# 'Thoughtfulness' in Biology Education

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Bioscience is one of the fastest developing disciplines and its impact on society economically, politically and ethically is not to be underestimated. For example, significant advances in genome sequencing, genome editing, systems and synthetic biology have all occurred within the last decade, if not within the past few years. The impact of this revolution in understanding of the biological world and the technology that it offers raises fundamental questions about what it is to be human and what is a meaningfully long life on an ever changing planet. How then, should the way that we teach the Biosciences ensure that people of all ages understand the subject in order to have informed opinions and be able to contribute to the advance of the subject in the future. To begin to address this weighty topic, a seminar was organised with German and Dutch colleagues at UCL Institute of Education in London, funded by the UCL Global Engagement Office. The topic of this seminar series was 'Thoughtfulness in Biology Education' and the participants ranged from Bioscientists, Science education researchers from across Europe, Education philosophers, university and school teachers, informal science educators and representatives from the Royal Society of Biology, the Wellcome Trust and the Biochemical Society. This one-day symposium included some very fruitful discussions of what thoughtfulness might mean in terms of Biosciences education, both in dealing with Biology as a discipline that spans the molecular, cellular, organismal and planetary realms, and in terms of considerations of justice which the term 'thoughtfulness' represents, for example in our relationship to non-human species. Some consensus was reached in the need to move away from a fact-based discourse of Biology competence towards a more holistic approach. This approach would encourage learners to place their understanding within the context of the whole of Biology, particularly as a discipline that impacts on such a wide spectrum of issues faced today. This would involve changes to how we teach the subject, to how we teach the teachers and to how we assess the students learning and teachers' competencies. More research is needed on this topic and it was resolved that participants in the seminar would continue to work together to make more concrete proposals for the future. ■


Delegates at the UCL Institute of Education seminar on Thoughtfulness in Biology Education

**If you are interested in this topic, you can follow the movement of Thoughtfulness in Biology Education via twitter @UCL BioThoughtfulness and #BioEd.**

**If you are interested in contributing to the movement, please get in touch with Dr Ralph Levinson (r.levinson@ucl.ac.uk) or Professor Stephen Price (stephen.price@ucl.ac.uk)**