[single forced choice]*

   - o Liberal-National Coalition (LNP) [1]
   - o Labor (ALP) [2]
   - o Greens [3]
   - o One Nation [4]
   - o Katter's Australian Party [5]
   - o Centre Alliance [6]
   - o Independent [7]
   - o Other (please specify) [8] [free text option]
   - o Did not vote [9]
   - o Prefer not to say [10]

7. Please indicate your political beliefs from left/liberal to right/conservative on issues of the economy (e.g., social welfare, government spending, tax cuts) [social_lean]: [one choice per row]

1. Left/Liberal	2.	3.	4.	5.	6.	7. Right/conservative

8. Please indicate your political beliefs from left/liberal to right/conservative on social issues (e.g., immigration, homosexual marriage, abortion) [eco_lean] [one choice per row]

1. Left/Liberal	2.	3.	4.	5.	6.	7. Right/conservative

NEW PAGE

How much do you agree or disagree with the following statements? [one choice per row]

I am concerned about the impacts of climate change [con1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
More needs to be done to protect and preserve the natural world [con2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
Controls should be placed on industry to protect the environment from pollution, even if it means things will cost more [con3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
If things continue on their present course, we will soon experience a major ecological catastrophe. [con4]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
I think that it is is important to buy products and services from companies that are environmentally friendly [con5]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree

NEW PAGE – SHOW ONLY TO TREATMENT 2

"Greenwashing" is the practice of organisations misleading consumers by presenting themselves as more environmentally friendly than they actually are.

Consumers today are increasingly concerned about the environmental impact caused by the products or services that they either directly or indirectly consume.

Many organisations whose core business practices have detrimental impacts on the environment have become increasingly wary of these consumer concerns about the environment, and look for ways to acknowledge them without changing their core business practices. These organisations often use advertising or messaging tactics to mislead consumers about the environmental benefits of the products or services they provide. This allows organisations to acknowledge these consumer concerns without changing their core business practices.

While greenwashing can come in a number of different forms, two practices that are commonly used include:

1. Misrepresenting the company's core business; and
2. Promoting an individual's responsibility for environmental sustainability (instead of the organisation's actions and responsibility)

The next few pages will go through each of these in more detai, and how they may be misleading.

NEW PAGE – SHOW ONLY TO TREATMENT 2

Misrepresenting core business

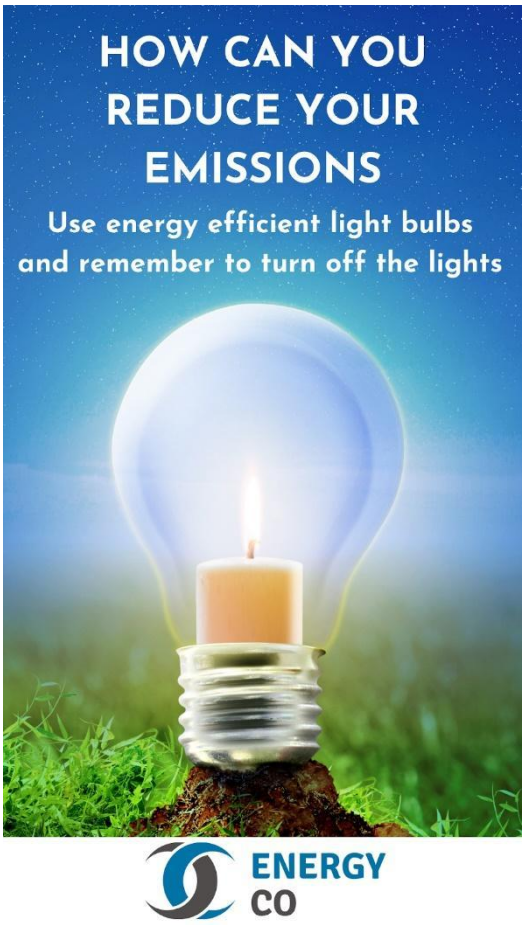
A strategy often used by organisations to make it appear as though they are taking action to help the environment, in order to distract from the organisation's overall environmental impact.

For example, this company is highlighting its work planting trees, to distract from the heavy pollution caused by its broader operations.

NEW PAGE – SHOW ONLY TO TREATMENT 2

Promoting individual responsibility
A strategy that organisations use to encourage individual environmental actions, in order to distract from the much larger environmental impact of the organisation's own practices.

For example, this company is telling individuals to "turn off the lights" (which will have a small impact on carbon emissions). This is to distract from the fact that the company's activities generate more emissions than lots of households combined.



NEW PAGE – SHOW ONLY TO TREATMENT 3

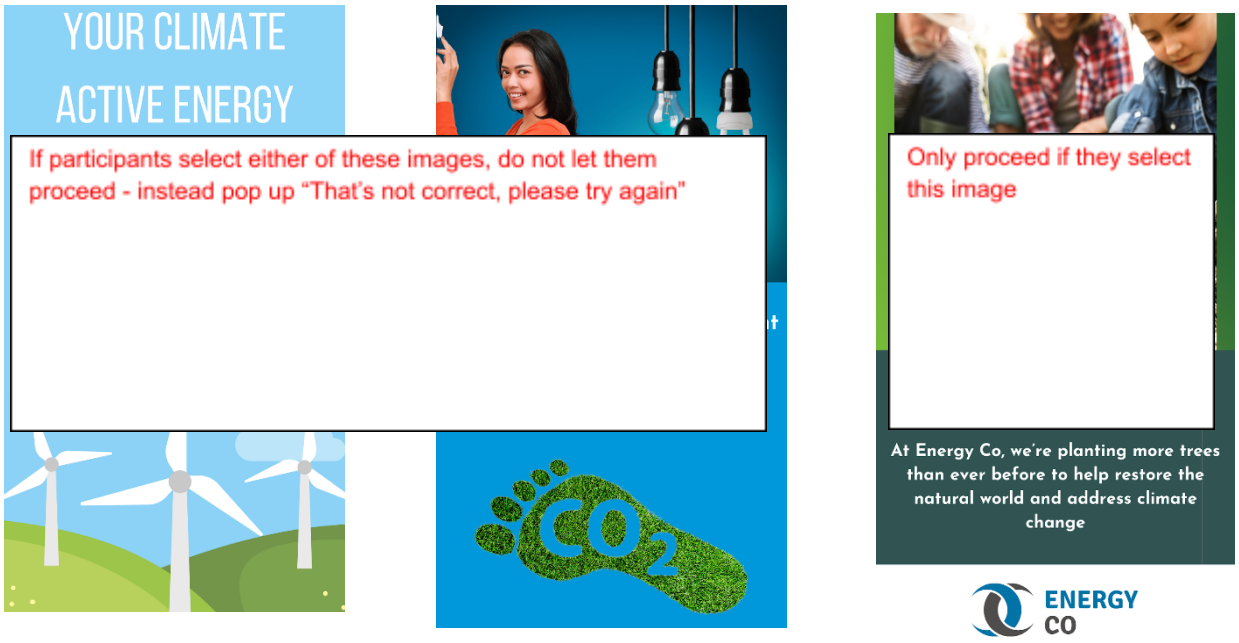
Consumers today are increasingly concerned about the environmental impact caused by the products or services that they either directly or indirectly consume.

Many organisations whose core business have detrimental impacts on the environment have become increasingly wary of these changes in public perception, and often use advertising or messaging tactics to mislead consumers about the environmental benefits of the products or services they provide.

NEW PAGE – SHOW ONLY TO TREATMENT 3

Randomise the order that the images appear in - participants need to select the correct image to proceed

If you were planning a marketing campaign for this company, which of the following advertisements would you use to make it seem that the company is taking active steps to help the environment, without actually having to change the company's core business practices?



NEW PAGE – SHOW ONLY TO TREATMENT 3

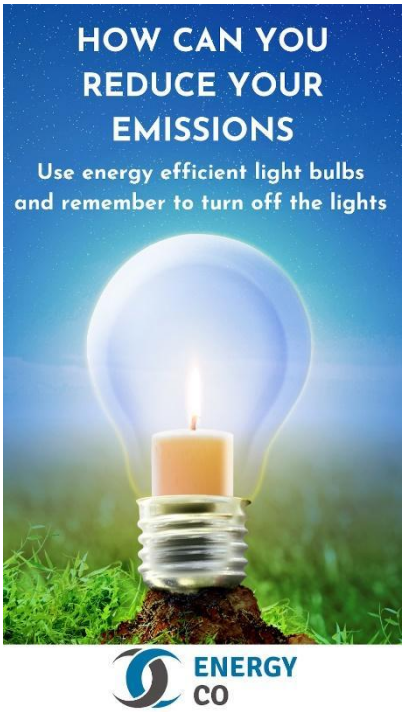
Misrepresenting core business is a strategy often used by organisations to make it appear as though they are taking action to help the environment, in order to distract from the organisation's overall environmental impact.

For example, this company is highlighting its work planting trees, to distract from the heavy pollution caused by its broader operations.

NEW PAGE – SHOW ONLY TO TREATMENT 3

Randomise the order that the images appear in - participants need to select the correct image to proceed

If you were planning a marketing campaign for this company, which of the following advertisements would you use to exaggerate the importance of actions individual consumers can take to mitigate climate change? ?



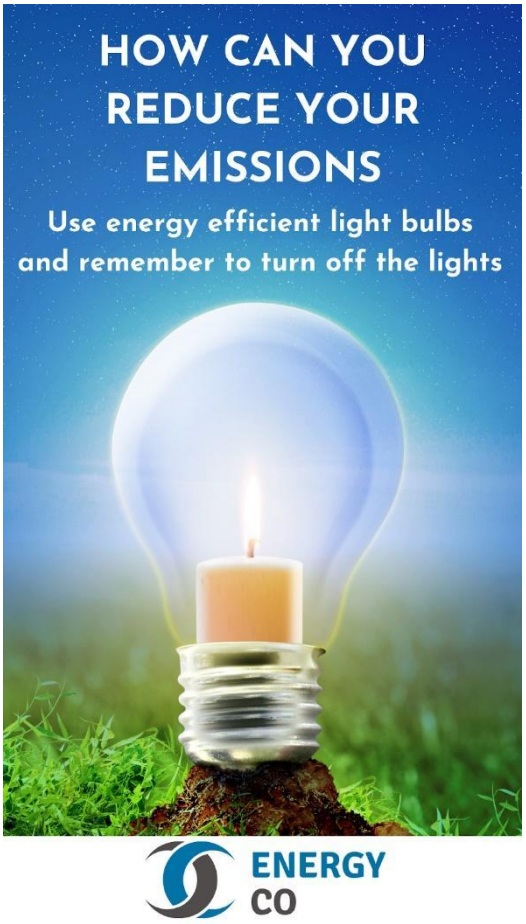
If participants select either of these images, do not let them proceed - instead pop up "That's not correct, please try again"

.

Only proceed if they select this image

NEW PAGE – SHOW ONLY TO TREATMENT 3

Promoting individual responsibility is a strategy that organisations use to encourage individual environmental actions. By putting the spotlight on the responsibility that individuals have to reduce their environmental impact, the advertisement takes attention away from the outsized role that the organisation plays in harming the environment
For example, this company is telling individuals to “turn off the lights” (which will have a small impact on carbon emissions). This is to distract from the fact that the company’s activities generate more emissions than lots of households combined.

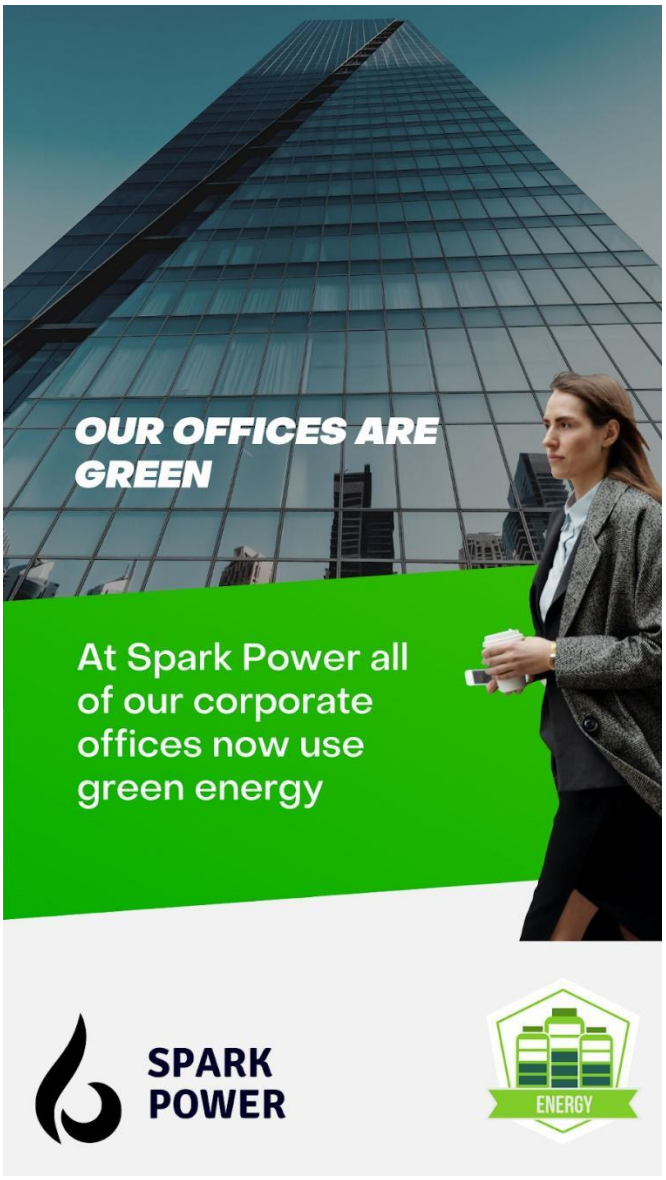


NEW PAGE

We're now going to show you some ads for some hypothetical companies, and we'll ask you some questions about your opinions of these companies. Don't worry if you aren't familiar with the company, just answer with your honest opinion.

Note for programming – randomise the order in which the next 3 pages appear

New page



9. After seeing this advertisement, to what extent do you believe that…[one choice per row]

This company helps protect the environment [ad1_env1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company is actively reducing its impact on climate change [ad1_env2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company is environmentally friendlier than other competing brands [ad1_env3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company has a positive impact on the community [ad1_bus1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company makes a positive influence on the economy [ad1_bus2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company cares about the needs of the community [ad1_bus3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree

10. How reliable are the contents of this advertisement as an indicator of this company's environmental practices? [ad1_env_rel] [one choice per row]

1. Extremely Unreliable	2. Unreliable	3. Somewhat Unreliable	4. Neither reliable nor unreliable	5. Somewhat Reliable	6. Reliable	7. Extremely reliable

11. How confident are you in your judgement about this company's environmental practices based on this advertisement alone? [ad1_env_rel] [one choice per row]

1. Not at all confident	2.	3.	4.	5.	6.	7. Extremely confident

12. How reliable are the contents of this advertisement as an indicator of the company's day to day business practices? [ad1_bus_rel]

1. Extremely Unreliable	2. Unreliable	3. Somewhat Unreliable	4. Neither reliable nor unreliable	5. Somewhat Reliable	6. Reliable	7. Extremely reliable

13. How confident are you in your judgement about this company's day to day business practices based on this advertisement alone? [ad1_bus_con] [one choice per row]

1. Not at all confident	2.	3.	4.	5.	6.	7. Extremely confident

New page

14. After seeing this advertisement, to what extent do you believe that…[one choice per row]

This company helps protect the environment [ad2_env1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company is actively reducing its impact on climate change [ad2_env2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company is environmentally friendlier than other competing brands [ad2_env3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company has a positive impact on the community [ad2_bus1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company makes a positive influence on the economy [ad2_bus2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company cares about the needs of the community [ad2_bus3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree

15. How reliable are the contents of this advertisement as an indicator of this company's environmental practices? [ad2_env_rel] [one choice per row]

1. Extremely Unreliable	2. Unreliable	3. Somewhat Unreliable	4. Neither reliable nor unreliable	5. Somewhat Reliable	6. Reliable	7. Extremely reliable

16. How confident are you in your judgement about this company's environmental practices based on this advertisement alone? [ad2_env_rel] [one choice per row]

1. Not at all confident	2.	3.	4.	5.	6.	7. Extremely confident

17. How reliable are the contents of this advertisement as an indicator of the company's day to day business practices? [ad2_bus_rel] [one choice per row]

1. Extremely Unreliable	2. Unreliable	3. Somewhat Unreliable	4. Neither reliable nor unreliable	5. Somewhat Reliable	6. Reliable	7. Extremely reliable

18. How confident are you in your judgement about this company's day to day business practices based on this advertisement alone? [ad2_bus_con] [one choice per row]

1. Not at all confident	2.	3.	4.	5.	6.	7. Extremely confident

New page

19. After seeing this advertisement, to what extent do you believe that… [one choice per row]

This company helps protect the environment [ad3_env1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company is actively reducing its impact on climate change [ad3_env2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company is environmentally friendlier than other competing brands [ad3_env3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company has a positive impact on the community [ad3_bus1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company makes a positive influence on the economy [ad3_bus2]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
This company cares about the needs of the community [ad3_bus3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree

20. How reliable are the contents of this advertisement as an indicator of this company's environmental practices? [ad3_env_rel] [one choice per row]

1. Extremely Unreliable	2. Unreliable	3. Somewhat Unreliable	4. Neither reliable nor unreliable	5. Somewhat Reliable	6. Reliable	7. Extremely reliable

21. How confident are you in your judgement about this company's environmental practices based on this advertisement alone? [ad3_env_rel] [one choice per row]

1.	2.	3.	4.	5.	6.	7. Extremely confident

Not at all confident						

22. How reliable are the contents of this advertisement as an indicator of the company's day to day business practices? [ad3_bus_rel] [one choice per row]

1. Extremely Unreliable	2. Unreliable	3. Somewhat Unreliable	4. Neither reliable nor unreliable	5. Somewhat Reliable	6. Reliable	7. Extremely reliable

23. How confident are you in your judgement about this company's day to day business practices based on this advertisement alone? [ad3_bus_con] [one choice per row]

1. Not at all confident	2.	3.	4.	5.	6.	7. Extremely confident

New Page

Thanks for your answers. We're now going to ask some more general questions.

24. How much responsibility do you think each of these entities has in acting to reduce ongoing climate change? [one choice per row]

Individuals [individuals]	1. None of the responsibility	2.	3.	4.	5.	6.	7. All of the responsibility
Private Companies [companies]	1. None of the responsibility	2	3	4	5	6	7. All of the responsibility
The Government [companies]	1. None of the responsibility	2	3	4	5	6	7. All of the responsibility

New page

Consumers today are increasingly concerned about the environmental impact caused by the products or services that they either directly or indirectly consume.

Greenwashing refers to the act of misleading consumers about the environmental practices of an organisation or government, or the environmental benefits of a product or service.

25. How much do you agree or disagree with the following statements? [one choice per row]

I am concerned about companies engaging in greenwashing [gen_out1]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
It's up to individual consumers to investigate whether companies' environmental claims are	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree

accurate [gen_out2]							
Companies who use greenwashing are being intentionally deceptive [gen_out3]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree
Governments need to take action to stop greenwashing [gen_out4]	1. Strongly Disagree	2. Disagree	3. Somewhat Disagree	4. Neither agree nor disagree	5. Somewhat Agree	6. Agree	7. Strongly Agree

End survey