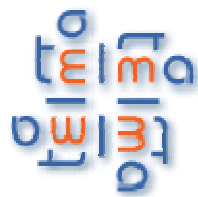
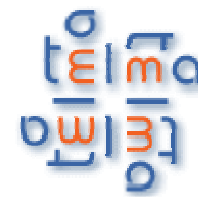




European Research Teams



TELMA



**Technology Enhanced Learning in
Mathematics**

Rosa Maria Bottino



European Research Team



TELMA



Transversal
Activities

Special Research
Groups

Joint executed
research projects

**European
Research teams**

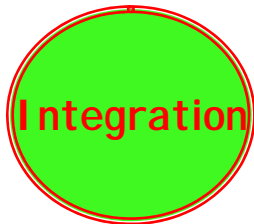


European Research Team



TELMA

**Technology Enhanced Learning in
Mathematics**



CNR-ITD, Genova, Italy
ETL, Athens University, Greece
IMAG-Metah, Grenoble, France
DIDIREM, Paris VII University, France
Math Dept., Siena University, Italy
IOE-Knowledge Lab, London University, UK

<http://telma.noie-kaleidoscope.org/>



Background

Each team:

- Has its specific research focus
 - Refers to different theoretical frameworks and work methodologies
 - Has developed or used different ITC-based tools for mathematics learning
- It is important:
- to promote a synergy among different groups and research approaches to find similarities and to clarify differences
 - to develop some new constructs and methodologies to compare and to promote networking



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- **Content**

- Analysis of how different theoretical frameworks can affect the use of technology in educational contexts for mathematics
- Analysis of the representations and contexts that the research teams refers to in design and development of ICT-based learning environments and in learning research
- Analysis of a set of selected ICT-based tools for mathematics education



TELMA



➤ **Cross-experimentations project**

Each TELMA team experimented, in real classroom settings, an ICT-based tool it had not designed but that was developed by one of the other teams

- **Guidelines**
- **Classroom experiments**
- **Analysis of outcomes**

➤ **Analysis of a set of selected ICT-based tools for mathematics education**

- **A methodological tool for the analysis of math educational ICT systems**



TELMA



• The cross-experimentations project

Main ideas

- Different research units run similar experiments addressing jointly elaborated research questions within their different contexts and national school cultures
- Same topics and age levels addressed
- Joint developed methodological tools (didactical functionalities notion, meta-language of concerns, guidelines, interviews, etc.)

General Aim

- To acquire a better understanding of learning environments implemented using tools designed under theoretical frameworks and in contexts different from those of the experimenting teams



TELMA



• Analysis of a set of selected ICT-based tools for mathematics education

- Get a global view of the state-of-the-art educational software for arithmetic and algebra
- Position computer systems developed by TELMA teams within the landscape of existing systems
- Development of a methodological tool (grid) for systems analysis

Systems

- "outside TELMA": AnimalWatch, MathExpert, Mrs Lindquist, Math Teacher, Cognitive Tutor, ActiveMath, T-algebra
- "inside TELMA" : Aplusix, ARI-LAB2, E-Slate



TELMA perspectives

REMATH project (IST 4-26751):

- To contribute to the integration of theoretical frames for learning with digital media
 - Development of six state-of-the-art **dynamic digital artefacts (DDA)** for maths education
 - Development of **scenarios** for the use of these artefacts in school;
 - Empirical research involving **cross-experimentation** in different educational contexts



TELMA perspectives

TELEARC Association (Technology Enhanced Learning European Advanced Research Consortium)

- **An integrated research community** in the field of mathematics education with technology with joint scientific results such as papers in Journals, Conferences and Workshops
- **An updated website** with information, documents, and bibliography for people interested in mathematics education with technology
- **Agreements among teams** to carry out scientific activities of mutual interest such as: supervision of PhD thesis; development of research projects; scientific exchanges.
- Maintenance of **links with Mathematics education community** at large (ICMI, CERME, IFIP)