Outline: Research on ICT + Education

- The world of School
  - Competences
    - eSchooling
    - Oplà
  - IWB
  - TEDD
- University
  - Peer evaluation
  - Video Lectures
    - Lode Evolution
    - Flipped classroom
    - Note taking
- Other Education-related research
  - Wikipedia (QwwwQ – Spacetime)
  - QBook

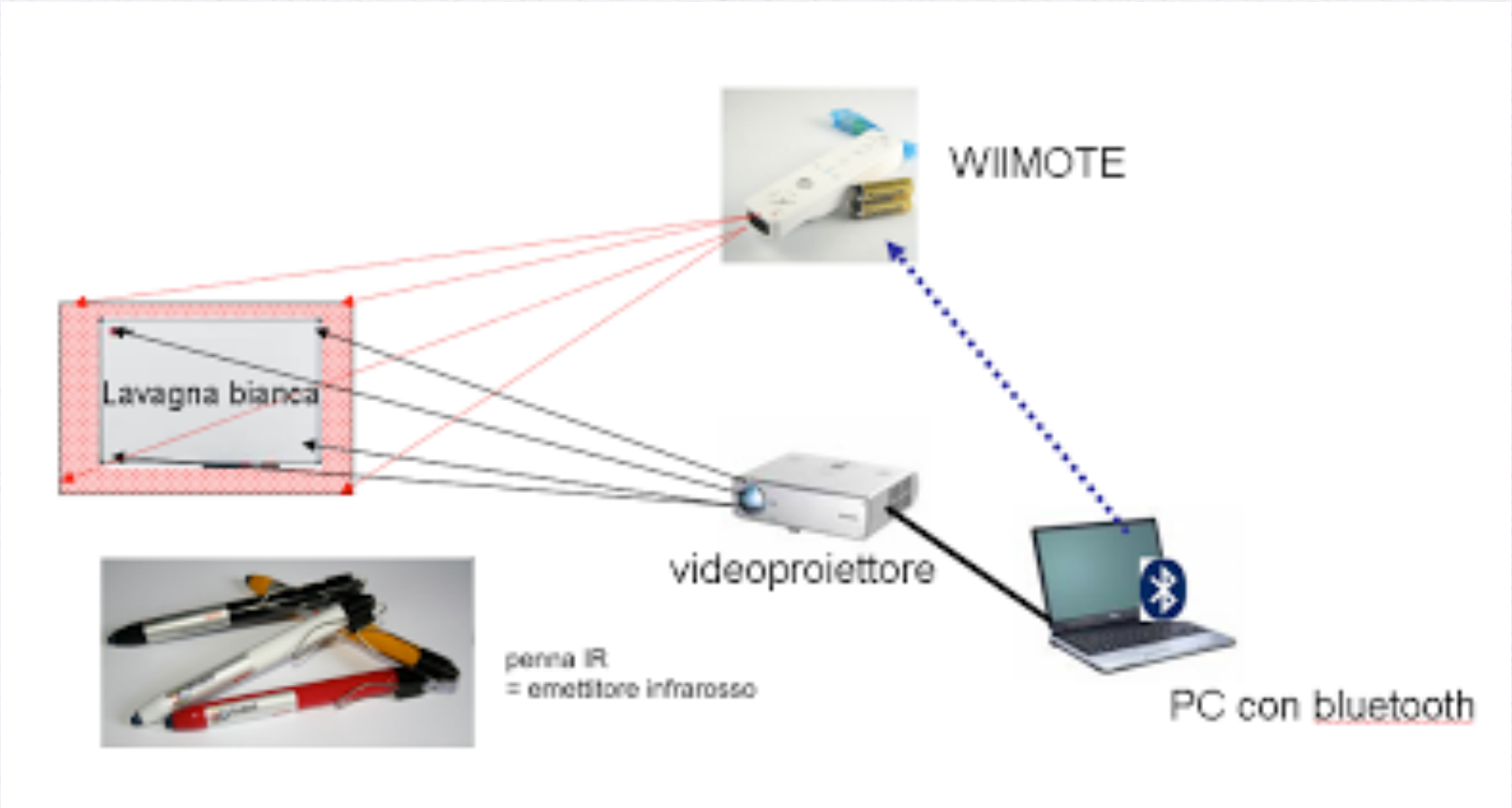
The beginning

Slim4Dida,
WII4DIDA,
Olimposs

Slim4dida

- Supporto all'introduzione di Lavagne Interattive Multimediali nella Scuola Trentina

OLIMPOSS – Ardesia + Wiildos



OLIMPOSS – Ardesia + Wiildos

WiildOs
Libera la lavagna

- Wiki Home
- Recent Changes
- Pages and Files
- Members

Search

Novità
La nostra storia
Linux Day
Costruiamo WiildOs
SchoolTool

- SCUL server
  - Installa SCUL server
- **SCOPRI** WiildOs
  - Scopri come funziona una Wiild
  - Scarica
    - Verifica integrità dell'immagine
  - Prova in Virtualbox
  - Costruisci il DVD di WiildOs
  - Costruisci la chiavetta Usb WiildOs
  - Installa WiildOs
  - Avvia una rete LTSP
  - Avvia il dispositivo

Ardesia

Il computer come lavagna: Ardesia

Ardesia è un programma che permette di trasformare lo schermo del computer in una lavagna. Ardesia vi consente di disegnare sulla scrivania indipendentemente dai programmi utilizzati. Guarda come si utilizza attraverso il video dimostrativo tratto dal blog ilceramista.

Slim4DIDA outcomes

What did research say?

UK - BECTA:

IWB are instruments able to stimulate a much better involvement that the one achievable with traditional teaching methods.

But…

The introduction of a valid instrument does not necessarily translate into an automatic improvement of teaching!

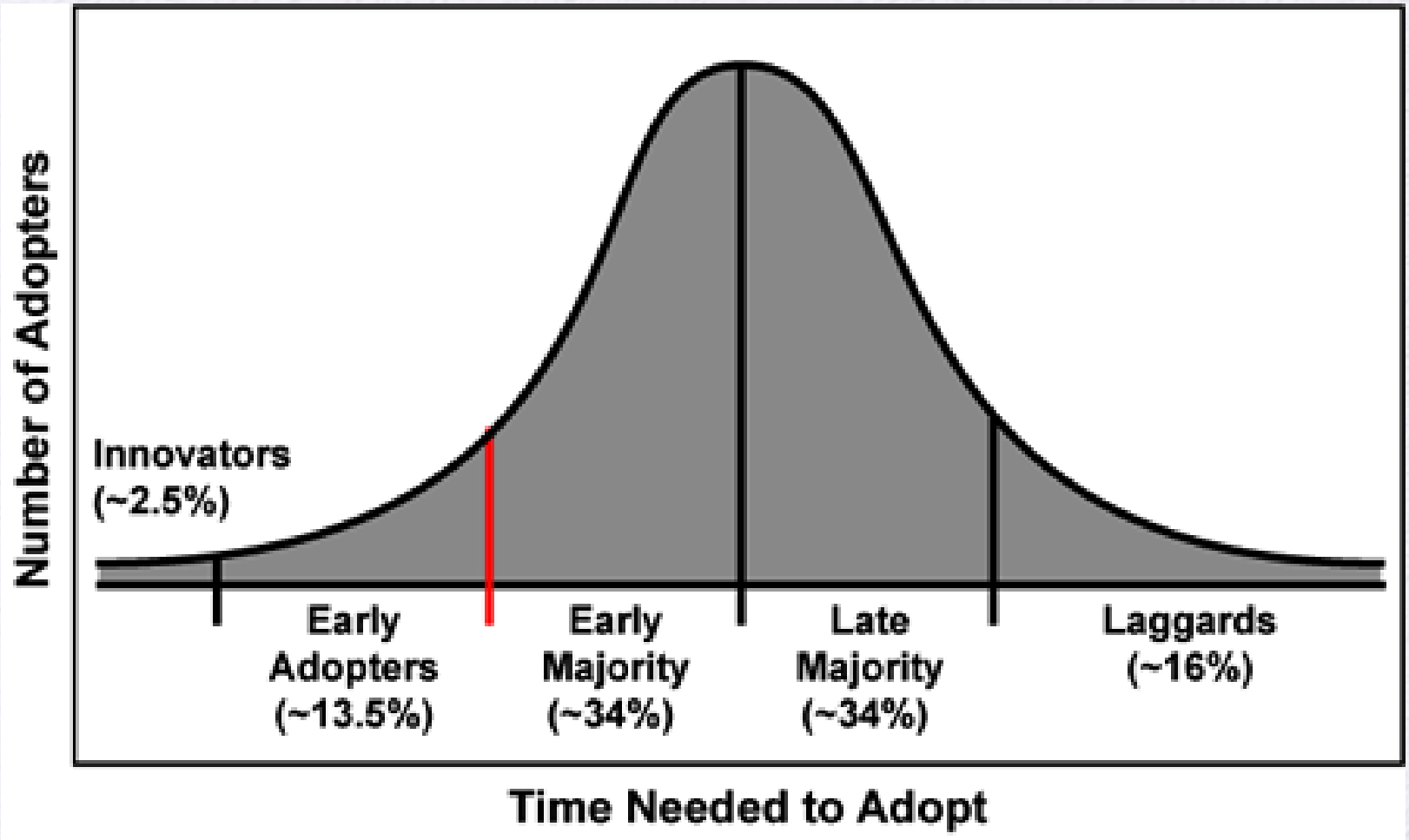
One needs to:

- Understand which are the new ways to use the technology
- Understand which are the obstacles and the enabling factors
- Observe and monitor the process, to make it easier and steer it in the desired direction

Obstacles

- One needs time to learn to use the IWB effectively, also so as not to be embarassed in front of the students;
- One needs to find or create suitable material
- Initially one tends to use the IWB in ways which reproduce traditional tools (computers with a projector)

Innovation introduction



Intoducing a new technology….

L'Introduzione di nuova tecnologia

Dove si mettono le lampadine?

Teacher perception: positive aspects

- Support for handicapped students
- Time saving in certain activities
- Fascination of the tool
- Complementary aspects with respect to a multimedia classroom

Teacher perception: negative aspects

- Induced laziness
- Time lost for problems or setup
- Time needed to prepare material
- Doubts about the suitability of the tool to certain disciplines and age ranges
- Precision and naturalness of the virtual writing not fully satisfactory

Problems

- Where to install them?
- Organizative issues
  - Maintainance: Lamp replacement, filter cleaning
  - Protection from damages
- Luminosity
- Size and positioning
- Shadow
- Getting used to them

Problems and issues

- Perception of the tool
- How to facilitate the transition to more partecipatory teaching/learning?
- Notion of learning object
- NIH syndrome
- White paper syndrome
- Expectations/results mismatch

Hurdles

- Teachers are busy people!
- Community startup
- Fear of lack of timely and efficient support
- Archival/retrieval
- Finding the ways to recognize and remunerate any extra work

Conclusions

- Is the IWB the magic tool described by the vendors and by some literature?

✓The strong point is bringing Internet and the PC in the middle of the class

✓It does not happen magically…

✓The process needs to be driven

The risk

Lavagne multimediali interattive: uno scherzo?

(23/08/2009)

Un ennesimo fallimento di politica scolastica in Italia?

Segnaliamo la presentazione in PowerPoint di Dario Zucchini dell'Istituto Majorana di Grugliasco (Piemonte) che illustra come il sistema scolastico italiano stia sprecando soldi investendo male in un gadget pedagogico che si sta introducendo nelle scuole elementari. La dimostrazione in primo luogo di come il sistema scolastico è in grado di addomesticare qualsiasi strumento pur di non cambiare e in secondo luogo dell'impreparazione dell'amministrazione scolastica a gestire su vasta scala l'adozione di uno strumento di lavoro nelle scuole. Ciò lascia per lo meno ben sperare: negli interstizi dei vuoti burocratici amministrativi si può installare il verme della novità sconvolgente, il cancro del cambiamento, come suggerisce Dario Zucchini.

The rejection

Home About Articles The longest poem Laptops for Teachers

Interactive whiteboards - love them or hate them?

Always Learning
with Leigh Pretnar Cousins, MS

Always Learning
About Always Learning

21st Century Teaching: Interactive Whiteboards?

By LEIGH PRETNAR COUSINS, MS

The main goal of education needs to be to stimulate students' brains...to get them to read with understanding and write clearly and research purposefully and problem-solve and think autonomously.

I question whether interactive whiteboards, as well as much educational computer software, does this. I fear that such technology often relies too much on exciting kids eyes and ears and doesn't do enough to provoke deep thinking. I also wonder about the effects of such technology on attention span and the development of self-control. Kids need to learn to focus and persevere on complex tasks that aren't necessarily visually exciting.

http://www.speedofcreativity.org/2009/10/18/no-just-having-iwbs-does-not-make-learning-engaging/

No, just having IWBs does not make learning engaging

Unfortunately, school improvement is not this easy.

The Tempered Radical

• iTunes Playlists – Stronger Relationships | Main | More on Interactive Whiteboards. . . »

January 06, 2010

Wasting Money on Whiteboards.

Why I Hate Interactive Whiteboards

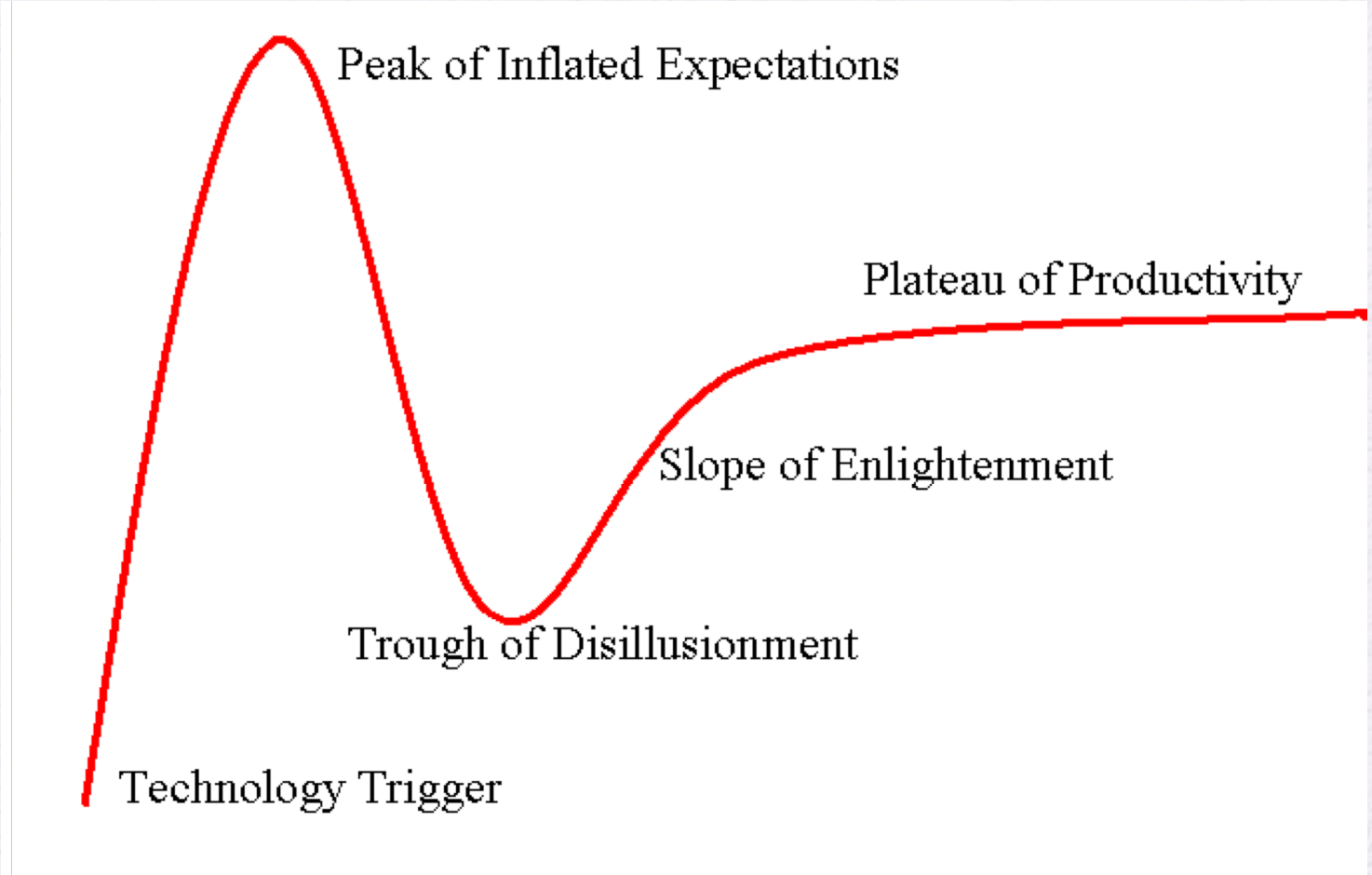
By Bill Ferriter

I'll admit that there aren't many topics I'm more passionate about than interactive whiteboards in the classroom.

TLN TEACHER LEADERS NETWORK
CENTER FOR TEACHING QUALITY

Sylvia Martinez: "You can't buy change.
It's a process, not a purchase.
The right shopping list won't change education.

Gartner's Heap cycle



eSchooling

www.eschooling.it

info@eschooling.it

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Challenges for "School 2020"

What is hot in today's and tomorrow's school?

- **ICT**
- **Competencies**

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Which solutions for the challenges of School 2020?

ICT:

- Learning Management Systems
- e-books
- Vertical apps (CAD, simulations, GeoGebra…)

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Which solutions for the challenges of School 2020?

Competencies:

?

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What are "competencies"? (a 25 years old story)

German school of Developmental Psychology (Gelman and Greeno, 1989, Sophian, 1997)

(a) "**Knowledge**": conceptual competence, rule-based, abstract knowledge about an entire domain;

(b) "**Skills**": procedural competence, procedures and skills needed to apply conceptual competence in concrete situations;

(c) "**Competencies**": performance competencies, required to assess a problem and select a suitable strategy for its solution.

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France: the triad

- *savoir* (knowledge),
- *savoir-faire* (functional competences)
- *savoir-être* (behavioral competences)

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In simple words?

Not only "to know", nor "being able to do", but

"**Being able to do with what one knows**"

(situated knowledge)

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Difficulties

- competences are trans-disciplinary
- programs based on "content"
- fragmentation of teaching
- participation as individual teachers

eSchooling

The European and the Italian frameworks

<table>
<tr><th>Recommendation of the European Parliament and of the Council – Dec.2006</th><th colspan="4">Italian D.M. 129, 27 agosto 2007</th></tr>
<tr><th>Key competences for Lifelong Learning</th><th colspan="2">Cultural axes</th><th colspan="2">Citizenship key competences</th></tr>
<tr><td>Communication in the mother tongue</td><td colspan="2" rowspan="3">Languages Axis</td><td colspan="2" rowspan="3">Communicate</td></tr>
<tr><td>Communication in foreign languages</td></tr>
<tr><td>Digital competence</td></tr>
<tr><td>Mathematical competence and basic competences in science and technology.</td><td>Scientific and technological axis</td><td>Mathematical axis</td><td colspan="2"></td></tr>
<tr><td>Social and civic competences</td><td colspan="2" rowspan="2">Historical axis</td><td rowspan="2">Collaborating and participating</td><td rowspan="2">Acting autonomously and responsibly</td></tr>
<tr><td>Cultural awareness and expression:</td></tr>
<tr><td rowspan="3">Learning to learn</td><td colspan="2" rowspan="3"></td><td colspan="2">Learning to learn</td></tr>
<tr><td colspan="2">Acquiring and interpreting information</td></tr>
<tr><td colspan="2">Finding links and relationships</td></tr>
<tr><td rowspan="2">Sense of initiative and entrepreneurship</td><td colspan="2" rowspan="2"></td><td colspan="2">Inventing and designing</td></tr>
<tr><td colspan="2">Problem solving</td></tr>
</table>

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The result…

Most Italian teachers feel lost and confused.

Indications are vague and contradictory:
teachers understand that they are requested
to adapt to a new paradigm,
yet they do not understand how to get there,
and often not even where is "there".

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Why are competencies a problem?

Pellerey (2010)

absence of a suitable semantic and operative framework

Bottani (2007)

“pedagogical tsunami” caused by the big but largely incoherent amount of work done on the notion of competence

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Why are competencies a problem?

- Need to change the pedagogical paradigm
- ICT can favour the change, but they may be a problem in themselves
- Average teachers age: high

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What happens in the Italian high schools?

T_0: formative plan (FORMAL)

T_0 + 9 months: Assessment (FORMAL)

eSchooling

What happens in the Italian high schools?

T_0: formative plan (FORMAL)

in the middle: NOTHING

T_0 + 9 months: Assessment (FORMAL)

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Project idea

0) Build a competence taxonomy

1) Collect declarations (plans) at T_0

2) Give tools to design/perform

- activities
- competence evaluation (rubrics)

3) Use informations to proactively favor the communication:

- "self": reminders
- teacher– teacher
- school– family
- teacher – student (metacognition)

4) Support formal evaluation at T_0 + 9 months:

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EASY TO USE !

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Partner

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Validation

- Pedagogy experts
- TLC communities experts
- Selected teachers ("Innovators")
- The testbed: participating schools (two years)
  - 10 schools, 2 classes per school, 2-3 disciplines
  - 40-60 Teachers
  - 500 students
  - 25-100 parents

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Validation: the research questions

- Is the system effective in favoring/supporting teaching/assessing by competence?
- Is the competence taxonomy adequate?
- How is the system usability?

Areas:

- teacher support
- student support
- family support

Methodology:

- analytics
- focus groups
- questionnaires

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Sperimentazione A.S. 2014-2015

Docenti:	49
Studenti:	632
Classi:	31
Materie:	12

TUTTE LE SCUOLE

TRENTINE E NON

ITT BUONARROTI	Trento
CFP VERONESI	Rovereto
LICEO PRATI	Trento
LICEO RUSSELL	Cles
IT MARTINI	Mezzolombardo
CFP CENTROMODA CANOSSA	Trento
ITT TAMBOSI-BATTISTI	Trento
IT TURISTICO GARDASCUOLA	Arco
IST. CANOSSIANO PARITARIO	Feltre
LICEO CARDUCCI	Bolzano
USR PIEMONTE	Torino

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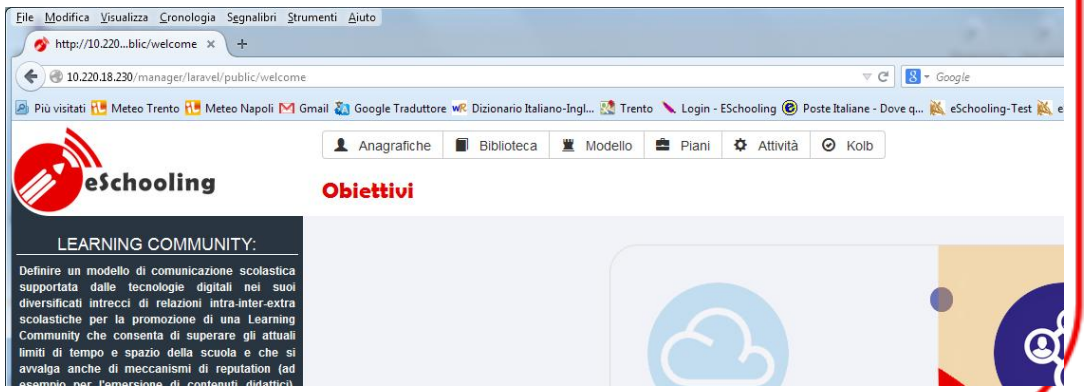
www.eschooling.it



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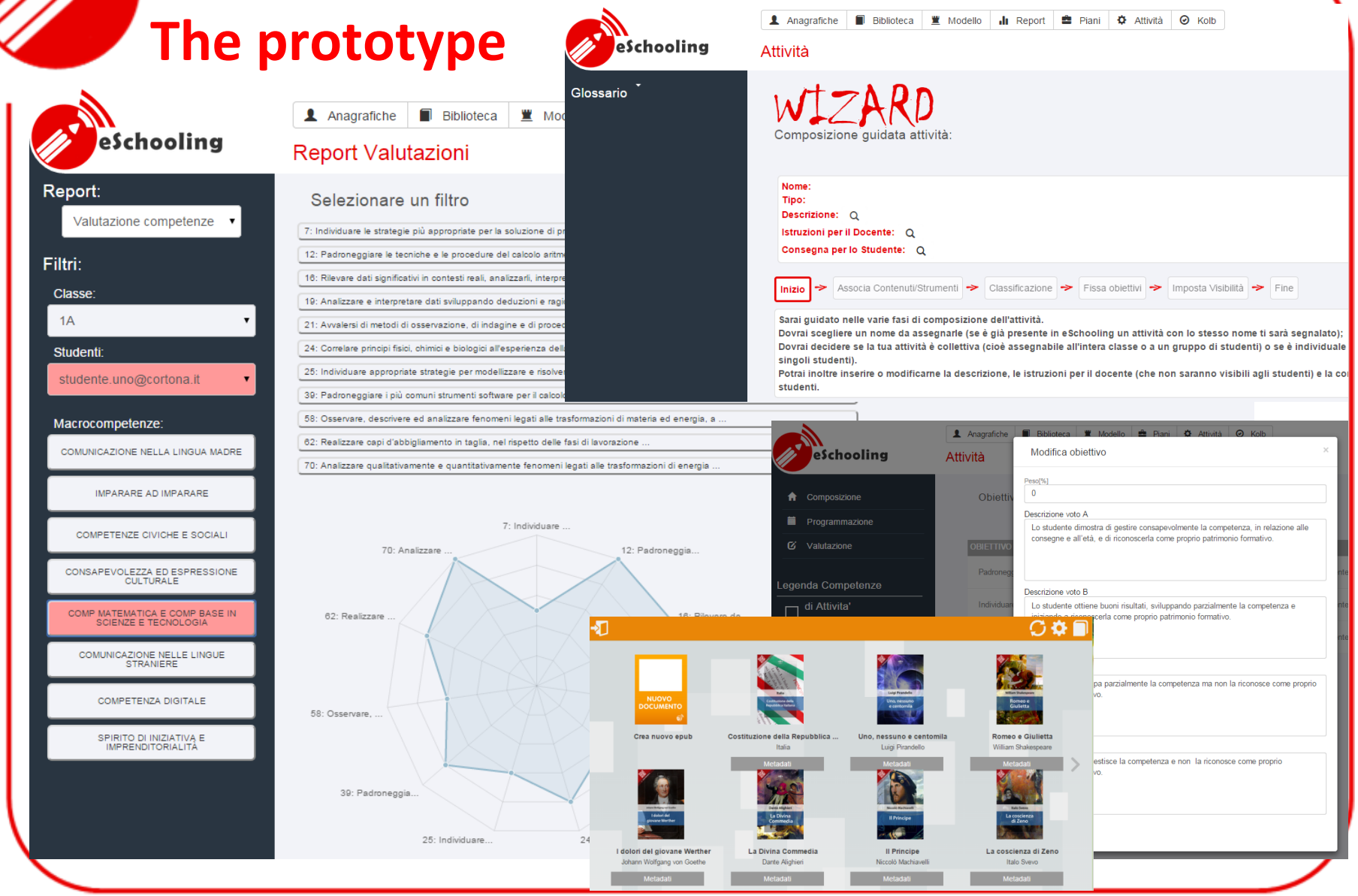
The prototype



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Problems

- Politicians made a mess…
- The maturity exam
- Disciplinary fragmentation
- Teachers are busy people!
- Interface should be simplifed…
- Lack of integration with the school registry

OPLÀ, A TOOL FOR HELPING TEACHERS WITH PROBLEM-BASED LEARNING AND COMPETENCE-BASED EDUCATION

Marco Ronchetti[1] and Andrea Valerio[2]
[1]*DISI, Università di Trento (ITALY)*
[2]Memetic SrL, Rovereto (Trento) (ITALY)

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Oplà

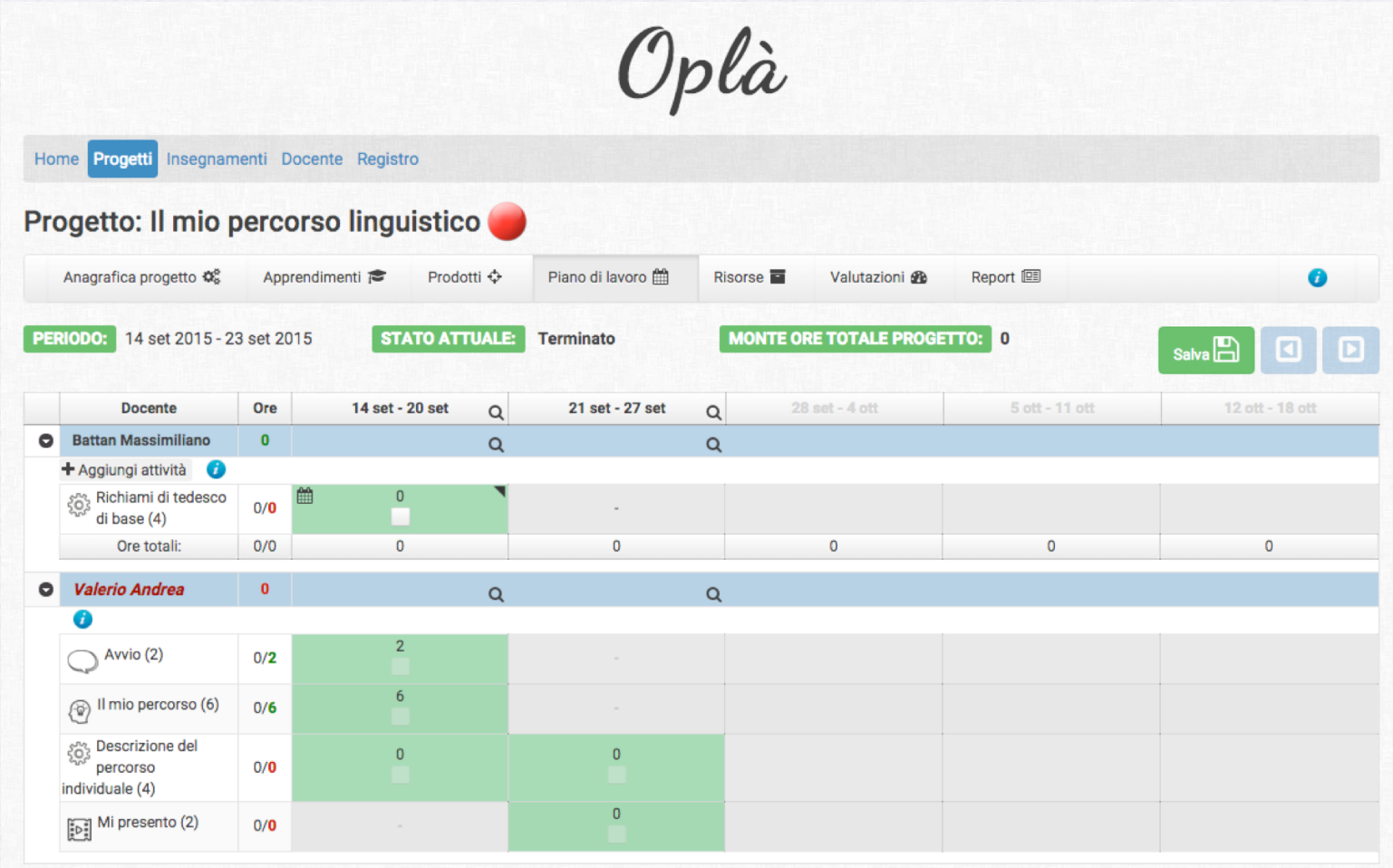
Shift to VET schools

- Interdisciplinary approaches are more commonly accepted and sought;
- There is a stronger emphasis on "being able to do" rather than "to know"
- Due to a different legislation, the role of the school manager is more powerful and pronounced
- Legislation is less ambiguous in indicating CBE as the way to go
- at the end students are qualified with a professional profile that is coded into competences (by law).

Project based learning

- Goal-oriented
- Interdisciplinary
- Project management needs!
- Evaluation based on rubrics

Project management tools



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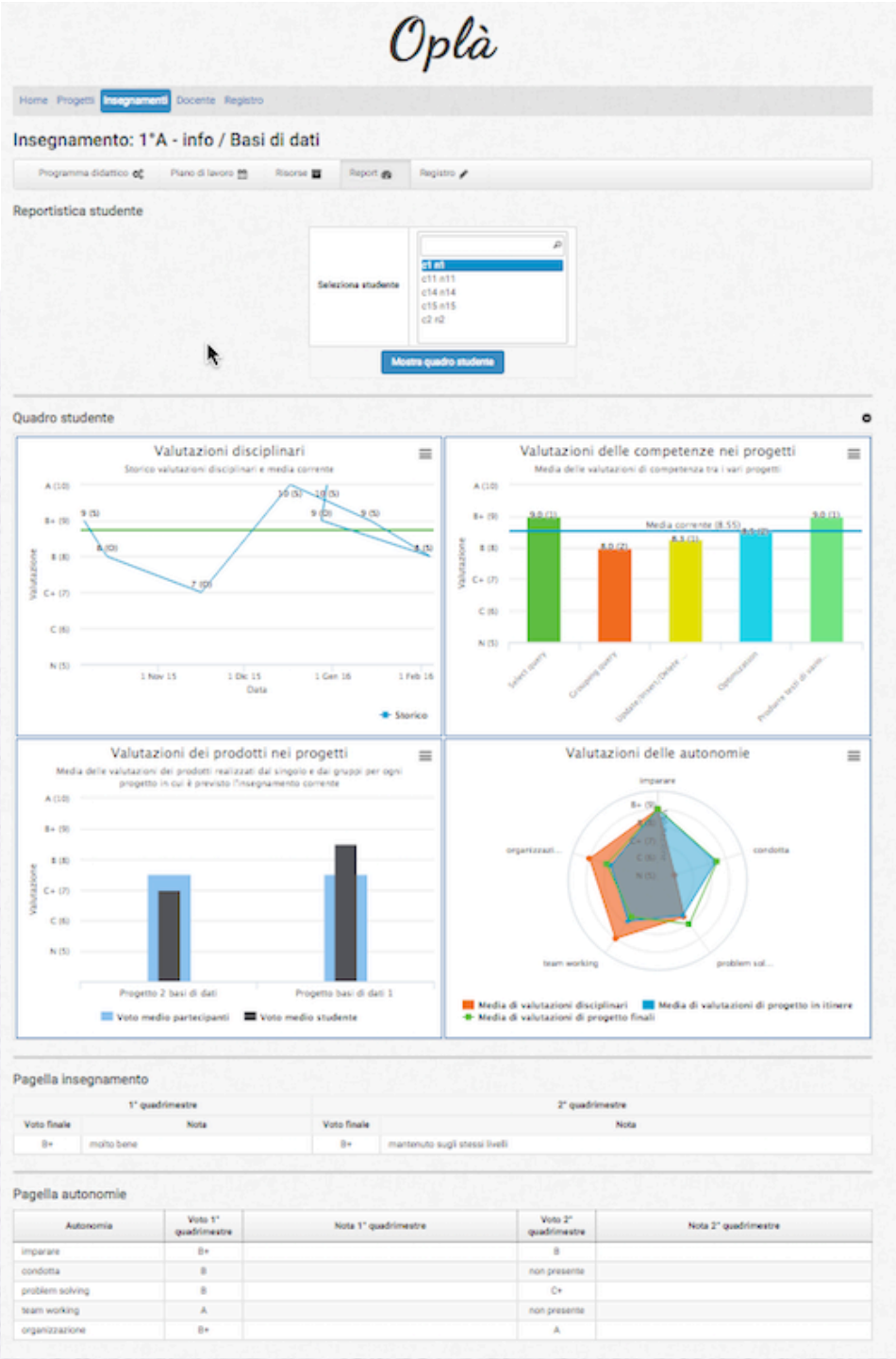
Evaluation

- Break the teachers' isolation!
- Use evaluation as metacognitive tool (thanks to a more analytic approach)
- Better communication with families
- Manager dashboard

Temporal evolution

Relative assessment



Analytic decomposition

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The system embeds:

- Competence taxonomy (customizable)
- Project mgmt tools
- Help for defining rubrics
- auto-generation of graphs