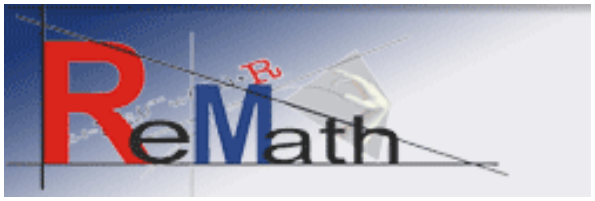
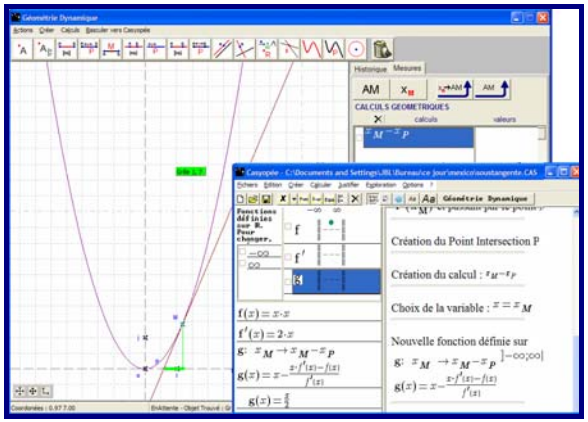
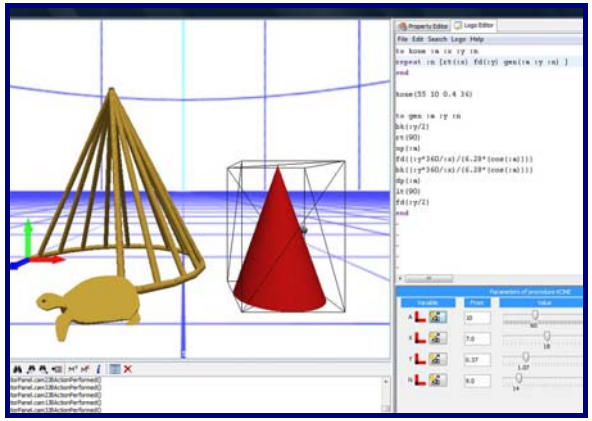




The "Casyopée" Dynamic Digital Artefact (DDA)



The "MaLT" Dynamic Digital Artefact (DDA)

Coordinating Partner:

Research Academic Computer Technology Institute, (RACTI),
eLearning Sector
"D. Maritsas" Building, N.Kazantzaki str.,
University Campus, GR 265 00, Rio, Patras,
Greece
http://www.cti.gr

Project Director:

Prof. Chronis Kynigos.
Contact: kynigos@cti.gr, kynigos@ppp.uoa.gr

The consortium:

The ReMath Project brought together eight workgroups that come from different backgrounds and have developed expertise in different domains of R&D work. The teams had already been working together since they created a European Research Team (ERT) on Technology Enhanced Learning in Mathematics (TELMA) within the "Kaleidoscope" NoE, http://www.noe-kaleidoscope.org/pub/.

Istituto Tecnologie Didattiche, Italy
http://www.itd.cnr.it/

National & Kapodistrian University of Athens, Educational Technology Lab, Greece
http://etl.ppp.uoa.gr/

Talent S.A, Greece
http://www.talent.gr/

Università degli Studi di Siena, Italy
http://www.unisi.it/

Laboratoire d'Informatique de Grenoble, France
http://lig.imag.fr/

Université Paris 7 Denis Diderot, France
http://www.didirem.math.jussieu.fr/didirem

University of London, Institute of Education - London Knowledge Lab, UK
http://www.lkl.ac.uk/

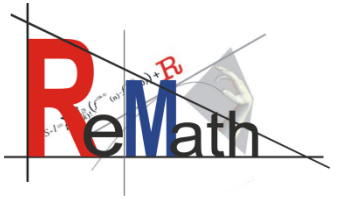
Representing Mathematics with Digital Media

Information Society Technologies (IST) Programme

Information Society Technologies

Project Number: IST4-26751

ReMath
Representing Mathematics with Digital Media



Project website: http://remath.cti.gr

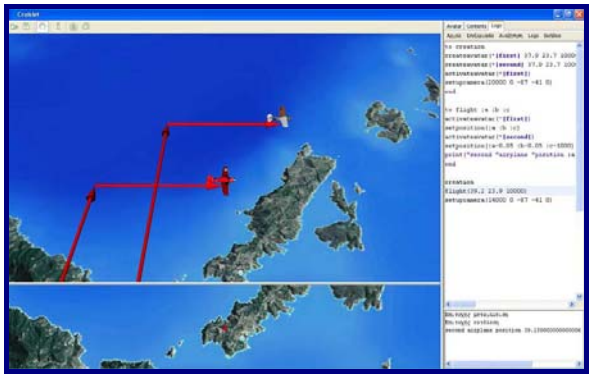
Representing Mathematics with Digital Media

Integrated theoretical framework

Emerging knowledge in the field of ICT use in Mathematics Education is fragmented. The ReMath Project set out to construct a theoretical framework to draw connections and enhance coherence amidst the diversity in the field. This framework was designed to be operational and invested on the constructs of didactical functionality and sensitivity to key concerns. It was built through experience gained during the project, based on the whole cycle of design and development of digital artefacts, design of educational activities and cross-case analyses on the ways in which mathematical meanings can be generated in the classroom. The method of cross-experimentation was pivotal to the building of the framework, in that each team engaged in research including the use of digital artefacts developed by another.

The development of six DDAs

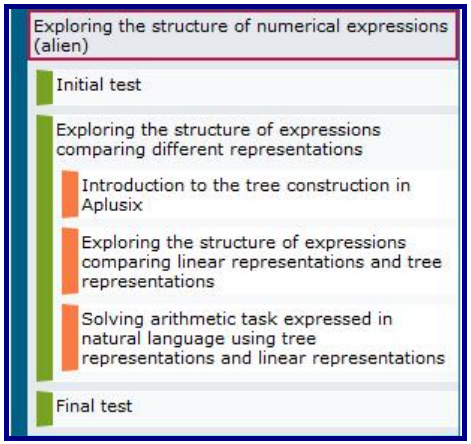
Six new state-of-the-art Dynamic Digital Artefacts (D.D.As) for representing mathematical concepts have been designed and developed. A variety of domains and representations have been chosen so that each one constitutes an innovative DDA either with respect to the representation itself or with respect to how it can be put in use, or both. They range in distance of their designed use to traditional curricula and practices. They also range in mathematical domains, from algebra to analysis and geometry, and applications including geographical navigation and Newtonian spaces.



The "Cruislet" DDA

The development of Pedagogical Plans

Thirteen pedagogical plans for the educational use of the DDAs have been developed. They provide theoretical and pedagogical rationales, plans of activity and related guidelines to support the experimental activities. Their description has a uniform hierarchical structure, designed to inform researchers, teachers and the building of the framework.



The Aplusix DDA "Exploring the structure of numerical expressions" Plan (Snapshot from the Pedagogical Plan Manager http://ppm.itd.cnr.it)

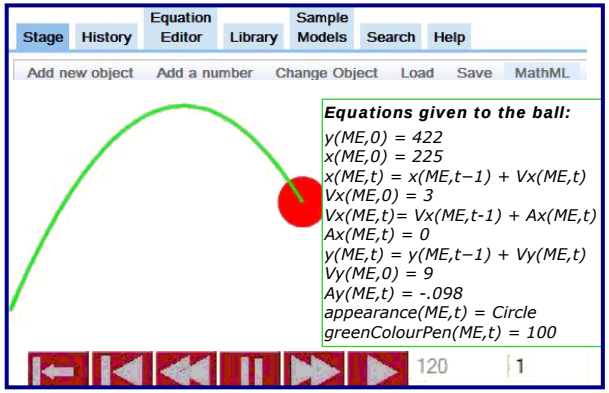
Teacher versions of these plans are also available on the project site in English, French, Italian, Greek and Arabic.

The carrying out of empirical research

Six research teams coming from different backgrounds engaged in cross-experimentation research in realistic educational contexts, exploiting the innovative nature of the DDAs and the Pedagogical Plans developed. Each workgroup used both the DDA in the development of which it was directly involved and at least one of the DDAs developed by another workgroup. The cross-experimentations among the research teams provided evidence for the validation and the further construction of the integrated theoretical framework.

The development of a digital learning space (Math.Di.L.S)

The project aimed to impact national educational systems through the development an integrated multilingual learning space for mathematics education (Math.Di.L.S). The system provides a web-based repository for any project-related file, enables the on-line communication and collaboration among its users and addresses the wider public, providing the project outcomes.



The "MoPiX" DDA