Work package 7 Argumentation for teacher education in science

Description of work

A useful powerpoint describing WP7 is available here.

WP7 will be led by Universidade de Santiago de Compostela (USC), in association with the University of Bristol and will provide resources and strategies to help teachers to create learning environments for argumentation and the learning of discursive practices in science. It will extend the professional development agendas from other innovative science education projects including Mind the Gap. WP7 will disseminate training resources and classroom materials to support the teaching and learning of argumentation in science classrooms and the development of teachers' reasoning about the nature of scientific knowledge. A professional development programme will be designed and implemented to promote coherence and growth in teachers' skills in these aspects. Outcomes in terms of students' argumentation skills will provide proof of the effectiveness of professional development interventions.

Principles:

1. We will use guidelines and design principles for the design of learning environments to support students' argumentation, which are coherent with the design principles for constructivist and inquiry-based classrooms .

2. Key features in these guidelines are the evaluation of knowledge claims, and the evaluation of evidence, both of which affect student and teacher roles. Other relevant features are inquiry perspectives in the curriculum, centred on authentic problems, and the dialogic communicative approach.

3. The resources consist of teaching sequences and tasks for use in teacher education, to support the construction of conceptual tools and the development of argumentation competencies; and in the classroom in primary, middle and secondary school.

4. The tasks require students and student teachers to demonstrate the appropriation of discursive practices of science, e.g. writing reports about laboratory inquiry tasks or about decision-making, including articulating written arguments; presenting oral summaries of the tasks and discussing them with their peers (persuasive dimension of argumentation).

5. To support dialogic communicative approaches in the classroom, WP7 focuses on learning environments and tasks supporting deep-reasoning questions, on the influence of students' 'answering words' on classroom discourse and to the role of questioning in argumentation, e.g. generating deep-reasoning questions; questioning claims on the basis of available evidence; students' spontaneous questions

Products from WP7 will consist of:

A report which will review the state of the art about argumentation in Europe, particularly in the countries involved in the project and to draw on published research to suggest lines of improvement. The report is intended for policymakers and other stakeholders in education. (product 7.1)

A book chapter for the WP6 book on inquiry based methods, intended for teachers Teaching sequence in Galician / Spanish for use both in initial and in in-service teacher education. (product 7.2a)

teaching sequence in English for use both in initial and in in-service teacher education (product 7.2b)

Two teaching sequences for use in schools including a pilot phase of testing in schools. (product 7.3)

- Deliverables