This paper is taken from

Europe's Future: Citizenship in a Changing World
Proceedings of the thirteenth Conference of the Children's Identity and Citizenship in Europe Academic Network

London: CiCe 2011

edited by Peter Cunningham and Nathan Fretwell, published in London by CiCe,
ISBN 978-1-907675-02-7

If this paper is quoted or referred to it must always be acknowledged as
Watts, N. & Piening, A. (2011) Communicating climate change and energy issues to children: The Schools at University for Climate and Energy – 'SAUCE' –programme, in P. Cunningham & N. Fretwell (eds.) Europe's Future: Citizenship in a Changing World. *London: CiCe, pp. 520 - 530*

CiCe
Institute for Policy Studies in Education
London Metropolitan University
166 – 220 Holloway Road
London N7 8DB
UK

This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Acknowledgements:

This is taken from the book that is a collection of papers given at the annual CiCe Conference indicated. The CiCe Steering Group and the editor would like to thank

- All those who contributed to the Conference
- The CiCe administrative team at London Metropolitan University
- London Metropolitan University, for financial and other support for the programme, conference and publication
- The Lifelong Learning Programme and the personnel of the Education and Culture DG of the European Commission for their support and encouragement.

Communicating climate change and energy issues to children: The Schools at University for Climate and Energy – 'SAUCE'[1] – programme

Nicholas Watts[1] and Annette Piening[2]
[1]London Metropolitan University (UK); [2]Freie Universität Berlin, Environmental Policy Research Centre (Germany)

Abstract

This paper describes the experience of the European project Schools at University for Climate and Energy – SAUCE – and reflects on its development and results. For this project eight European partners developed an out-of-school educational model, which brings schoolchildren aged 10-13 years and their teachers to the universities to teach them about the scientific, social, and political dimensions of climate change and energy use patterns. Bringing together a diverse mix of representatives of the local community of knowledge on education for sustainable development (KESD), the interdisciplinary programmes provide a wealth of approaches and examples to follow for educators interested in teaching the topics of energy and climate change. At the same time, the participating universities provide first examples of how sustainability goals may reshape the universities' role in the community.

Keywords: *university and community, education for sustainable development (ESD), climate change, energy education, energy-efficient behaviour, kids'/children's university*

In this paper we outline the educational challenges presented by climate change and the need for a just transition to renewable and efficient energy sources and report on selected findings from a three-year project addressing these challenges and involving researchers from six European partner countries.

The paper emphasises the role of educational institutions and practice to support development of understanding that can lead to changes in behaviour and in policy. We explain the decision to design an approach that focuses on opening up universities as a hub for developing networks of actors in energy education[2] and bringing into the university classes of schoolchildren, to explore with them key climate and energy issues and to help prepare them to engage with these issues themselves. In so doing, we also address alternative approaches to education for sustainable use of natural resources. We have been able to explore these approaches across a number of institutional contexts for

[1] The SAUCE project is part of the European programme Intelligent Energy Europe (IEE). It aims to promote energy efficiency and renewable energy sources, cf. http://www.ec.europa.eu/energy/intelligent/

[2] We use the term 'education' in the broader sense of the German 'Bildung' as 'education and human development'. Also, we imply formal, non-formal and informal modes of education.

education that vary in the extent to which they accommodate the interdisciplinarity and community engagement on which a successful, just transition to a low carbon economy depends. We provide examples of our practice across the different national platforms, tentative results from feedback and evaluation and attempt to identify where the key challenges now lie, and draw conclusions on the contribution universities or researchers may make.

Worthy of note in the context of the CiCe (Children's Identity and Citizenship in Europe) conference's focus on identity and citizenship in a changing world is the fact that the researchers involved in this project are, in the main, not education experts. Their professional backgrounds are in the economic, social and political analysis of energy policy, and hitherto their expertise has been addressed primarily to policy makers and university social science students, not to children. This has been an interesting challenge for them.

The SAUCE Project – Background

The idea for SAUCE came from a meeting between colleagues familiar with the so-called 'Kids'/Children's Universities' programmes and this group of climate and energy policy experts with a shared interest in exploring practical ways of developing awareness and behaviours consistent with a long-term transition to a carbon-neutral model of economic and social development. We decided to use the model of opening the university to children as an exciting 'out of school' learning experience. This context allows us to address in the same short programme both current understandings of the causes and effects of human-induced climate change and the role of different disciplines and educational styles in conveying relevant messages. These messages address both climate change and possible responses in more sustainable energy use and in developing renewable energy alternatives.

At the same time, this programme aims to convey to primary schoolchildren that the university is 'their' university, part of their community, and to promote the aspirations of pupils from non-traditional backgrounds to study at university level[3]. This has meant targeting some schools with little or no previous exposure of pupils to these issues.

The starting point for programme development was a pilot programme *Schüleruni Klima und Energie* (Schools University Climate and Energy) at Freie Universität Berlin in March 2006. As part of a series of events on the occasion of the 20th anniversary of the Chernobyl nuclear accident, school classes of children aged 10-13 were invited to attend lectures on climate change and energy related questions delivered by university researchers and experts. This was a week-long, on-campus programme, inspired by the Kids'/Children's University format offered by many European universities, adapted to address primary schoolchildren[4] and focus on the topics of energy and climate change.

[3] This was a particular emphasis of the UK SAUCE programme.

[4] We refer to primary schoolchildren as shorthand for 10-13 year olds, although children in Austria and in Germany (outside of Berlin), for example, move to Middle School at age 11. Thus this project also addresses secondary schools.

Children visited individual lectures or events in the programme, sometimes in large numbers. The programme met an extraordinarily positive response from teachers and pupils alike, and the organisers set about finding partners to develop a European programme on a similar basis.

The resulting SAUCE consortium includes seven partner universities in six European countries (Austria, Denmark, Germany, Great Britain, Latvia and the Netherlands), and the Berlin Energy Agency, with ample experience in public outreach. Supported by generous financing through the European programme Intelligent Energy Europe (IEE), the three-year project started in 2008. By 2011, a total of 25 SAUCE programmes had been developed and implemented by the partner universities. [5]

When the SAUCE project partners joined forces, a number of programmes were already established in Europe and globally in Education for Sustainable Development, including climate and energy issues, but few that target the 10-13 age group, and even less their teachers, in their different school contexts. Some local thematic networks were developed between teachers and non-formal educational actors, providing teachers with expert input and project ideas, [6] and websites were created for information and dissemination. [7] However, these were not yet widely adopted by teachers, and they lacked readily accessible teaching materials on these subjects appropriate to the age group.

Why focus on this age group? First, little had been done with them so far (see above), so there was a knowledge gap: How do children in this age group respond to awareness of a complex and potentially daunting problem? In the mean-time, work has been carried out showing that children in this age group are fully capable of learning about these issues, and identifying constructive teaching options and promoting these for adoption by educators (de Haan 2009).

Second is the opportunity to engage with an age-group that contains in itself different levels of cognitive development both across ages and genders. In this period of development, girls develop typically faster than boys (the gender dimension), but most should cross from the period of ‘concrete operations’ (ages 7-11) to that of ‘formal operations’ (12 years and onwards). This would imply differences in style of delivery for different ages. Initially, the project team was interested in testing the appropriateness of different styles to classes of pupils in different years. Although the programme design did not admit in-depth accompanying research into this, monitoring and feedback data will be analysed to see which materials and styles are more limited to a particular age group, and which may, with some refinement, be made suitable across age groups.

---

[5] For more information on the project cf. www.schools-at-university.eu.

[6] For example, the “Fifty-fifty” programme promoting energy efficiency at German schools (http://www.fiftyfiftyplus.de/), which has been disseminated to other European countries since 2009.

[7] Cf. the European projects Active Learning (http://www.consortium4al.eu/), FEEDU (www.feedu.org), Energy Path (http://www.energypath.eu/), CheckItOut! (http://www.check-it-out.eu/), Support (http://www.support-edu.org)

Third, and perhaps most important, is the location of these children at the end of the phase of primary schooling. They are just about to enter, or, in the case of 13-year-olds, have just entered secondary schooling. In most contexts, this is just before they will have to make key decisions on their subsequent educational specialisation, choosing between natural or social sciences or humanities remain to be made. They have not yet entered the disciplinary silo of a parent discipline that will be likely to predetermine their approach to problem-solving.

Fourth, and important for policy and their own engagement, children in this age-group may be most open to new knowledge, and also most likely to ask the simple question: Why can't we (or, you) change things? And finally, this generation will face the full brunt of climate change and the policy changes required to combat it.

There are further challenges, including the widespread absence of SAUCE topics on the formal curriculum, in a context of ever-increasing emphasis on test scores for separate disciplines, and the resultant pressures on primary teachers. The complexity of the issues and the required interdisciplinary approach further implies a requirement for teachers that they go beyond their subjects and professional routines and invest additional preparation, time which they often do not have.[8] To secure teachers' engagement, both initially and for the longer term, they need to be persuaded individually both to get involved, and stay involved.

In other words, ways needed to be found to reduce the effort required for teachers to find relevant information and materials and to develop appropriate approaches to teaching. A major effort is needed to expand provision, including expert practitioners in energy and environmental education and to address a larger circle of teachers.

In response to this need, individual SAUCE programmes have taken as their starting point the given conditions and demands of their own educational systems: the national school systems and curricula, the resources available to teachers, the degree of regional or local discretion to deviate from national curriculum requirements, and the location of their university within this system (see below). This contextualisation is important, and has resulted in different approaches across the participating universities. The focus has been on developing programmes that serve as resource and as a source of inspiration for both pupils and teachers. The idea is, of course, to transfer knowledge about the challenges of climate change and energy issues but to emphasise and demonstrate positive options for sustainable energy behaviours and technologies. Of course, such learning will not be achieved on a one-day visit to a university programme. The SAUCE programmes are geared to take a first, but important, step to successful learning by stimulating interest and a qualified optimism that we can solve at least some of the problems.

[8] This was one of the findings of the CARRA project included in the Best Practice Manual, cf. London Borough of Islington (2005) *CARRA Carbon Assessment and Reduction in Regeneration Areas. Best Practice Manual. LIFE 02 ENV/UK/000147*, section on the Schools Energy Action Project, pp. 7-9.

In terms of programme structure, we have considered systematically both method of delivery and substantive content. The lecture format can work well at the beginning of the programme, as it brings home both the role of the academy in researching the issues and providing solutions, but can also make a lasting impression on schoolchildren by virtue of the size and style of the lecture theatre. The programmes also included lectures with opportunities for substantial, active participation by the children.

Overall, though, clear preference was given to workshop activities with hands-on involvement of the pupils. These interdisciplinary and interactive workshops have made it easier to include contributions that draw on the specialist expertise of the host universities, and of local or regional energy education experts. Some of the programmes have also committed explicitly to the inclusion of aspects of the arts and humanities in promoting awareness and understanding of the issues, for example by writing lyrics for songs or designing logos representing international cooperation, building sculptures from waste, engaging in indigenous peoples' dance, or developing mime routines[9].

As a consequence, the programmes have addressed teachers across the full range of subject areas, and shown how to go beyond teaching within single disciplines. The interdisciplinary character of climate and energy as such and the diversity of approaches taken in the SAUCE programmes do show, though, how useful skills developed within individual disciplines like arts, maths, geography or chemistry can be when trying to understand climate change processes, work out energy savings or to see the impact of logging on global distribution of the rainforest. Using subject-based knowledge in the context of an integrated approach to problems may attract children to study these subjects, in the longer run at the university - not a trivial consideration for the participating universities.

As far as the 'schools at university' aspect of SAUCE is concerned, the programme needed to present the host universities as convincing and attractive places for pupils to study, and to achieve this, the programme would need to succeed in raising awareness of the key issues as well as building commitment to further develop children's understanding of these issues but also to change their and their communities' behaviour in relation to energy use and supply.

The National SAUCE Programmes – Practical Experience

Implementing the project in an international context has been a rewarding and at the same time challenging process for project partners. While, in principle, there was agreement on what the goal is, the model as sketched out by the Berlin pilot programme provided but a broad shell which partners needed to fill according to their capacities and

[9] The London programme, for example, has worked with many regional practitioners, including Arcola Energy (http://www.arcolaenergy.com/), based in the Arcola Theatre, with a strong community base in East London, and Cape Farewell Education (http://www.capefarewell.com/education.htm), part of the explicit commitment of Cape Farewell to integrate the arts and sciences in climate education. Similarly did the Berlin and Vienna programmes.

local circumstances. The result is a variety of programmes which together provide a rich reservoir of programme elements and approaches to teaching the topics of energy and climate, including:

- Science experiments to demonstrate chemical and physical process behind climate change, or to demonstrate renewable energy technologies
- Workshops on production ('growing') and consumption of food, paper, models of renewable energy alternatives[10] that include hands-on activities and teamwork, encouraging active involvement of the children while they take in the facts.
- Guided tours to laboratories or university facilities which are combined with a "research" question, e.g. how can I draw energy from waves or what does it take to heat and cool (large) buildings?
- Lecture formats have been developed which integrate quizzes and games, film sequences, and/or (demonstration or participatory) experiments.
- Simulation games and city planning workshops on international climate change negotiations, the city of the future, or sustainable architecture, that explore children's capacity to engage in debate, and help them develop citizenship skills.
- With external partners, excursions to production sites and farms that illustrate relevant subjects such as recycling or organic farming.
- Finally, the arts were harnessed to fascinate the children and release their creativity, including dance, mime, music, theatre and artistic shows, clownery, or making craft products (sculptures, jewellery) using waste materials.

The project showed that each partner needed initially to analyse the opportunities and constraints provided by their own particular context. This also showed that there are limits to the direct transferability of specific practices and events between partner universities, although key principles of SAUCE remain valid, such as the need to provide different kinds of learning experience, to respect and make the most of the institutional context and to mix approaches and disciplines.

Each partner had to start with a baseline review of local conditions and possibilities. For some, this showed a need to direct efforts to their universities internally, to prepare the ground for these to open their doors to this young and unconventional target group. Others needed to direct efforts externally, in order to convince the targeted schools and teachers of the benefits of attending the programmes as a valuable 'out-of-school' contribution to their teaching. Often, of course, they had to do both.

The salient elements of such a review included the university's resources and research, in particular whether their focus was across all disciplines, or focused on one or the other of science and technology or humanities and social sciences.

Similarly, not all school systems are equally open to out-of-school activities and in some cases, considerable efforts needed to be invested in reaching and attracting the teachers, who are subject to increasingly demanding work schedules. This also influenced the clear preference for attending one-day programmes where pupils would attend as a

[10] In the London programme, examples include small teams building model hydrogen cell cars and competing to see how far they run on one charge of fuel, or building model wind turbines and testing them in a specially constructed wind tunnel for efficiency.

school class, and attend several events in the course of a day, over more open programme structures allowing them to attend for a single lecture or workshop, often on an individual basis.

The geographic context – rural or urban – and the cost and time of travel to the event directly influenced the programme structure, and the ease of recruitment and delivery. Usually, metropolitan contexts with a well-established environmental education community in place made it easier for partner universities to invite external practitioners to participate in their programme. However, the size of the programme and the extent of voluntary involvement by the university's own academics also depend on the ability to raise additional public and private funding for the programme. These differences lead to variations in the programme structure and content across the seven universities. Some of the partner universities chose to rely exclusively on the in-house scientific staff whereas others included teachers from outside the universities. Some universities furthermore tested different programme structures during the project period.[11]

Finally, teaching to children is a special skill, and a distinct challenge to those not trained for it. It is also important that established academic specialists recognise this. It certainly takes some experience to get a sense for the right mix and workable approaches, so that the different series of SAUCE programmes may be viewed as a series of experiments with changing methods and substantive content [12]. Each programme therefore proceeded as an iteration from the previous one.

In conclusion, the SAUCE programme model that has emerged is flexible with respect to both content and structure, acknowledging the value of full contextualisation of the programme according to type of university, its location, national ESD experience, and so forth. What partners have demonstrated is that specialists in energy, the arts and the social sciences can make a valuable contribution to education in climate and energy, be it through their own contributions to programme content, and/or by taking on a managing role bringing together the various disciplines and actors and negotiating with them the development of topical approaches for the programme.

On the basis of systematic, comparative evaluation of the SAUCE programme, we have identified key elements of transferable best practice, also recognising the limits to transferability, and have published a SAUCE Handbook to that end. However, we would

[11] Roskilde University tested two programme structures, one primarily based on input from the academic staff of the university in a classroom setting, and the other based on a workshop in which the children in groups of 5-6 were challenged to use their creativity to design a prototype of a renewable technology.

[12] For example, the London programme moved from reworking recycled materials into craft products in early sessions to a stronger focus on working more closely with technologies explicitly designed for renewable energy (hydrogen cell cars, wind turbines), while keeping capoeira dance (linking to the rainforest and the fate of indigenous peoples). This programme also experimented with different numbers and duration of events – though feedback showed the children still thought one-hour workshops were too short, in spite of expectations that they would have a short attention span.

emphasize that the SAUCE programme model should be understood as a framework that is sufficiently flexible to conduct a variety of different programme types and structures.

Some Reflections on the Socio-Political Context

On climate change the science is in, so we will not rehearse here the debate about the science of climate change nor elaborate upon national and European debates on educational spending and the needs to direct this spending at promoting the one or the other subject matter. Suffice it to say that we believe that children at the final stage of primary education present a valuable opportunity to explore what works to stimulate their interest and how to make this interest last and bear fruit (although the latter is outside our current remit).

Linked to this are the fundamental questions of where we are ultimately heading and the kind of world we ultimately want to live in. Since the beginning of the SAUCE programme, the debate over the green new deal and green skills has to some extent matured, and provides a welcome context for further development of the SAUCE programme in new ways and new places.

There are many ways economies could shift to a lower carbon model of consumption and production[13]. The key dimensions of these policy options rest in (1) reliance on a technical fix, moving from reliance on fossil fuels to renewables without affecting behaviour patterns, and (2) a shift to sustainable patterns of consumption, in both consumer*ism* and more locally and communally developed carbon-neutral strategies, such as biogas, carbon-neutral transport, 'slow' food and mobility. Our current patterns of energy use are deeply embedded and link to established patterns of esteem and self-value, so a fundamental shift to a new, evidence-based and rationally grounded model of economy and society will take time and effort – as well as reining in some of the most egregious examples of flamboyant energy waste in the globalised economy[14].

Both options imply far-reaching activities, alas with different levels of intensity, and both options imply the involvement of large parts of society or even all of it, and both definitely include the educational system and its various levels/institutions, and also universities. Thus, in this process universities and the academy will have to reconsider the role they have taken in the community.

The Role of the University in its/the Community

For our purposes, the academy must be viewed as one component in the knowledge economy for sustainable development (KESD). In preparing national SAUCE

[13] See, for example, the efforts under the UN CSD Sustainable Consumption and Production programme, and the efforts of trade unions to secure a 'Just Transition' (http://www.jtalliance.org/).

[14] The holding of the 2018 Football World Cup in Qatar is up there with indoor skiing in Dubai.

programmes, teams have drawn on different components of the KESD networks, as the cursory overview sketched out above demonstrates.

While the composition of the KESD is fairly homogeneous across the EU countries in our sample, there are still some important differences. We may consider the key actors in the KESD as:

- the universities and higher education institutions themselves (where these retain the commitment to universal, higher education across disciplines seen as part of the privileged realm of reflexive critique of social arrangements)
- research institutions: funders and institutes
- non-governmental organisations (NGOs), some of which have extensive research portfolios, new social movements and political parties (in particular, 'green' parties)
- consultants (especially important in developing nations where the academy lacks the infrastructure to support research or the development of research careers, but increasingly important in 'developed' nations where the academy is being instrumentalised in the service of a narrowly defined global economy)
- schools and parts of the schools' administration
- local communities targeted by the academy and their schools
- artists and performers who embody concern with sustainability in their work
- businesses engaging in CSR.

All this implies that individual 'carriers' of KESD need to be open to the knowledge claims and practical opportunities offered by the other 'carriers'. It also means that 'closed' institutions, i.e. schools and universities whose estate is 'gated' from the community, need to open up to their communities, and to their responsibilities in terms of community, curriculum, consultancy, research and campus. How does their overall profile fit that of a sustainable future? And, what are the defining characteristics of such a future? Speaking normatively, components will need to include equity, transparency, accountability, democracy, and 'sustainability'. In this context, commitment of universities without autonomy by governments without autonomy to the service of the global economy without consideration of these normative constraints, will need to be supplanted by other key actors in KESD, who can take an independent line.[15]

Each of these components of KESD brings different skills to the mix. They help understand the need for interdisciplinarity (against which the dominant trend is to knowledge 'silos', with each university trying to play to its perceived strengths without concession to cooperative, interdisciplinary endeavours), the importance of partnership, and to support different types of learning so that each child taking part in a SAUCE programme will find an approach or activity with which they are comfortable.

[15] In countries such as the England and Wales, where state funding for the humanities and social sciences has been withdrawn entirely from higher education, there is a naked commitment to the 'treadmill of production', taking these countries ever further from the opportunity provided by the creative arts and collective endeavour outside the cash economy to provide alternative sources of self-esteem and the 'good life' which do not depend on capital accumulation or permit treading lightly on the planet – declamations to the contrary notwithstanding.

Feedback, dissemination and continuity

The SAUCE project has used both quantitative and qualitative means for collecting information on pupils' and teachers' evaluation of the event, how this has influenced activities in both school and community, and how the programme might be improved.[16] This feedback is being used in the design of the SAUCE Handbook, but also presents interesting information on how out-of-school programmes or events like Schools at University for Climate and Energy may be utilised for improving content and quality of teaching at the schools, particularly when this teaching touches upon issues with political and social implications.

Generally, programmes like SAUCE to a large extend must of course be expected to attract that share of teachers who are already interested in teaching these topics to the children, and thus might already be very actively engaged at their schools. This has certainly been one result to be read from the surveys. However, the programmes also proved to attract teachers who had not been as engaged and were looking for inspiration and examples to follow. In both cases, the SAUCE programmes' apporaches and the positive direct effects they proved to have on the children, in the surveys, showed to have supported and reinforced the teachers activities beyond the SAUCE programmes.

For example, numerous teachers indicated that the programme had influenced their thinking on the theme of energy and climate. Moreover, teachers found the programme very inspiring and several teachers indicated to continue working on the themes in the regular classes. There also has been a high share of teachers who have returned continuously over the three year project period, and they explicitly appreciate the university as a place for unbiased learning untainted by political or commercial interests.

After three years of SAUCE, it clearly shows that the universities all have linked up with local energy and climate initiatives and activities for children. At some places the teams have actively been working on the continuation of the SAUCE activities after 2011 and succeeded in raising support from their university, local administrations and private sponsors.

Conclusion

The SAUCE project has reached 18,000 pupils and 1,250 teachers directly. It has, perhaps more importantly, served to test different approaches and partnerships to developing climate and energy awareness-raising and enhancing the scope for behaviour

[16] It should be noted that partners mainly carried out monitoring and not detailed evaluation. Furthermore, throughout the monitoring effort it was an issue how to best secure feedback from young participants when time for feedback during the event itself is necessarily at the cost of programme activities. There were necessarily differences across project teams in how the information was collected, and the lessons learned.

change among a key age-group, before they make key decisions on what to study and how to use the knowledge and experience their further studies will provide.

The project also sheds light on how we are changing, and could and should change, places of learning to meet the demands for a cultural shift to a carbon neutral economy, and to the inclusion of the whole community in codetermination of such a shift. How can schools and universities open up to the service of their community, as well as delivery of a nationally or locally defined curriculum, particularly in times of economic constraint – brought about in large part by the failure to consider the social and cultural implications of the speculator economic growth and financial mismanagement of the last decades. To quote an unlikely and unaware champion of the cultural over the economic, perhaps we could refer to Winston Churchill's wartime response to initiatives to cut back expenditure on arts and culture in Britain: "If we do that, what is there left to fight for?"[17] As we prosecute an expanding number of wars in support of democracy, or of the carbon economy (depending on one's viewpoint), we do need to keep in mind the kind of society we are 'protecting', and, if desirable, how we can make it sustainable and equitable.

As we attribute responsibilities to schools and the academy for these issues, we also need to consider the distributional impacts of this course of action. Will all pupils have an equal opportunity to attain appropriate understanding and engage in remedial behaviours (which, incidentally, are likely to give them improved life-chances, even at the level of cost savings incurred in a carbon neutral future as well as the chance to live a culturally richer life)? And, will teachers and university lecturers be allocated the time and resources that such a paradigm shift – for that is what we are talking about – requires?

This is a fundamental challenge to development of children's identity and their role as citizens in Europe, and globally.

References

De Haan, G. (2009) *Bildung für nachhaltige Entwicklung in der Grundschule – Expertise*. Berlin: Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (BMU), Referat Öffentlichkeitsarbeit .

London Borough of Islington (2005) *CARRA Carbon Assessment and Reduction in Regeneration Areas. Best Practice Manual. LIFE 02 ENV/UK/000147*, section on the Schools Energy Action Project, pp. 7-9.

[17] This quote may be apocryphal, but does concentrate the mind on outcomes such as quality of life, and wellbeing of human society and the planet on which we depend, as well as the danger of ignoring the cultural values that make us human.