The Big Challenge

TACKLING THE ISSUES THAT REALLY MATTER

Learning through trial and error

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Students on the island of Ameland, Netherlands, during a solar experiment

There exists a famous Chinese proverb: tell me, I'll forget; show me, I'll remember; let me do it, I'll understand.

The Sheffield-based Schools & Homes Energy Education Project, or Solar-Active, is a charitable social enterprise company established in 1993, when Government funds were available to focus on community-based energy projects.

The project focused on curriculum materials that I adapted for Sheffield schools, covering recycling, murals, urban tree care and planting and community gardening. One project focused on children applying their mathematical skills in setting out the plans for the planting of shrubs, flowers and trees in and around their schools. An outcome for this was the reduction in vandalism to school buildings.

Materials were written for students to conduct school and home energy surveys with resultant energy-saving and cost-saving outcomes.

Data analysis support was received on the survey data collected, provided by the Resources Research Unit at Sheffield Hallam University with funding from the UK Building Research Establishment. In addition, Sheffield Insulations Group supported the project.

Within these 14 schools it was found that there needed to be addressed a shortfall in knowledge about climate change issues and a lack of direct experience by teachers in how renewable energy technologies work and are applicable in the UK.

We developed pioneering classroom resources and working demonstrations on solar energy.

The teaching approach and solar resources developed made learning and teaching enjoyable while valuing failure in the teaching and learning.

Our view was that failure is necessary as it is life's great teacher – without failure, great achievements are rarely made. The problem? Schools tend to celebrate only successes, rather than highlighting success achieved through trials and setbacks.

A schoolboy with a solar-powered model

A solar challenge on the island of Schiermonnikoog, Netherlands

> **Failure is life's great teacher – without failure, great achievements are rarely made**

The experiments included a solar model car or boat, lorry, hydrofoil, clock and mini-pump.

Our STEM – science, technology, engineering and mathematics – solar resources have been used since 2003 in car, boat and design challenges in the Sheffield area beyond.

In 2014 Solar-Active began its campaign to address the growing trend in urban areas in UK and elsewhere to install street security lighting with blue-rich LED lights.

Local authorities were advised that the LED street lights can cut energy bills, reduce carbon emissions, be operated remotely and linked to smart technology, yet often without health or environmental impact assessments.

Based on a large body of scientific research it is recognised that blue-rich white light at night is detrimental to human and wildlife circadian rhythms, causing disruption and harm to people's health, as well as posing a road safety risk and impeding our view of the night sky.

Sheffield Council should consider the potential impacts of installing the blue-rich street lighting. It is recommended by the American Medical Association, International Dark Sky Association, Campaign for Rural England and Public Health England to use warm-white correlated colour temperature lights to minimise glare and discomfort.

It is crucial that local communities are listened to and involved in deciding how streetscapes, including trees and lighting, are planned, managed and maintained.

There are educational options that can have a positive effect on tackling the challenge of climate change. One option is in using energy efficiency and renewable energy technologies to create a long-term commitment to taking advantage of climate change as a catalyst for engagement across school campuses and the community.

The joint AGMs of Schools & Homes Energy Education Project/Solar-Active is scheduled for next Thursday, from 6.30pm to 8.30pm, at Sheffield Hallam University's Howard Building, room 5540.

Visit www.solar-active.com and www.inno-therm.com for details.