DIDACTIC INTERACTIONS BETWEEN FRANCE AND ITALY. A PERSONAL JOURNEY

Michela Maschietto
Dep of Education and Human Sciences
University of Modena e Reggio Emilia
Italy
SFIDA Séminaire Franco-Italien sur la Didactique de l’Algèbre

SFIDA-0
Turin, October 1992

SFIDA-38
Nice, November 2012

Michela Maschietto. A personal journey

https://sites.google.com/site/seminairesfida/Home
Collaborations and projects

• French summer schools in mathematics education
  • Participation to scientific activities, as seminars, workshops
  • Participation to scientific committees

• Meeting of Statistical Implicative Analysis
  • Participation to scientific committees
  • Organisation of some meetings at the University of Palermo

• Espace mathématique francophone
  • Participation to scientific activities, as seminars, workshops, team members of working groups
  • Participation to scientific committees
Collaborations and projects

- European projects “TELMA” and “ReMath”
But also a critical regard...

- Differences between French and Italian research works:
  - Italian researchers have been more interested in studying the relationships between innovative didactical proposals and their development in classes than modelling didactical phenomena
  - Aim of the experimental parts in classes: not a situation to study as external observer, but an opportunity to precise and test the hypotheses about “research for innovation”.
  - Teachers-researchers

- Some difficulties to establish collaboration between communities

  Boero (1994)

Reasons:

- The difficulties do not derive only from researchers’ characteristics but also from ecological conditions under which research in mathematics education develops
  - Features of the school systems
  - Economical constraints of research
  - The weight of the cultural environment

  Boero (2016)
PhD students and post-doc
MY PERSONAL JOURNEY
Fellowship by the University of Turin
Bordeaux

• LADIST with G. Brousseau

Observations of primary school classes at Ecole Michelet (COREM) in Talence

Theory of Didactical Situations (TDS)

First learning for a young researcher

Passion
Enthusiasm
Discussions during lunch
Sketches on paper little table cloths

Comparing to the contingence
Michela Maschietto: A personal journey
Michela Maschietto. A personal journey
Thesis between Paris and Turin

• Doctoral dissertation
• With two supervisors...

Italian paradigm “Research for innovation”

Research in Turin (Arzarello)

Research in Paris (Artigue)

Networking strategy

Theoretical frameworks
Thesis between Paris and Turin

• Doctoral dissertation
  • With two supervisors...

- Introduction of calculus at secondary school level by graphical and symbolic calculators

Research in Turin (Arzarello)
  Embodied cognition
  Gestures and metaphors
  Geometry and cognition

Research in Paris (Artigue)
  Didactical engineering
  Instrumental approach
  Graphical calculators
**Thesis between Paris and Turin**

- Doctoral dissertation
- With two supervisors...

The influence of embodied cognition is visible in the sensitivity she develops about the students’ gestures and discourse, as they zoom in and zoom out with the calculator, and about the personal and collective development of the metaphor of microlinearity. But what is added to these perspective is a careful attention to the mathematical limits of visualization (it shows closeness, but not the order of the approximation that is essential here), a careful attention to the way the microlinearity metaphor can become an operational tool, and to the difficulties met by students in that operationalization.

Research in Turin (Arzarello)
- Embodied cognition
- Gestures and metaphors
- Geometry and cognition

Research in Paris (Artigue)
- Didactical engineering
- Instrumental approach
- Graphical calculators
Thesis between Paris and Turin

Teaching experiments in Italian classes with teachers of Turin team.

A priori analysis

A priori analysis as mediation tool with the teachers

Introduction of calculus at secondary school level by graphical and symbolic calculators

Research in Turin (Arzarello)
- Embodied cognition
- Gestures and metaphors
- Geometry and cognition

Research in Paris (Artigue)
- Didactical engineering
- Instrumental approach
- Graphical calculators

A priori analysis as mediation tool with the teachers
Michela Maschietto. A personal journey
Modena

Mathematical machines

- Theory of Semiotic Mediation (TSM) (Bartolini Bussi)

Mathematics laboratory sessions at MMLab (mmlab.unimore.it)

- Regional project on teacher education within mathematics laboratory methodology
Visiting researcher at EducTICE – INRP
Lyon

- EducTICE (L.Trouche) at INRP (now Ifé-ENS)
Lyon

- EducTICE (L. Trouche) at INRP (ENS)
Lyon

• EducTICE (L.Trouche)

Different perspectives on sciences education and use of digital technologies.

For a limited time, work without our institutional constraints.

Living in a foreign institution gives the possibility to capture less differences of the systems

Very nice team
Michela Maschietto. A personal journey
Duo of artefacts

Mathematical machine

Les ressources avec l'outil caline

CabriElem software

TDS
TSM

Michela Maschietto. A personal journey
Teaching experiments in Dijon, Lyon and Clermont-Ferrand
Teaching experiments in Dijon, Lyon and Clermont-Ferrand

- Thinking the relationships between material and digital tools
- Use of technology at primary school
- Cultural differences
- Conditions and contraints
A VERY NICE JOURNEY