Learning to learn together: A visual language for social orchestration of educational activities

www.metafora-project.org

The METAfora project
Launched in July 2010, by the end of its 2-year duration the METAfora IDE project will result in the creation of a Computer-Supported Collaborative Learning (CSDL) system to enable 12 to 18-year-old students to learn science and mathematics in an effective and enjoyable way.

The students will first and foremost, learn to learn, collaboratively addressing an assignment, the “mistake” – posed to the teacher involving a tightly coupled problem. Working in groups of 4 to 6 students during a period of 2 to 3 weeks, the students will plan, organise and tackle the challenge by themselves.

The project’s objectives
The METAfora project proposes to explore the potential of science and math learning through a visual language to support online groups in designing their own learning together. To this end, the specific objectives of the project are:

- To further our understanding of meta-learning within collaborative communities and mathematics learning.
- To design a visual language to support students’ reflection on their individual and collaborative learning.
- To implement a platform integrating state-of-the-art argumentation tools with exploratory environments.
- To develop an adaptive analytic system utilizing AI techniques to support students and teachers during the collaboration and learning process.
- To design new forms of assessment of the individual and collaborative learning exploiting the diagnostic system.

The METAfora platform will offer an argumentation and discussion workspace where the students will gather and discuss their findings and arrive at an agreed solution, using also other available tools, such as microworlds and other suitable “domain tools”.

The use of a visual language will permit the students to be precise in their planning and then later in enacting the planned activities, while also allowing the system to intelligently track their activities and produce useful information and feedback for both students and teachers.

Key elements of the METAfora concept
- From a single, one-time activity (e.g., a discussion) to a suite of activities spanning a longer period of time.
- Featuring different tools (classroom supporting/mapping tool, microworlds, etc.).
- From learning to argue, or learning a subject, to learning to learn.
- Students are not just given a question to answer but a full assignment (“mistake”) to address.
- Students plan their learning activities and are responsible for the results of their work.
- The plan, created by the students using a special visual language, helps them in the accomplishment of their tasks and enables the METAfora system to provide valuable feedback to the students and the teacher.
- Learning domain math and science for 12 to 18-year-olds.