



## **Turning Misinformation into Educational Opportunities**

Nabanita Borah and John Cook

George Mason University, Center for Climate Change Education, United States (jcook20@gmu.edu)

Misinformation reduces science literacy and interferes with new learning. This undermines the application of science to understanding and addressing important societal issues. Intentional misinformation and fake news is of growing concern to the scientists, educators and policymakers. Specifically, misinformation about human-caused climate change has become prominent in recent times creating confusion among the public. Hence, interventions that inoculate people against climate change misinformation are very much necessary.

One of the most promising applications of inoculation is in the classroom, using a teaching approach known as misconception-based learning. This involves explaining scientific concepts while directly refuting related misconceptions. Misconception-based learning is a powerful way to neutralize the influence of climate change misinformation by increasing both science literacy and critical thinking skills. Students do not possess as many erroneous preconceptions about climate change relative to adults and hence correcting such misconceptions among students is more effective using this teaching approach.

The misconception-based teaching approach has a number of benefits. It results in greater and longer-lasting learning gains relative to standard lessons. It equips students with the tools and knowledge to distinguish between facts and myths and increases confidence to engage in constructive discussion with family and friends about climate change. Further, research has shown that students have an effect on parents' environmental attitudes and behavior. Consequently, misconception-based learning presents the opportunity to reach the adult community through the students.

We have developed a high school climate change curriculum based on the misconception-based learning framework. Our intent is to run a pilot project that tests the impact of this curriculum on students' climate perceptions, and any second-order influence on their parents. This research project will establish the effectiveness of this teaching approach in raising climate literacy, neutralizing the influence of misinformation, and equipping students with the tools and confidence to converse with their friends and family about climate change.