

Climate-change sceptics are more ambivalent than once believed

June 2 2015

Using a brand new survey method, researchers in Bergen have asked a broad spectrum of people in Norway about their thoughts on climate change. The answers are quite surprising.

Some 2,000 Norwegians have been asked about what they think when they hear or read the words "climate change". There were no pre-set [answers](#) or "choose the statement that best describes your view" options. Instead the [respondents](#) had to formulate their views on climate change in their own words. The answers have provided striking new insight into what the average person on the street in Norway thinks about climate change.

"The way we formulate the questions ensures that the respondents give more nuanced answers. We see, for example, that many of the people who might otherwise have stated they doubt that climate change is due to human activity make provisos and say that some changes probably are caused by human activity when they are given the opportunity to respond in their own words. Climate-change sceptics are thus more ambivalent than has been suggested in previous surveys," says Endre Tvinnereim, a researcher at Uni Research Rokkan Centre.

Language analysis

The respondents were drawn from the Norwegian Citizen Panel, and the survey is part of the LINGCLIM project at the University of Bergen.

This project is looking at the language used and the interpretations that prevail in the climate-change debate.

The survey was carried out in 2013 as an online questionnaire. This kept the costs down, making it possible to collect data from a sample pool of respondents.

The researchers analysed the results, and the study has now been published in the highly respected journal *Nature Climate Change*. Very few researchers in the social sciences and humanities manage to get their research published there. However, the study by researcher Tvinnereim and Professor Kjersti Fløttum at the University of Bergen is arousing interest.

The researchers divided the answers they received into four categories using the text analysis method Structural Topic Modelling (STM). These are the four main topics that Norwegians associate with climate change:

1. Weather and ice

Focus on the physical consequences of climate change such as unstable weather and melting ice

2. The future and consequences for man

For example, risks and challenges that will affect their children and grandchildren

3. Money and consumption

References to negative effects of the consumer society, the need to help poor countries, statements related to politics, issues related to economic

motives behind [climate policy](#)

4. Causes

What is causing climate change? The impact of [human activity](#).

Views are often balanced in that the participants believe that both nature and human activities affect the climate

A single respondent could give answers that belong to several categories. The researchers got the most responses in the category "weather and ice". In second place came the "the future and consequences", followed by "money and consumption" and finally "causes".

Gender differences

Slightly more women responded that they thought about things related to "weather and ice" than men. Otherwise, there were no differences between the sexes.

Nor were there significant differences in the responses between people with different educational backgrounds.

"Previous studies have shown that people with lower education are more sceptical about climate change than people with higher education. We did not observe any such correlation in our survey. Education had little impact on what people chose to attach importance to," says Tvinnereim.

Major differences related to age

One aspect where we did find major differences was the respondents' age. The older the respondent was, the less concerned he/she was about

the "future and consequences"; the younger respondents tended to have a large proportion of their answers in the category "future and consequences".

"We see that the older respondents write more about weather and ice and are less focused on the future in their responses," says Tvinnereim. This may be because climatology focused more on physical aspects in the past, whereas now there is more talk about solutions and consequences for society. It may also be because older people do not have so much time left and are therefore less worried about the future, apart from when they think about their children and grandchildren.

"From the perspective of the LINGCLIM project, this study draws a representative picture of the diversity of opinions and attitudes that exist among people regarding [climate change](#). The study clearly shows how the language used in the climate debate affects public opinion and how language is interpreted and reproduced by the general public in Norway. Our results thus provide important contributions to the knowledge base needed to make relevant decisions on actions," says Professor Kjersti Fløttum at the Faculty of Humanities at the University of Bergen.

New questions

The researchers now want to use this same method in other projects in order to obtain more in-depth knowledge about what people really think and believe.

"It will be interesting and important to use this method to investigate new issues and in more countries. For me as a linguist, it will also be important to analyse the material we have in greater depth and investigate variations in the freely formulated answers provided by the respondents. Climate change appears to be associated with everything from physical realities to people's subjective attitudes, values and

interests," says Fløttum.

More information: "Explaining topic prevalence in answers to open-ended survey questions about climate change." *Nature Climate Change*. [dx.doi.org/10.1038/nclimate2663](https://doi.org/10.1038/nclimate2663)

Provided by Uni Research

Citation: Climate-change sceptics are more ambivalent than once believed (2015, June 2)
retrieved 25 April 2024 from
<https://phys.org/news/2015-06-climate-change-sceptics-ambivalent-believed.html>

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