



Dr Martin Braund

The Arts and Sciences: Crossing the Great Divide

(Keynote address)

In many cultures, learning has been organised around subject disciplines broadly conceived to include the Arts, Humanities and Sciences. Subject disciplines of the curriculum have evolved structures and characteristics creating boundaries between them that are counter to the experiences of many adolescents. Disciplinary borders favour a utilitarian view of knowledge and creativity, often under-valuing some disciplines, including the creative and performing arts, not directly associated with primary means of economic production. The borders between self-reinforcing disciplinary structures result in inadequate attention paid to the potential of working across, between and beyond disciplines. In this keynote lecture I examine how this schism between the 'Arts' and 'Sciences' has come about and the harm it continues to do for learners across the life-course. The central argument is that in the real world Science is collaborating with the Arts as never before while the science curriculum, particularly in schools, lags behind and is increasingly outdated and irrelevant, based on 19th and early 20th century notions of what science should be. Science teaching in the 21st century can and should be transformed by using more creative approaches from the Arts. I will show the benefits of using Arts approaches to learning science using examples such as creative writing, 2D and 3D visualisations, poetry and drama, drawing on new world leading research at two universities I am associated with. The argument is made for a new 'STEAM' age, showing how science and science education in the 21st century are moving away from the traditional and rather restricted notion of STEM (Science, Technology, Engineering and Mathematics) to one that also encompasses the Arts (Science, Technology, Engineering, ARTS and Mathematics). STEAM

promotes economic development, encouraging people to work creatively to generate and communicate ground breaking new ideas. The benefits to education of using the STEAM approach in science teaching will be shown and discussed.