

# Environmental Education



# Our Changing Climate



US high school students  
collecting phenology data



Teachers examining coastal  
defences in The Gambia



Trainee teachers  
discussing climate change

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**On the Cover:** The main picture shows bleached whale bones on a deserted beach. The smaller pictures illustrate feature articles in the journal.

All photos are by authors or the editor, unless otherwise stated.

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## Changing climates, different cultures, school curricula and children's perceptions

Elsa Lee, Richard Irvine, Barbara Bodenhorn and Amarbayasgalan Dorj

What can talking and walking with children in different parts of the world tell us about how humans are responding to changing climates, and what does this mean for school curricula? In a recent comparative study of children's perceptions and articulations of place in the UK, Mexico, Mongolia, and Alaska<sup>1</sup>, we explored children's experience of environmental change, and sought to identify whether a sense of the changing climate featured in children's thinking about their dwelling places.

In each location data were gathered during classroom-based mapping activities, followed by walks planned and led by the children themselves. This provided them with opportunities to show us the places that were important to them, and to share observations or reflections about these places. In each location the children's strength of attachment to place was palpable and there were remarkable similarities in the way that this attachment developed. However, awareness of place and how attachment translates into responses to a changing climate varied.

In fenland rural locations in East Anglia in the UK, children demonstrated strong connections to their dwelling places, expressed through kinship and friendship ties, excitement about places where they play, and accounts of foraging activities such as gathering berries in the bushes, and picking fruit in the remnants of old orchards. Contrary to assumptions that children are part of a 'bubble-wrap generation' (Malone, 2007) and suffering from 'nature deficit disorder' (Louv, 2005), it was striking how much personal experience the children had of their surroundings (see also Irvine *et al.*

forthcoming). However, in the 80 miles we walked with 200 East Anglian primary school children, remarkably little was said about climate change, except some mention of flooding.

Walks with primary school children in rural Mexico yielded a profound sense of connection to place, from knowledge of local medicinal plants to a lively awareness of the spiritual aspects of the landscape. Although changes were commented on (for example, "the trees look stressed"), they were not necessarily connected to the concept of 'climate change', which was only used in an abstract sense.

In arctic Alaska, classroom sessions and walks yielded a striking range of information and curiosity about environmental issues with reference to the way the beach has shrunk; the impact of permafrost melt on ice cellars; fall storms; and the shrinking of the polar ice cap. When asked what they thought future changes might bring, students talked about potential threats to the animals they depend on for food. Some children, in making observations and asking questions about weather and climate, were keen to discuss these in both local and global terms, though others only made links between their daily experiences of change and global concepts when prompted.

Walks in rural Mongolia yielded a comparable connection to place, with accounts of play and interaction with their surroundings strikingly similar to those observed in the UK. However, children in Mongolia were more likely to move from observations about place to claims about climate change. For example, in northern Mongolia, as in the UK, fruit picking was a key theme; but in Mongolia the early arrival of this fruit was described to us as a sign of climate change. Indeed, the Mongolian children were quicker to highlight changes such as the drying of rivers and loss of grassland, and to explicitly link these with processes of climate change. Many of these issues directly impacted the livelihoods of families and local populations through herding, and featured prominently on the news and in family conversations.

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<sup>1</sup> In East Anglia in the UK, we worked with 200 children aged between 7 and 11. In Oaxaca, Mexico, we worked with 79 children aged between 9 and 11. In Barrow, Alaska, we worked with 64 children aged between 10 and 12. In Mongonmorit Soum and Bayangoul Soum in Mongolia, we worked with 57 children aged between 9 and 10.

Mongolian children drew on this wider discourse of climate change as a national and global issue, linking it to their own sense of place.



*Grasses on the Norfolk coast*

With these findings in mind, we went back and interviewed some of the children in the East Anglian schools to ask them more directly about their knowledge and understanding of climate change. These interviews were highly revealing. Most children professed to having either no knowledge or very scant knowledge of terms such as ‘climate change’ or ‘global warming’. However, when pressed they were often able to offer very reasonable explanations of them, citing school lessons, parental conversations, or news and documentary programmes where they had encountered the concepts.

Some children expressed fear and concern about the issues: “I hate listening to the news at night because I can’t sleep”, but almost invariably initially children expressed the belief that climate change was something that happened elsewhere; “in big cities”, “in the North Pole”, “in the rainforest” – even “in Scotland”.

What is clear from the cross-cultural dimension of this research is that children living in different regions of the world are responding differently to the knowledge that climates are changing. Whilst the strength of connection to dwelling places in each region was profound, variation in local awareness was evident. This study identifies a more sharply focused, interconnected approach to

these issues in Mongolia and Alaska where environmental factors directly impact subsistence activities in which youth are involved from a relatively early age.

In contrast, in the regions where daily lives were less ostensibly dependent on stable climates, there was little sense of the interconnectedness of local with global; that for example, flooding can be a local instantiation of a global environmental change. Indeed, in the UK there appears to be a tendency to distancing, through denial (“my dad does not believe in it”), levity (“it will be good if it gets warmer here”), or locating the problem as something that happens elsewhere. And for some children it was clear that fear underlies this distancing.

What does this mean for schools and curricula? How can curricula and teachers address an issue of the magnitude of climate change with its potential to induce fear and action paralysis?

We are working on a comparative analysis of curricula in each of these regions but our initial findings suggest that for teachers in the UK it is important to understand what motivates (or demotivates) children’s responses. What might appear to be flippancy on their part in the face of changing climates is very likely to be caused by fear and *not* ignorance or dis-empowerment. This sense of trepidation is significant because it may impede learning of powerful knowledge and achievement in high stakes assessments (akin to the notion of action paralysis identified by other researchers, e.g. Connell *et al.*, 1999; Duhn, 2012).

In Mongolia, a more engaged and involved approach is evident. Children (and adults) appear to see local problems as *problems that they as Mongolians can and should engage with* and for this reason the futures the children envisage are more optimistic, in spite of the problems they observe. Perhaps here concern adds urgency to children’s learning and accelerates their understanding in a world where climates are undoubtedly changing.

In the UK where there exists a social and cultural ambivalence towards the notion of

human-made climate change, parental employment patterns have changed and work is seldom emplaced in the locality. The importance of stable climates no longer features in people's daily lives and whilst awareness of global problems is sometimes acknowledged, they are *problems for someone else to engage with*. But despite this dis-emplacement, children still hold a profound connection to their dwelling places. Perhaps this makes solid bedrock on which to build awareness of the impact of global processes and empowerment to deal with these impacts.

Our initial findings suggest that facilitating interchange (through letters and video conferencing, for example) between children in schools in distant localities with different outlooks (between arctic Alaska and East Anglia, for example) might kick-start this process, but further investigation is needed.

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### Apply for a school bursary



Thanks to the vision and benevolence of the late Hugh Kenrick, who had a great passion for birds and wildlife, West Midlands schools can bid to NAEF for financial support to take their pupils to outdoor centres for hands-on learning opportunities in the natural environment.

NAEF offers school bursaries of up to £400. The bursaries can cover centre fees and transport costs and can be used for visits to 5 environmental education centres which include a farm, a botanic garden, a conservation park, and a community garden.

Priority will be given to schools that have limited or no access to green areas where they are located.

In return, we ask that you write a short piece for this journal about your visit and how it linked to your work in school. In return, your school will also be given a year's NAEF membership.

You can apply for a bursary by downloading an application form from our website: [ow.ly/YYjvC](http://ow.ly/YYjvC)

This also sets out some ideas for a range of curriculum areas about getting the most out of your visit.