



Education Round Table 30th June 2022

SUMMARY OF PRESENTATIONS AND RESPONSES

The round table was chaired by Jane Davidson, Pro Vice-Chancellor Emeritus, University of Wales Trinity Saint David with presentations from:

- Jon Bootland, Director Sustainable Development Foundation
- James Norman, Professor of Sustainable Design, Department of Civil Engineering, University of Bristol
- Dr Lizzie Rushton, Associate Professor and Research Lead, UCL Centre for Climate Change and Sustainability Education
- Josh Tregale, Mechanical Engineering Student and Climate Activist
- Jamie Agombar, Executive Director of Students Organising for Sustainability (SOS-UK)
- Emma Crichton, Head of Engineering, Engineers Without Borders

and initial responses from:

- Laura Webb, Director of Membership, Chartered Institution of Building Services Engineers (CIBSE)
- Andrew Close, Director of Education and Profession, Royal Town Planning Institute (RTPI)
- Séan Harris, Director of Membership, Institution of Civil Engineers (ICE)
- Alex Whitcroft, The Climate Framework and Director, KIN
- Aled Williams, Executive Director: Innovation and Partnerships, University College of Estate Management (UCEM)
- Juliet Upton, Head of Education and Skills Policy, Royal Academy of Engineering
- Julia Stevens, CEO, Constructionarium
- Nick Ford, Design Engineer, Pipsqueak Developments
- Mike Cook, Chair, Climate Emergency Task Group, the Institution of Structural Engineers

The question posed for the round table was

"Are new entrants to built environment courses adequately informed and prepared for the climate and ecological challenges that they will be dealing with in both their training and careers?"

The session was introduced by the Chair, who noted that while this discussion had been current for many years, little progress had been achieved. Was this now the moment with the science settled and governments having made substantial commitments, to restart the long-term business of turning around education?

The round table presenters and participants clearly articulated how they saw things from their perspectives and the actions they were taking.

Some key points and suggested next steps are listed below along with comments from the chat and the many documents et al referred to during the session.

Presenters' key points:

- The science is clear and yet about 50% of first year mechanical engineering students at at least one prominent engineering school were still questioning the science.
- Progress needs government support – there needs to be a combination of legislation/regulation and a willingness to embrace change by all age cohorts.
- This is an issue for everyone, not just for young people...as James Norman explained,

"We face a huge challenge in that the skills and the questions we are teaching our young people to ask are at odds with the actions of adults.

The better prepared they are for the what next, the more frustrating it will be for them as they step into the existing paradigm.

That is to say that it is the current generation (me) who need to make the change so that future generations can move into it. "

- Leaving the change required only to future generations doesn't worth ethically or practically, but education on climate at secondary level still matters and offers hope for a sustainable, ethical and equitable future.
- In whatever occupation, and looking specifically at the built environment, not everyone needs the most advanced skills, but everyone does need to understand the principles and have the necessary base skills and competence in their own area of working.
- With regard to the practical skills and experience required – there is little design technology (or practical skills generally) in schools anymore.
- There are serious capacity problems at all levels of education in the provision of high quality face-to-face tuition for sustainability understanding and the development of appropriate skills
- Climate anxiety is widespread – can it be overcome by positive actions from all generations?
- Teach the Future, the student led climate education campaign, has made significant progress over the last three years and was a key player in getting the DfE's Sustainability and Climate Change strategy onto the agenda of COP26 and ongoing. Unfortunately, the strategy stops short of reforming the curriculum to integrate the climate and ecological emergency throughout the curriculum not just limited to geography and science. In response Teach the Future has commissioned a 'tracked changes' report from the Universities of Gloucester and Cambridge to show how this could be done for 8 key subjects – as a starting point. The strategy expects all schools to have model climate action plans in place by 2025 and an ambitious model plan is being drafted to show how this could be achieved and what it should include.

Teach the Future welcomes support from as wide a range of organisations as possible.

- At a higher education level, while engineers have a key responsibility to deal with climate change in their work, issues relating to climate and sustainability are too often treated as optional extras and so easily ignored by students as not contributing to course results. At the same time there is support for some engineering courses from businesses like BP and Shell – potentially working against the messages that are needed!
- Engineering is a key to change as the wider construction industry contributes about between 40 and 50% of current emissions (plus emissions from mining, energy, fossil fuels and manufacturing) – but how do we create hope and action when about 70% feel hopeless and only about 26%¹ feel they have something positive that they can do? This means that the current workforce must do, and do now, what is required and not shift responsibility to young people. People must come together – tomorrow’s graduates and today’s professionals. In some countries, such as Bangladesh, learning and understanding about climate is a survival issue today, it will be one for all of us shortly.

Contributors’ responses:

- Government has an important role to play in terms of regulations and changes to the secondary curriculum. For example, government should be ensuring that school staff have an annual CPD requirement in this area, perhaps even a mandatory inset day is required.
- There needs to be a golden thread through all elements of education and the workplace with life-long CPD.
- There is the need for bottom up action to inspire their ‘inner Greta’ for all – students, teachers, professionals.
- Accreditation of university courses should be reviewed and renewed to increase competencies in sustainability which are then embedded across the accreditation process.
- Schools and higher education establishments need to demonstrate sustainability across their own estate and how they are run with personal contributions from staff and students to both understand and support this.
- Teachers at all levels will need to increase their skills and competencies – a ‘teach the teacher’ programme is needed.
- How do we handle the hard-to-reach parts of the industry? There are many players such as estate agents, financiers etc. who would benefit from open-source climate education.
- Will a programme of micro-competence accreditation running through both pre-qualification training courses and professional CPD provide the industry with a cadre of individuals better able to tackle the challenges we face?

¹ Force for Nature Report - <https://www.forceofnature.xyz/about>

- Education, industry and government must work together. Estimates show that we need 240,000 additional employees in construction with 350,000 (or 60,000 p.a.) for retrofit alone by 2028 – this means an additional 100,000 people in the industry ever year until 2028. Where are they going to come from? Inspiring entry to the industry in secondary schools for one and offering reskilling opportunities for those in declining areas of the economy for another.
- Students are paying huge fees and cannot afford to make mistakes – they need an effective education
- We should not ignore those who were not ‘academic’ at school and have apparently ‘failed’, because they might be excellent at delivering the necessary practical skills in making, production and other critical activities for delivery. How do we encourage them?

The full recording can be found here:

<https://edgedebate.com/edge-events/edge-education-roundtable-133-30th-june-2022-1630-1830>

NEXT STEPS – the Edge recommendations

- Propositions and programmes need to be shared and collaborated on across the industry. There is not the time or resource to develop multiple different versions of the training required.
- Modular qualifications and accredited micro-competences as elements in lifelong learning, from its very outset, should be explored as a way of breaking the logjam around education.
- Colleges and institutions should demand familiarity with biodiversity and climate change issues as a basis for entry onto their built environment course
- The majority of built environment professional institutions have agreed to make CPD on skills in and understanding of biodiversity and climate change a mandatory requirement for their members. Translation of this into action needs urgent attention².

Suggested references/Further reading/resources

Governments

Welsh Government

- Guidance
<https://gov.wales/one-planet-development-practice-guidance>

Department for Education

- Sustainability and climate change Strategy
<https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy>

² Carbon Zero: the professional institutions’ climate action plan, CIC,
<https://www.cic.org.uk/admin/resources/cic-carbon-zero-climate-action-plan-for-professional-institutions-8.pdf>

Construction Leadership Council, CITB

- Industry Skills Plan for whole of Construction & Built Environment
https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/03/B06322_CLC_SkillsPlan_v27.pdf
- LMI (Labour Market Information)
<https://www.citb.co.uk/about-citb/construction-industry-research-reports/construction-skills-network-csn/>

Lifelong Education Commission

Set up by Chris Skidmore MP and managed by ResPublica

- Emerging role of micro-credentials in modular learning
<https://www.respublica.org.uk/our-work/publications/the-role-of-microcredentials-in-modular-learning/>

Professional Institutions and associations

Construction Industry Council

- Carbon Zero: the professional institutions' climate action plan – work stream 1 is on education and qualification
<https://www.cic.org.uk/uploads/files/old/cic-carbon-zero-climate-action-plan-for-professional-institutions-7.pdf>

Institution of Structural Engineers

- a short piece on the curriculum from IStructE.
[https://www.istructe.org/journal/volumes/volume-98-\(2020\)/issue-9/viewpoint-a-curriculum-for-the-climate-emergency/](https://www.istructe.org/journal/volumes/volume-98-(2020)/issue-9/viewpoint-a-curriculum-for-the-climate-emergency/) (paywall)

Royal Town Planning Institute

- RTPI research to support campaigns for change: <https://www.rtpi.org.uk/new-from-the-rtpi/?topic=Climate%20change%20and%20energy&contentType=Research>
- RTPI support for teachers: <https://www.rtpi.org.uk/become-a-planner/resources-for-teachers/>
- RTPI climate action strategies: <https://www.rtpi.org.uk/new/our-strategic-priorities/climate-action/>

Royal Academy of Engineering

- The Royal Academy of Engineering has and is trying to embed practical skills in schools.
See: <https://www.raeng.org.uk/education/schools/reimagining-practical-learning-in-secondary-school>
- RAEng work on net zero / sustainability
<https://www.raeng.org.uk/policy/policy-projects-and-issues/net-zero-a-systems-perspective-on-the-climate-chal>
and
- <https://www.raeng.org.uk/policy/policy-projects-and-issues/sustainable-living-places>

Climate Framework

- There will be a report published on the www.climateframework.com website soon in collaboration with LSBU, including on short courses, incorporating insights from a range of PIs and education organisations.



Universities

University College of Estate Management

- Free Online CPD - Level 3/4:
<https://www.ucem.ac.uk/energy-and-carbon-in-the-built-environment/>

UCL Centre for Climate Change and Sustainability Education

- <https://www.ucl.ac.uk/ioe/departments-and-centres/centres/ucl-centre-climate-change-and-sustainability-education>
- Lizzie Rushton & Lynda Dunlop paper contracting their perspective with those of teachers and young people
<https://bera-journals.onlinelibrary.wiley.com/doi/full/10.1002/berj.3816>

University of Regina, Canada

- A paper by Emily Eaton and Nick Day about 'petro pedagogies' and the obstruction of climate justice by fossil fuel interests:
<https://www.tandfonline.com/doi/full/10.1080/13504622.2019.1650164>

Bristol University

- Online session on sustainability created for engineering students
<https://camewelcome.blogs.bristol.ac.uk/drawing-design-session-5/>

New Model Institute for Technology and Engineering (NMITE)

- Teaching engineering via project-based learning
<https://nmite.ac.uk/>

Climate Framework

- There will be a report published on the www.climateframework.com website soon in collaboration with LSBU, including on short courses, incorporating insights from a range of PIs and education organisations.

Journals/reports

- Building & Cities Journal
See: <https://journal-buildingscities.org/articles/10.5334/bc.84/>
- UKGBC Solutions library
<https://www.ukgbc.org/solutions/> & challenges on key issues -
<https://www.ukgbc.org/challenges>

Campaigning organisations and NGOs.

Engineers without Borders

- Engineering for People Design Challenge
<https://www.ewb-uk.org/upskill/design-challenges/engineering-for-people-design-challenge/>
- Engineers Without Borders strategy document
<https://www.ewb-uk.org/2021-2030-strategy/>

ACAN resources

- <https://padlet.com/acaneducation/resources>
- <https://www.architectscan.org/action>
- <https://www.architectscan.org/curriculum-campaign>



Engineering campaign materials

- <https://www.thisisengineering.org.uk>
- <https://www.raeng.org.uk/global/sustainable-development-goals>

SOS-UK and Teach the Future

- Student demand survey data set - <https://www.sos-uk.org/research/sustainability-skills-survey>
See also:
UCEM headline response on SOS-UK sustainable skills (346 responses):
<https://www.ucem.ac.uk/wp-content/uploads/2022/05/Sustainabilityskills21-22.pdf>
- teacher demand data set: <https://www.sos-uk.org/research/teacher-training-and-climate-education>
- More teacher data: <https://www.sos-uk.org/research/climate-education-and-the-secondary-curriculum>
- Pupil survey <https://www.sos-uk.org/research/schools-and-sustainability>
- All research lives here - <https://www.sos-uk.org/research>
- Teach the Future - <https://www.teachthefuture.uk/>

Climate education tools

- Schools Homes Energy Education: STEM resources available at www.solar-active.com
- Interdisciplinary, team-based challenges run outside the curriculum
<https://www.youtube.com/c/timberdevelopmentukuniversitydesignchallenge/videos>
- Resource for use with young professionals on Built Environment HE courses, communities, and secondary school level. <https://climaniathegame.com/>
- Information of the state of design and technology in our schools in England see: <https://epi.org.uk/publications-and-research/a-spotlight-on-design-and-technology-study-in-england/>

Guidance for young people and education

- For reaching young people - See *Climate Town*
<https://www.youtube.com/c/climatetown> - really engaging videos of how climate change can be sorted out
- A forum for recent grads across the whole of the Built Environment Sector to lead from beneath - <https://www.linkedin.com/groups/9204485/>

Energy solutions

- Examples of over 40 off-grid companies and hundreds of students around the world looking at solar appliances - <https://efficiencyforaccess.org/efficiency-for-access-design-challenge>



Urban design and climate change

- A survey of published information rapidly growing cities in the Global South is available on the URBED Trust's web site <https://www.urbedtrust.com/indian-urban-futures/> & www.smarterurbanisation.org
- YouTube channel on urban planning and how it's shaped the car-dependant cities as well as unsustainable developments - Not Just Bikes
<https://www.youtube.com/channel/UC0intLFzLaudFG-xAvUEO-A>

the Edge – www.edgedebate.com