Transforming education

Instead of presenting each discipline as distinct and separate, we ought to integrate their domains with the natural world

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COVID-19 has knocked down economies, stranded people, hit education, work and travel, and cut short people's lives. If the pandemic has one lesson for humanity, it is that people, places and non-human entities and processes are connected. These connections have long been ignored in most spheres, including economic landscapes, food systems and pedagogies.

At this time, there has been a lot of talk about investing in a "green economy" with more renewables, reduced motorised transport or travel, and more working from home. These are all good ideas but they could also be interpreted as mere tinkering at the edges. In another 15-18 months, perhaps with a vaccine in place, the understanding we have gained during the lockdown may be all but forgotten. The green economy, as promising as it could be to tackle climate change, may leave the discourse on development untouched. If we want long-lasting and transformational changes to connect sustainably with the web of life, we have to think about how we educate ourselves.

A different education

We must recognise, at an early age, the interconnectedness of the natural world with our everyday lives, and with the well-being of the planet. To accomplish that, education in history, geography, economics, biology and chemistry, for example, would have to be very different. Instead of presenting each discipline as distinct and separate, we ought to integrate their domains with the natural world.

History is set in periods divided by wars and victors, but should include ecological changes to the landscape in a region as part of the lesson. Just as there was a movement in history to include narratives of the subaltern, we need integration with ecological connections and changes. What were the consequences, for instance, of the British building railways across the country for better extraction of resources? Trains were earlier powered by wood from deforestation. Where did the wood come from and what was the local effect on people and forest cover? Similarly, geography must describe the land and the forests, how cities develop and what these changes do to the coast and the hinterland, water bodies and the commons.

There is a renewed interest in using more illustrations and models to enliven learning in the sciences. Biology and chemistry need not begin with the periodic table, reactions and cells, but start by framing the organism and cells as located within a milieu where materials, energy and information are exchanged. Chemistry could begin with cycles such as the nitrogen, carbon, phosphorus, and water cycles, which link together the biosphere, rocks and minerals. This type of teaching and learning will not do away with previously taught knowledge. It introduces a holism where there is reductionism, and the foundation would be the linkages across human and non-human entities.

Small beginnings

Such new learning would set the grounds for understanding climate change from rising anthropogenic greenhouse gases. There has been a small movement to include the anthropogenic changes we have wrought on the earth into fields of inquiry such as literature, culture studies and history. Still, this inclusive thinking is not mainstream. A significant level of unlearning will have to be done along with new learning. Curriculum developers will have to restructure and rebuild materials used to impart knowledge.

In *Unruly Waters*, historian Sunil Amrith describes the subcontinent's history by looking at the rain, rivers and coasts. He writes how water was studied, managed and divided as a result of human activity through political and economic development. In *Indica*, Pranay Lal teaches geology and natural history simultaneously. Amitav Ghosh's *The Great Derangement* is about imperialism and its role in climate change. The economic historian, Prasannan Parthasarathi, is preparing new materials to teach modern history incorporating ecological changes, and novelists and poets are beginning to integrate the Anthropocene in their writing. The initial waft of change we see in some areas of knowledge will have to deepen and spread.

The Gaia hypothesis put forth by James Lovelock is an ecological theory proposing that living creatures and the physical world are in a complex interacting system that maintains equilibrium. One might imagine the COVID-19 crisis as Gaia giving us a warning, showing how flimsy human life and the structures we rely upon are. Unchecked rapaciousness has been unleashed by policies that support "growth at any cost". It will ultimately fail since all goods used in any economy arise from the natural world. Our educational system needs to lay down the bricks for this understanding.

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