Coherence - an overall framework?

This is the coherence page, getting a grip on the overall direction of the project.

When we put S-TEAM together, we had a diverse collection of individual ideas for contributions, and we still retain this diversity. The structure of the work packages reflects this diversity and copes with it using themes such as scientific literacy, professional development etc.

One possible way of moving this forward might be to regard the training packages and related items as course modules for a professional development qualification at a European level. This would fit with the European principles for teacher competence, including the suggestion that teachers should be part of a learning organisation, that they should be lifelong learners and that they should be mobile within Europe. This is also in line with ideas about key competences in Europe: http://ec.europa.eu/education/policies/2010/doc/basicframe.pdf

It also fits with the ideas embodied in the European Qualifications Framework (EQF) and the European Credit Transfer and accumulation System (ECTS). The qualification could be called:

Science Teaching in Europe - Professional development - Unified Programme (STEP-UP)

It would carry points according to the EQF level 6 - *advanced knowledge of a field of work or study, involving a critical understanding of theories and principles*.

The importance of the qualification is that it will be the first teacher professional qualificationto be designed as a European qualification from the beginning, and thus fulfils an important role in one of the EU "Common principles for Quality assurance in higher education..." (EQF brochure p.15):

Quality assurance orientations at Community level may provide reference points for evaluations and peer learning

There is of course no European structure for accrediting or administering this type of programme, since the intention of EQF is to bring coherence and transferability to national programmes. The precedent might be (e.g.) the European Computer Driving Licence, a qualification which essentially filled a vacuum in IT qualifications at a basic level and which is now about to be transformed into the International Computer Driving Licence.

For STEP-UP, the national partners will have an essential role in arranging provision and accreditation. However, much of the course material could be provided online, with a wiki as the basis of a Europe-wide network for participating teachers and the core of a learning organisation for science education. The process of accreditation and course design would itself have a role in aligning partners' thinking on a number of issues around IBST/E.

For example, it is clear that assessment systems are likely to be out of step with teaching methods in a number of European countries. Consideration of the role of teacher judgements in assessment, whilst not part of S-TEAM's role, could be significant in aligning teaching and assessment in a more creative way.

The full implementation of such a programme is probably beyond the scope of S-TEAM, since we have neither the time nor the resources to run it, but the next FP7 Call, or the Lifelong Learning Programme may provide us with an opportunity to submit a proposal.

From the existing training packages we have the basis for two kinds of module:

1) Core competences such as argumentation, collaborative working, dialogic teaching, scientific literacy skills and motivation

2) Specialised competences such as the use of drama, computer animations, Nature of Science, school-university collaboration etc

The table below shows how this might work.

Work package	**STEPUP - advanced qualification in science education**			
WPX	A separate work package or project would create the structure and align the national accreditation agents			
	Core knowledge/competence/skills	**Specialised competence**	**time /points**	**comments**
WP2	Understanding European policy and the pedagogical field in science education			
WP3 - SINUS	Development of powerful learning environments for science teaching and learning			
WP4	Understanding teachers' collaborative work			
WP5	Mentoring and induction for science education			
WP6	Introduction to STEPUP and the use of innovative tools for professional development			
	Dialogic teaching in science education			
		Sustainable development in science teaching		
		Use of v-heuristics		
		Understanding student motivation in science		
WP7	Argumentation as a key skill in science education			
WP8	Developing competence in/through scientific literacy			
		Use of drama		

- Concepts or definitions