

# Primacy effects in the formation of environmental attitudes: The case of mineral exploration<sup>1, 2</sup>

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## INTRODUCTION

Climate change and the move towards a more sustainable economy increasingly influence multiple aspects of people's lives. Governments, enterprises and NGOs are developing diverse technological solutions to facilitate the transition, such as reallocating road space for active travel, developing wind and solar farms, installing district heating networks and constructing new transmission systems. However, new environmental projects often face local opposition. Opinions sometimes stem from reasoned concerns about the impacts of new projects, but can also reflect general aversion to change or specific misperceptions of a project. Effective public communication is therefore essential to help people to form unbiased opinions based on accurate information about the green transition.

Psychologists have shown that, in general, the first information people encounter can disproportionately influence their opinions; a bias known as the “primacy effect”. This study investigated primacy effects in the context of mineral exploration, which is a crucial topic for renewable energy technologies that involves complex environmental and economic arguments. We undertook an experiment to investigate how initial information about mineral exploration

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<sup>1</sup> This Bulletin summarizes the findings from: Poluektova O., Julienne, H., Robertson D.A., Braiden, A., and Lunn P.D. “Primacy effects in the formation of environmental attitudes: The case of mineral exploration”, *Journal of Environmental Psychology*. Available at <https://doi.org/10.1016/j.jenvp.2024.102248>

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influences public opinion and to explore strategies for counteracting primacy effects where biased opinions have formed.

## **DATA AND METHODS**

We recruited 1,000 individuals, representative of the Irish population in terms of gender, age, and region. The experiment required them to consider the possibility of mineral exploration in their local area and to read information about it. Participants were randomly divided into different groups. At different stages of the experiment, we manipulated the order of the information each group received, when they first got to express an opinion about it, and how counterarguments were presented.

In the first stage, half of the participants read information supporting mineral exploration (e.g. uses of minerals, jobs), while the other half read information opposing it (e.g. pollution risk, safety concerns). In the second stage, half of the participants in both of these groups expressed an initial opinion on mineral exploration, while the other half did not. In the third stage, participants read counterarguments to the initial information they had seen. Half of them read the counterarguments alongside the initial information (balanced) while the other half read only the counterarguments in this stage (one-sided).

Finally, all participants answered questions about their support for mineral exploration and mining both in Ireland and locally. Additionally, we collected data on their environmental concern and place attachment (emotional bond to their locality).

## **RESULTS**

We observed a primacy effect: at the end of the study, participants who read supportive information first were more likely to support mineral exploration than those who read opposing information first. This primacy effect was stronger when participants stated an initial opinion after reading the first information they saw (even though this opinion was only stated anonymously online). Reading the counterarguments prevented the primacy effect only when they were one-sided; when the counterarguments were balanced the initial information dominated opinion formation.

Environmental concern and place attachment were generally linked to lower support for mineral exploration. However, those with high environmental concern were more susceptible to the primacy effect, while those with high place attachment were less susceptible. In general, women were less supportive of mineral exploration, while older individuals were more so.

## **CONCLUSIONS**

The findings show the importance of providing accurate, balanced information early to support unbiased opinion formation. If citizens first learn of an environmental project from a partial source, whether for or against, it is likely to bias opinions. Thus, policymakers need to communicate early, factual information

that highlights the trade-offs between environmental risks and benefits, especially to individuals with high levels of environmental concern. These insights may matter for public engagement with the green transition.