Towards Curricula in the Anthropocene

Raghavendra Gadakar[1], Manfred D. Laubichler[2], Helga Nowotny[3], Jürgen Renn[4], Christoph Rosol[5], and Bernd M. Scherer[6]

The following policy paper is the result of a working group discussion held at the international workshop "Curricula and Humanistic Scholarship: Between Tacit Knowledge and Public Discourse" which took place September 9-10, 2015 at the Van Leer Jerusalem Institute and Tel Aviv University.

The Anthropocene itself is a concept in flux. We are therefore still unable to detail the contents of curricula in a way that would create and transmit the appropriate knowledge to address the challenges connected with the Anthropocene. Instead, we propose to outline possible pathways that could lead to such curricula, Clearly, these pathways and their outcomes will vary widely, reflecting diverse local and historical experiences.

The Anthropocene nevertheless offers a new perspective for 21st-century curricula, suggesting a strong common basis for the *intellectual* transformation that needs to accompany the transformation of our planet if humanity is to have a chance of survival. Basic knowledge of this planetary transformation, including controversial issues such as when exactly the current anthropogenic transformation of our planet began, form the natural starting point for an Anthropocene curriculum. It would also require us to teach basic knowledge about the relevant sciences and to present an evolutionary and historical perspective on both the planet and our knowledge about it. Such subjects as the origin of life would come in naturally, as would reflections on the ways in which scientific controversies have been or are being pursued. In dealing with the Anthropocene, the humanities are therefore closely integrating with the natural and social sciences.

[1] Centre for Ecological Sciences and Centre for Contemporary Studies, Indian Institute of Science, Bangalore; President, Indian National Science Academy, New Delhi.
[2] Professor of Theoretical Biology and History of Biology, School of Life Sciences and Center for Biology and Society; Director, ASU-SFI Center for Biosocial Complex Systems; Associate Director, Origins Project, Arizona State University.
[3] Professor Emeritus of Social Studies of Science, ETH Zurich.
[4] Director at the Max Planck Institute for the History of Science, Berlin.
[5] Research Scholar at the Max Planck Institute for the History of Science; Research Associate at the Haus der Kulturen der Welt, Berlin.
[6] Director of the Haus der Kulturen der Welt, Berlin.

Looking at the world from the perspective of the Anthropocene, it becomes clear that we need to reconceptualize all objects of research. The humanities in particular may be reconceptualized as the accumulated experience of humanity with itself, embodied in its cultural products, and offering the potential to reflect upon and beyond itself. The Anthropocene challenges classical notions of responsibility and ethics because new modes of interactions have emerged on a global scale. Dealing with such key issues as sustainability, for instance, requires more than just technical solutions. Knowledge of the humanities and the social sciences are also needed when engineering problems or questions of sustainable energy supplies invariably connect with questions of social contexts and local and global modes of implementation. It is also crucial to reflect on the concept of nature itself, as it is understood in different cultures. To give a specific example of the new ways of thinking that are required, one needs to look not just at local environments but also at "teleconnections" between the causes of pollution and their long-term and long-distant effects. The co-responsibility of science and technology for creating the Anthropocene unavoidably introduces ethical dimensions to the discourse of the sciences. No longer are they able to confront the world through the narrow lenses of their labs. Instead, the globe itself has transformed into a kind of "megalab," serving as the ultimate common reference point for all human knowledge.

What is the present situation and how can Anthropocene curricula be implemented in various parts of the world? Clearly, in dealing with the subject of the Anthropocene, processes of learning and teaching cannot be separated from research inside and outside of academia, nor can it be decoupled from civic engagement with the global transformation processes. A number of experimental spaces have now been created that deal with key issues of the Anthropocene, such as the Global Classroom, a joint initiative of ASU and Leuphana University on sustainable cities; the humanities curriculum developed at the Centre for Contemporary Studies of the Indian Institute of Science; the University for the Third Millennium Initiative; or the Anthropocene Campus of the Haus der Kulturen der Welt and the Max Planck Institute for the History of Science. In keeping with the interconnected nature of the Anthropocene, there are already many links between these projects.

A characteristic feature of these initiatives is that they all involve their local environments as well as global networks. One starting point for many of these initiatives were in fact units of learning: teaching and research emerging from local contexts. Rethinking the relevant knowledge on a global scale is another immediate implication of an Anthropocenic perspective. Another common dimension is that of the interaction of different cultural and disciplinary perspectives and intense translation efforts articulating these perspectives. Finally, the existing Anthropocene curricula are characterized by a focus on problems, challenges and methodological perspectives with the potential to integrate disciplines across the traditional divide of the sciences and the

humanities. This opens up the perspective for future curricula that are no longer defined by established disciplines but instead address fundamental problems related to the Anthropocene. Incidentally, such an approach also fits within current advances in pedagogy.

The contents of Anthropocene curricula will necessitate specific forms of implementation, including the creation of dialogical and reflective social spaces that foster personal encounters and connect people from diverse backgrounds, but also aesthetic and cognitive strategies for confronting the world. The global dimension requires, moreover, the extensive and innovative use and development of information technologies, enabling global communication and an accumulation of knowledge in the spirit of an Epistemic Web. Intense personal experiences, for example when participating in controversial discussions at seminars, may be shared with a wider public via electronic representations of key moments.

The global nature of the object of study—our planet in transit—entails the employment of innovative tools of global modeling and simulation, which were originally created for the analysis and repurposing of Big Data. Another critical dimension of both the institutional and technological infrastructure of Anthropocene curricula will be their openness and inclusiveness. Anthropocene curricula should therefore have an extramural dimension and emphasize the use of open-source platforms and open-access to scientific information and cultural heritage. Efforts must be made to overcome the Digital Divide. And finally, those learning within the Anthropocene curricula should make contact with the rapidly evolving real-world practices of those learning in a digital world.

The existing experimental spaces have not yet firmly established new paradigms in the sense of characteristic units of problems and problem solutions, which may serve as standard references for a globalized curriculum. Because the concept of the Anthropocene itself is continually transformed by the ongoing discourse, Anthropocene curricula in turn will have to demonstrate flexibility in responding to locally diverse conditions. This entails the future development of Anthropocene curricula being characterized by an ongoing experimentalization of knowledge. To involve a wider field of different perspectives and local experiences, we need to create more experimental spaces especially, for instance, in China or in Latin America.

Because the idea of Anthropocene curricula is to generate and transmit knowledge capable of addressing global challenges, this idea and its implementation have to be effective on a global scale. Furthermore, the Anthropocene will serve only as a common reference point when related to shared concerns, canons and practices that will hopefully be constitutive of the culture shared by future responsible citizens of the Anthropocene.

An important next step is therefore to ensure that the diverse initiatives and experimental spaces establish close and ever more coherent connections and partnerships among each other, allowing for an accumulation of the experiences and best practice examples gathered in their contexts. They should aim at developing paradigmatic solutions with the potential to also transform the disciplines involved in their study. We expect that the implementation and spread of Anthropocene curricula will overturn much of the traditional disciplinary structure and give rise to new modules of knowledge, teaching and learning. Trajectories across this emerging new landscape of knowledge will be more individualized and flexible. For instance, while some may start from a perspective of the humanities, others will take the sciences as their starting point. Anthropocene curricula might thus display an intrinsic symmetry with regard to these different possible starting points.

In addressing the obstacles that might be constituted by diverse national or international regulative frameworks, different components of the academic knowledge economy should be disentangled. For instance, the institutions providing content do not have to be the same institutions that grant degrees. In particular, the realization of Anthropocene curricula does not have to entail the creation of new departments. To enhance the flexible participation of wider strata of society, we suggest a new model of incremental certification by which, for example, the participation of high-school students in advanced academic activities or the civic engagement of university students in extramural activities could be honored and stimulated.