


Education During Anthropocene, Capitalocene, and Chthulucene

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The history of the planet Earth spans about 4.5 billion years. But the emergence of early humans, including their now-extinct ancestors (hominins), is a more recent phenomenon with a history of 6-8 million years. Bipedalism, the capacity to walk on foot freeing hands for other purposes, began some 4-5 million years ago. The use of fire and tools has a history of about two million years. The emergence of the Homo sapiens, the modern human beings, dates back only to 2-300,000 years, and the beginning of the use of complex tools, language and arts has a history of a mere 100,000 years. All this means that in the long geological calendar, humans are just one small part of the whole system of the planet Earth – its features, living beings, and things. But lately, the scenario has changed and humans and their activities have been creating a great impact on the planet. Environmental pollutions, mounds of plastics, rising temperatures, and sea levels, etc. are just a few examples. The imprints or permanent marks of human actions are now clearly visible on earth and its systems and the argument is that such effects are now going to be permanent in the life of the earth (Crutzen & Stoermer, 2000).

In their history of two to three thousand years, humans were not able to make any imprint on the earth system. But such effects began to be seen around 10,000 years ago with the beginning of agriculture and permanent settlements. However, with simple handmade gears and tools, powered either by humans themselves and/or animals, the earth was still natural. But in the past few hundred years, the intensity of their activities and the effects of those activities upon the earth system have been increasing

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consistently. Owing to the technological advancement they have made, they are capable of making a widespread and permanent imprint on the earth system (Cooper et al., 2018; Crutzen & Stoermer, 2000). The scenario began to change drastically with the beginning of mechanisation powered by fossil fuels and the ever-increasing use of man-made toxic chemicals. As such, scholars are now arguing for naming the current geological epoch (a classification of the period in the geological calendar) as the Anthropocene epoch, thereby ending the Holocene epoch (Crutzen & Stoermer, 2000; Steffen, Grinevald et al., 2011; Zalasiewicz et al., 2011). The period after the end of the last glacial age about 11,700 years ago has been named the Holocene epoch and it is still the formal geological epoch.

Call for Change in the Geological Epoch

The advent of the industrial revolution in the second half of the 18th century, first in Britain, then in Europe, and gradually in other parts of the world intensified the encroachment and disruption of the earth system in the following centuries. To satisfy the greed, humans expanded factories and agricultural lands, deepened mines, constructed sprawling cities and roads leading to the fast decreasing natural lands and wildlife, excessive use of human-made hazardous chemicals and plastics, etc. contributed to further destruction of the earth system with the toxic wastes over water bodies and lands, polluted water, air, and land, changing climatic patterns, increasing environmental hazards, changing ecosystems, etc. These changes have been affecting the earth system on an ever-increasing scale and intensity. The argument is that such changes are the outcomes of human actions and have now become more and more of the permanent nature affecting the earth system at the geological scale (Dalby, 2016). In the last two to three centuries, humans have made themselves as one of the geological forces that could bring imprints of their actions on the earth system at a deeper and more permanent level (Crutzen, 2006); hence, the call for the Anthropocene epoch. The second half of the 19th century or the years after 1950 have been described as the Great Acceleration that characterises the most intense change in the relationship between humans and nature (Steffen, Broadgate et al., 2015). The concern is of urgency towards the possible massive and drastic change; even to the scale of mass extinction, as has been claimed (Kolbert, 2014).

There are, however, different ideas on the concept of the Anthropocene. Many scholars have found the concept inappropriate from different perspectives. From a geological point of view, in the billions of years of the history of the earth, the human-made scar on the earth system just over two-three hundred years is too short for surfacing a reason for a geologic epoch and probably that cannot be even traced after millions of years (Brannen, 2019). It is rather too early to talk about epoch change as we have yet to see what is yet to come after some thousand years. Geological time scales are supposed to be determined based on stratigraphic characteristics developed over thousands and even millions of years, and not just a few hundred years.

Some other scholars disagree with the name itself – the Anthropocene, mainly on two grounds. First, the name overemphasises humans and ignores the roles of other actors and processes that interplay in shaping the earth system, and second, it puts all people in the same basket (Mathews, 2020). Naming the geological epoch on the human name simply indicates the desire to see oneself as superior of all other species and gives the arrogant impression of being the best. It is an irony that the concept that is supposed to question the so-called human supremacy be named after the humans themselves. Further, such an anthropocentric perspective denies the need for coexistence with others for a better future of the earth. The concept of Anthropocene does not even differentiate the varying role individuals and groups of communities are responsible for the degradation of the earth system (Haraway, 2016a; Malm, 2018; Sharp, 2020). The majority of the people and communities are living a very simple and natural life and are thus not much responsible for any adverse effect on the earth system while the modern, industrial, digital, and high-tech people are all to be blamed for ever-expanding hazards. As the concept is dominated by the Western and technocratic worldviews focusing on the global scale, it has ignored the localised context, traditions, values, and worldviews. Overshadowed by science, it ignored the locally generated knowledge heritage while trying to explain human actions, their interrelationships with their local and broader surroundings, and their efforts to be in harmony with nature.

Dissatisfied with the notion of the Anthropocene, scholars have also suggested different terms and concepts like Capitalocene (Malm, 2018), Chthulucene (Haraway, 2016a), Plantationocene (The Plantation Series, n.d.), etc. Capitalocene emphasises that it is the unequal and unjust societal structures, aggravated by the capitalistic perspective which is fuelled by fossil fuels, that are to be blamed for the problem (Malm &

Hornborg, 2014). Plantationocene calls for understanding the effects of colonialism and capitalism and their products racialism as the major thrust of the world economic and ecological order (Murphy & Schroering, 2020). Chthulucene, Haraway (2016b) says, is for “pasts, presents and futures” (p. 50) and also for “temporalities and spatialities and myriad intra-active entities-in-assemblages” (p. 101) of all species. Chthulucene, thus, emphasises kinship, togetherness, and a futuristic perspective enabling oneself to address the challenges, fight for injustices, and find the pathways. It must also be noted that by suggesting new names the proponents of the concepts of the Capitalocene and the Chthulucene do not disagree with the argument that there already is a new epoch.

The purpose here is, in the context of this paper, not to debate whether the present geologic epoch should still be the Holocene or it has moved to a new epoch Anthropocene or any other new names suggested with different perspectives and arguments. What is important for us is the issue(s) these concepts raised. With their forceful arguments, these concepts introduced or illuminated, different challenges and risks that earth systems have been facing and which require urgent and collaborative actions if we are to regenerate what we already lost or are losing. These ideas, particularly the notion of the Anthropocene, have widely spanned many fields of studies influencing the discourses in academia and even among the general public as indicated by many academic and media publications (Brondizio et al., 2016; Trischler, 2013). The whole issue that began with the concern of epoch change has now not remained within the scope of palaeontology or geological time scale but has fanned several other fields of natural and social sciences.

Bringing a sociocultural perspective in examining or understanding the forms of human-nature relationships has been one area of such expansion (Trischler, 2013; Olsson et al., 2017). The idea of the Anthropocene has become a central theme across many different fields of studies like education, anthropology, political science, etc. to understand the human-nature relationship in a post-nature (in the sense that every natural process and phenomenon has come under the human influence) context (Malhi, 2017). It has become a meeting point in the study of natural and social sciences where, say, biologists and educationists work together to understand the past, the present, and the future and by bringing their disciplinary perspectives but also transcending their traditional boundaries. It now does not remain an agenda only for natural sciences but has traversed many other fields – it is now a political agenda, a cultural agenda, a

justice and equity agenda, an ecosex agenda (being in fierce, hot love with the earth, nature) (Ecosex manifesto, n.d.), to name just a few.

With the changing world views brought forward, the ontological and epistemological concerns in looking at the earth systems have been changing (Malhi, 2017). Some of our basic understandings like the earth is a stable and nurturing body have been questioned and the earth is also seen as a violent and volatile body, that humans are not only active but destructively active and are harming the earth systems, that humans and nature are not distinct and separate units but are part of the whole, and that apart from humans there also are other living beings and non-living things with their agency have drastically changed our ontological perspectives (Benson, 2019; Hamilton, 2020). The new ontology thus offers the outlook to consider all these tensions and ruptures and provides a perspective to examine and understand the complex forms of relationships among all the entities. Both the earth and humans are fierce but our ontology must work for prospects for creating hope and for the future.

It is thus clear that there are planetary boundaries. Earth, and also the humans, has a limitation and it is not a perennial supplier of resources in an unlimited manner and cannot absorb all the wastes humans, mostly the industrial and digital humans, produce (Malhi, 2017). This makes that growth is not an infinite phenomenon and is not a forever process. This realization shatters the human dream of continuing progress (Mitchell et al., 2020). All these make it clear that the conventional epistemology practised both in social and natural sciences that put humans at the centre can help us no more and so we have to adopt a different epistemological frame. This frame begins first by rejecting the idea of human supremacy, dehumanises the whole process, and then goes for non-humanisation by including all non-humans (Kruger, 2016). The new epistemologies are now transdisciplinary, that traverse time and space, and that regard knowledge as experiential, public, critical, and is for equity, justice, and kinship. Relationships between humans, nature, and things are highly embedded and so not only humans, but nature and things are also important actors in the knowledge process. As Holmes (2020) writes, “nature is political” and the relationship between humans and nature is political (Schulz, 2017). This makes that knowing is political and that there are conflicts between the knowledges and knowledge generation processes. This also calls for encompassing the local cosmologies and epistemologies as against the conventional practices of ignoring the local worldviews and going for grand narratives.

It has been argued that the localised wisdom developed through generations provides important insights for harmony between humans, natures, and cultures (Gautam & Shyangtan, 2020).

Likewise, the modernity-based ethics that put humans in the centre does not fully provide the ethical perspective required for today's volatile world where one needs to see in reference to the deep time (the geological time scale) (Schmidt et al., 2016). The ethics of today's world revolves around humans and nature and the forms and intensity of the interrelationships between them (Miles & Craddock, 2018).

All these ideas whether under the name of the Anthropocene, Capitalocene, or Chthulucene are all for transforming the society for a quality life, not only for humans but for all living and non-living entities. These could be achieved gradually when we move towards addressing the dilemmas and crises we (humans, nonhumans, things) have been facing. For this, we need to realise that there are multiple world-views, relationships, and roles for all of us. We humans have to change our ways radically to be able to realise transformations by averting tensions, dilemmas, and crises. This change is necessary because humans have already pushed or are pushing the earth's systems beyond the boundaries. That is, it has become more and more difficult to get back a healthy environment for the earth system. Education has an important role here in preparing humans to begin, continue, and speed up this journey towards transforming the life and destiny of the earth and its systems.

Education During the Volatile Times

While talking about education, we need to consider two important aspects – what of education (content) and how of education (practice). Working on the new education, we need a thorough understanding of present challenges on a deep time scale. This is important for crafting the transformation process, again on a deep time scale, as the transformation itself is a long time process. Such a process goes both at the local and global levels ensuring the opportunity for active participation of all actors at all levels and all formal and informal institutions lead and coordinate such processes. Likewise, these processes help us recognise the activities or groups responsible for creating less adverse effects or creating harms at a higher rate and intensity.

The new curriculum focuses on developing and strengthening agency and values (UNDP, 2020) among the actors of learning. Agency is willingness and capability to act

upon (Giddens, 1984). All social actors do have agency owing to which they act, build networks with other social actors, and adjust with their immediate and broader context. Values could be understood as desired choices or expectations within socially acceptable norms and practices (UNDP, 2020). Hence, the new education focuses on developing value formation among learners. The concept of value, however, is highly contested as individuals and groups of people and societies could have different values. However, this is not a challenge for a society that is democratic and transparent. Society develops ways to address this challenge by accommodating value differences within the broader value framework. Within this broader value framework, a societal education works for a just and quality life close to nature by drawing from local cosmologies, knowledges developed elsewhere, promoting the idea of kinship and collaboration, understanding the boundaries and limitations, and honouring the roles of all entities.

If this new education has to play a powerful role towards transformation it is important to begin by deconstructing modernity and humanity-based learning. Likewise, its philosophy must also be changed so that it could become interdisciplinary by interacting more and more with other fields of studies and thus providing a larger forum for aggregate wisdom making the knowledge community able to address the big problems we have been facing now (Stratford, 2019). As there will be lots of resistance and challenges, the transformation process should have enough courage to face all the challenges. It should also work on preparing individuals and societies for addressing all sorts of challenges that might arise due to power conflict. It should work for creating an opportunity where all coexist with local wisdom

We also need to introduce a radical shift in the way we practice education. This is important because the present form of education structure, its design, content, and its methods are largely the same in many countries across the world (Pritchett, 2014). So, if we are to expect to lessen the ecological and social disruptions and avert the looming dangers over the earth system, practising education should now move away from a structured design and methods to more open, flexible, and democratic systems.

The practice of the new education values all modes of knowing and educating developed across cultures which allow the participants, the learners, to realise it in the context of their everyday life. Everyday life is the “field” where the actors practice their

relationships by staying within formal and informal social norms, observe their cultures and livelihoods, form their values and ethics, and build their subjective dispositions “habitus” (Bourdieu, 1972/1977). It is thus important that the new education become a part of everyday life for the people where the learners themselves get the freedom to choose their educational path. In such a system everyone is a learner and everyone is an educator and things go in a participatory way.

As a part of the educational process, one has the opportunity to experience the forms of relationship among humans and non-humans by becoming an integral part of such relationship. Only then one feels and internalises the political, cultural, and ecological tensions, dilemmas, and opportunities present in such relationships. This sort of experiential learning is very important to understand the destructions humans have caused by destroying all the biomes (natural habitats with particular types of vegetation and lifeforms) and converting them into anthromes (converted land use like cities, plantations, commercial forests/grasslands, mines, etc.) to fulfil their lust for power and property and eventually leading towards the ecological destruction. And, this knowledge is important for making honest efforts towards the transformation process.

To engage in this transformation process, people of all age groups – children, youth, and adults, wherever they might be, actively participate in this process of knowing and educating as well as in being, doing, and becoming. It is the responsibility of formal and informal institutions at the global, national, and local levels, to create such an opportunity for all. Likewise, all modes of learning – formal, informal, and non-formal – and all modes of instructional media – traditional and recently developed – are utilised as per the need and context. Harnessing traditional, historical, religious, spiritual wisdom as well as recently made innovations and inventions is necessary for this process.

Is it possible to realise all these wishful thoughts? Can we radically transform our education process and ourselves? Are we just one simple tool of the larger system without having any capability of our own? (Vince, 2014). Are we, humans, willing and capable to save the earth systems from the impending risks of the earth becoming an uninhabitable place for all humans and non-humans? As we humans have survived throughout our history of thousands of years by adapting ourselves as per the environmental conditions and developing our unique sociocultural systems in

accordance to our contexts, we would be able to cope with the present challenges also. Vince (2020) argues that with our own “genes, environment, and culture” (p. 6), we hold the capacity to transform ourselves, collaborate with nature and other non-humans, and revive nature again.

If the human does not disturb nature, instead collaborate with it, and does not produce or at least substantially minimise the toxic effects of its activities, nature can revive itself. But given the human greed for more and more power and property and desire to control others, particularly in the case of those who already control the large proportion of world resources, the question is still there – are we, humans, willing and capable to fundamentally transform ourselves? Humans have substantially altered the earth systems to the extent that there is little nature or natural habitat now and almost everything that we see, practice, and feel is the product of the intelligent design of humans (Harari, 2014). It is difficult to say where this intelligence takes us. We might convert ourselves into more and more a cyborg (powered by human-made intelligent devices such as digital chips that could be implanted in our body to substantially enhance our physical and mental capacity and even to prolong life). Consider different fields of study like biotechnology, genetics, robotics, artificial intelligence, and so on. If these fields continue to grow, and it seems these will grow, these will overturn, or are already overturning, the pattern and the value of life. In that case, the human does not remain as human bringing an end to human (Harari, 2014). Likewise, nature will not remain as nature.

Final Words

What choices do we have? Remain as a natural human, gradually convert ourselves into a cyborg, or be replaced by a robot, or proceed towards mass extinction? Each one of us might have our own choice. But we have to accept that we were developed as natural humans and we have a history of millions and billions of years. Our intelligence is not to destroy this history, this nature, but to value the intelligence and heritage we have and contribute to prospering all beings and non-beings in this earth system with all their dignity. All these are partners of humans, and we, humans, cannot imagine an earth system without our partners. Education is one strategy to support us in being ourselves; if we design and practice it for prospering as natural humans.

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