



Innovative two-way communication formats for climate change education

Maria Lorono-Leturiondo (1), Paul O'Hare (1), Simon Cook (2), Stephen R. Hoon (1), and Sam Illingworth (1)

(1) School of Science and the Environment, Manchester Metropolitan University, Manchester, M1 5GD, England (UK)
(maria.lorono@stu.mmu.ac.uk), (2) School of Geography, University of Dundee, Dundee, DD1 4HN, Scotland (UK)

Climate change is no longer a distant threat to inhabited lands and future generation alone. It's now affecting people who live in towns and cities. Climate change is bringing devastating consequences for human health, to property and infrastructure, the environment, and on local and national economies. With local impacts also comes a shift in responsibility to the local scale, and citizens are now at the epicentre. Climate change communication and education are key in fostering positive action. In major cities or conurbations, such as Greater Manchester where flooding and pollution are a real concern for "experts" and "non-experts", positive action could involve encouraging low-carbon lifestyles, minimizing citizen exposure to air pollution, or improving preparedness in the face of flooding.

Education and communication efforts have followed the premise that if citizens have information, they will be aware, prepared, and ready to take action. This however, complies with the "deficit model" in which citizens are passive receivers of information and experts will fill the knowledge gap through a one-way form of communication. In reality, citizens are not passive receivers of information, they are active, critical, and possess lay knowledge as well as previous experiences. One-way provision of information is, therefore, unlikely to be effective. It is central to explore how two-way communication can be established, in order to allow "experts" and "non-experts" to jointly address this pressing matter.

Through a systematic review, we explore how two-way communication formats can be employed in relation to two phenomena connected to climate change in Greater Manchester: flooding and pollution. We look at social media, educational programmes, serious games, citizen science projects, and discussion forums. Our main conclusion is that there is no one-size-fits-all format of communication. Some formats allow emergency communication for dealing with an ongoing or imminent event, whereas others fit better for long-term communication for raising awareness and encouraging positive action. We also found that some formats involve segmentation, such as sector professionals, school children, or affected communities, whereas others allow reaching broader segments of the population. We also outline key factors in the implementation of each of these formats. Our study offers an overview of two-way communication possibilities, as well as a framework to analyse other communication formats that weren't considered in this review, or other hazards that might be relevant in other cities around the world (e.g. hurricanes or droughts). Ultimately, the aim of our systematic review is to support "experts" and "non-experts" in Greater Manchester in setting up two-way communication initiatives that allow local and expert knowledge to come together in tackling climate change.