



WORKSHOP ON CARBOEUROPE – CARBOOCEANS SCHOOL PROJECTS DRAFT REPORT

Die, France, 21-24 March 2005

Main objectives

The aim of this workshop was to share experience and build new benchmarks about:

- how to best encourage innovative secondary school projects about global change research in Europe?
- how to best organise regional educational programmes supporting such school projects from research institutions?

Main achievements

A highly motivated and heterogeneous group has given further shape and collective development to the joint initiative of CarboEurope / CarboOcean towards European secondary schools, now called “CarboSchools”.

The workshop lead to

- finalising resource materials needed by scientists & teachers willing to experiment pilot projects in 2005-2006
- formulating a “Call for CarboSchools: Teacher-Scientist Partnerships on Global Change” to promote broader involvement of CE/CO scientific networks in the educational activity
- preparing a new funding proposal to be submitted under currently open Science & Society call.

Given the profile & expectations of the participants, and the directions taken during workshop sessions, capacity building in dialogue with young people has finally not been addressed. It will be considered either through a parallel session during future annual project meetings, or for a specific future workshop.

Synthesis report

[Introduction by Philippe Saugier](#): challenges behind the CarboEurope/CarboOcean educational activity; objectives of the workshop & expected results.

Monday: school projects

Based on years of action-research in French & European schools, and on concrete examples in Greve Gymnasium, Denmark, we discussed

- the motivations & characteristics of transdisciplinary, non-transmissive project-based approaches with young people

- why they are relevant in the context of science education as well as of a broader citizenship education
- what are the needs of teachers, students, scientists & other actors involved in such project-based approaches

[Presentation by Vibeke Birkmann](#), Greve Gymnasium: examples of interdisciplinary projects in Danish secondary schools

[Educational goals by Philippe Saugier & Renée-Paule Blochet](#)

[Student's reference frames by Renée-Paule Blochet](#) & other tools for transdisciplinary approaches.

Tuesday: presentations of experiences

- *presentation of existing experiences by participants:*

Phil Smith: [Teacher-Scientist Network in Norfolk](#), UK

Julie Jordan, Centre for science education Sheffield University: [science learning centers in the UK](#)

Marilyn Brodie, Centre for science education Sheffield University: [Researchers in Residence](#) (PhD students spending 5 days/year with secondary schools)

Joachim Dengg, IFM-Geomar: [NaT-working project](#) (secondary schools partner with ocean scientists in Kiel, Germany)

Michael Schallies, University of Heidelberg: [science education, a personal perspective and experiences with schools in Germany](#).

Antonio Raschi, IBIMET Firenze: [experiences with schools in Italy](#)

Marc Eyer, University of Bern: experiences in Switzerland

- *presentations of projects in preparation:*

Claudia Hillinger, MPI-BGC Jena : teacher training initiative in Germany (*no document attached*)

Jutta Neumann, PIK : environmental education project in Potsdam, Germany (*no document attached*)

Max Hilhorst, Wageningen university: [schools measuring methane & NOx](#), pilot project in Holland

Wednesday & Thursday: operational developments within CE/CO

Based on the input exchanged during the two first days (shared understanding of the needs of students, teachers, scientists, and feedback from existing experiences) we have :

- 1) strengthened the identify of the initiative by agreeing on the name “CarboSchools” and on the wish of creating a specific logo
- 2) reaffirmed the specific focus of the CarboSchools within the broader frame of science education related to global change:
 - Secondary schools teachers
 - Project-based approaches based on human interaction rather than approaches based on website/materials
 - Decentralised activities run by research institutions: local approaches within a European common frame / network
- 3) defined teacher-scientist partnership as the key “modus operandi” of CarboSchools projects, meaning contributions and benefits for all parties through joint elaboration & implementation of projects.

- 4) exchanged ideas on how to implement educational initiatives run by research institutes towards schools of their region (see annex 1)
- 5) decided to focus, for 2005-2006, on involving individual scientists in school projects based on personal motivation, as a starting point for considering the development of more institutional initiatives in subsequent years.
- 6) reviewed & further prepared the main documents to be used by teachers and scientists willing to take part in CarboSchools: call for school projects & “teacher-scientist partnership guide”.
- 7) elaborated the outline for a new funding proposal to be submitted under the currently open EU science & society call under the coordination of Michael Schallies / University of Heidelberg, to raise additional resources for local demonstration projects in 2006-2007.
- 8) discussed the current progress of the educational booklet “*What we know, what we don’t know, and how scientists try to better understand global change*” and clarified that this resource should be offered to anyone interested on the topic within a broader audience than only CarboSchools.
- 9) decided to give a higher visibility to the initiative within CE/CO networks by
 - drafting a declaration calling all member scientists to share the responsibility of the educational activity, to be submitted for approval by the general assemblies of the two IPs.
 - proposing to the two IP coordinators to send a formal letter to all directors of member institutions, stressing the importance of this activity in the frame of EU projects and inviting for broad participation.
 - proposing for consideration by the respective IPs several ideas for parallel events in the frame of annual meetings, eg.:
 - * a European meeting of CarboSchools projects, with selected (awarded?) teachers and students joining, presenting their projects, and taking part in special activities like a simulation of Kyoto negotiations among students.
 - * a YRE mission funded through travel grants
 - * scientific presentations offered to local schools around meeting place
 - * a joint science – teacher day (Saturday, or at least session/lectures in-between)
 - * capacity-building sessions for scientists
 - * a training session for PhDs based on the Researchers in Residence model
- 10) shared tasks among workshop participants to follow-up these decisions and agreed on the principle of a 3-day follow-up meeting in Heidelberg in March 2006.

Documents resulting from the workshop:

- *call for school projects*
- *CarboSchools teacher-scientist partnership guide*
- *Call for CarboSchools*

Annex 1 - REGIONAL PROJECTS FOR PROMOTION OF TEACHER-SCIENTIST PARTNERSHIPS

Beyond personal initiatives by motivated scientists, more organised institutional approaches are an obvious way to promote teacher-scientist partnership at the local level. The following ideas expressed during the workshop may be valuably used by interested institutions.

- Four existing experiences presented at the workshop may be of great help to inspire new initiatives: TSN in Norwich, NaT-Working in Kiel, Researchers in Residence in the UK and Science-live in Heidelberg (ppt presentations referenced above). Example of costs: with 5-8 schools in Kiel, NaT working cost about 28000 Euros for the first year, then in the order of 5000 Euros per year for the continuation of the project.

- The main characteristic of a regional initiative is that in addition to teachers & scientists, a third important player is introduced: a regional coordinator / facilitator who runs the scheme. Depending on project size, objectives & resources the amount of work can vary considerably (from 1-2 days every month to full-time occupation)/

- Important warning from Marc Eyer: since we all spent at least 15 years of our life at school, everyone feels to be an expert about school education. So teachers are allergic when people from outside say they want to “improve” school. Due to that any partnership project should not be designed from outside, but prepared and planned with teachers.

Operational suggestions

A) First step: starting a regional scheme and making partnership projects happen

1. Start by identifying who is interested in the institution and in which way they would be ready to contribute.
2. Study existing successful models (see above). Visit one of them to learn more if you can.
3. Define the format and project size: how many partnership projects do you want to target?
4. Ask the local schools about their needs and expectations! Don't “propose things” to schools, but ask teachers what they want
5. Set an organisational frame: at least one contact person, or for a bigger initiative coordinator + eventually steering committee (teachers dominant)
6. Set contacts with local partners to involve, for example:
 - teacher associations
 - teacher training institutes / didactics university departments
 - school authorities
 - other sort of scientists (not just members of CE/CO)
 - local industry
 - science museums, science & environmental education associations
7. Advertise what you can offer (contents, framework – but be open about detailed implementation) through local partners, teachers' journals etc.
8. Help teachers & scientists to define their projects at the beginning (“induction”: making people meet, feel comfortable with each other, define realistic objectives etc.)

B) Second step: supporting teachers & scientists involved in partnerships

This means responding to their needs, identified as follows by workshop participants:

Needs of teachers involved in partnership projects:

- Materials : not so much
- But for sure, training about :
 - Methodology : how to implement? How to evaluate?
 - + specific to science teachers:
 - up-to-date knowledge / first-hand information from the scientist
 - Access to new instruments, equipments, experiments
- Time & money to meet & engage (flexibility with timetables)

Needs of scientists involved in partnership projects:

- Information about curriculum and how their science fits in
- Communication skills (to raise interest & get in touch with students & broader public) → training in communication. (involve young scientists!)
- Acknowledgement:
 - Institutional support
 - Publicity from the project

1. Help schools solving material problems (funding for field work, visits, products, replacement of teachers)
2. Organise training activities:
 - for teachers on up-to-date science & transdisciplinary activities/methodologies
 - for scientists on communication with young people & science education
3. Network with other regional experiences (sharing of good practice, organisation of joint events, raising EU funding together etc.)
4. Organise a regional event (eg forum day with all students, teachers & scientists involved) for display & dissemination of project results at the end of school year (posters/talks etc.)
5. Evaluate projects, evaluate your own work & adjust for next years

Potentially interested groups (purely indicative)

- Second University Naples
- Barcelona
- Paris (LSCE / IPSL / regional council)
- CIO Groningen
- MPI-BGC Jena
- Vrije Universiteit Amsterdam
- University of Edimburg
- University of Bergen

Long term vision: firmly established local projects run by research institutes + European overhead for sharing of ideas/experiences & joining forces for a strategic approach to the topic (sort of “European helpdesk for scientist-teacher partnership”), not limited to CE/CO but horizontal to any other IP.

Ultimately, to overcome the limit of working with the few already motivated scientists & teachers, we should find ways to promote:

- the idea that involvement of scientists into educational activities should be formally recognized in their career.
- the idea that school systems should leave more space to project-based approaches.

Annex 2 – LIST OF PARTICIPANTS

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