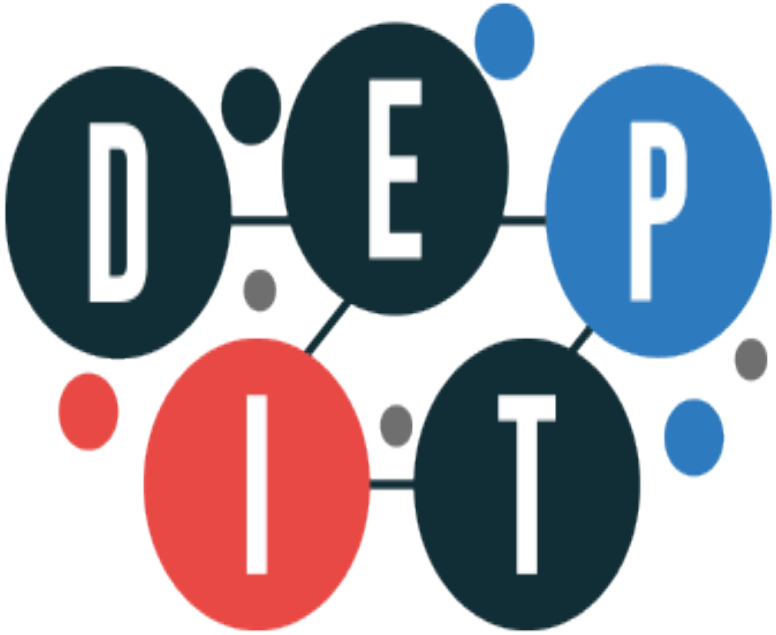

DESIGNING FOR PERSONALIZATION AND INCLUSION WITH TECHNOLOGY

UNIVERSITÀ DI MACERATA

Co-funded by the Erasmus+ Programme of the European Union

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The premise of the project: the current landscape

There were two main issues related to the current educational situations that acted as initial input:

- The complexity of the classroom (different cultures, skills, educational fields) and the situated aspects of the didactical action (Varela, 1990; Rossi, 2013).

- The different relationship between formal and informal knowledge compared to the past. Students come to school with an informal set of knowledge that cannot be compared to the one they had in the past, mainly in respect to the symbolic codes that were managed just by school in the past.

The premise of the project: the experimentation

- Since 2012 the University of Macerata has been experimenting a design modality within Italian schools (from pre- school to secondary school).

- The experimentation dealt with the transposition of the structure of the curriculum and of the class sessions/lessons in **digital maps** that are shared by the teacher with students so that they can participate in the map creation and enrichment.

- The maps used in the experimentations were a representation of the whole design process, they showed the activities developed in classroom and their documentation.

The first prototype

The DEPIT PROJECT

In such direction the University of Macerata promoted a European project, DEPIT (designing for personalization and inclusion with technologies- a three year proposal 1-9-2017/31-8-2020) along with different partners involved with different roles and expertise:

- University College London (UK),
- Catholic University of the Sacred Heart, Milan (Italy),
- Universidad de Sevilla (Spain),
- Infofactory, (Italy)
- Net of schools in Friuli Venezia Giulia region and Marche region (Italy), Centro del professorado Sevilla (Spain), AEDE European Teacher Association.

The expected outcome

- Build a proptotype (graphic organizer): an environment to support teacher in the design of the curriculum and of the activities through a graphical structure to be shared with students;

- Disseminate the model within teachers communities through: teacher training, staff mobility , seminars, MOOC

Graphic Organizers

- Graphic organizers are visual and spatial displays that can connect ideas, concepts, resources (e.g. concept maps)
- Graphic organizers come in many types (the connections can be temporal, spatial, sequential, hierarchical) and have been widely researched for their effectiveness in improving learning:
- they may support and develop organizational strategies since relationships between elements are apparent and clear.

Building a Graphic Organizer

- The artefact should:
  - Play a generative role and be an aggregator of different elements: it should aggregate pedagogical indicators, the mediators used by the teacher and some productions made by students;
  - Connect different levels (curriculum, modules, sessions/lessons)
  - foster inclusion and personalization;
  - be sustainable, that is, be easily used daily by teachers.

The theoretical background

- Design for Learning –
  Laurillard,D., *Teaching as a Design science,*

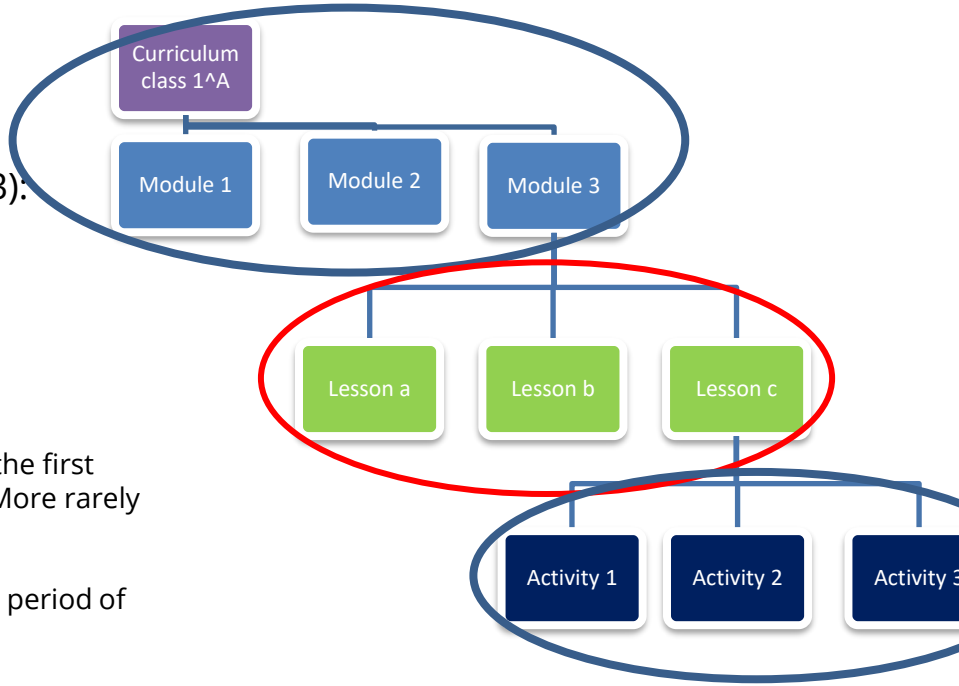
- Visibile Design for visible learning

- Curriculum studies –
  Stenhouse L. (1975) *An introduction to curriculum research and development*
  Beauchamp G. A. (1982). *Curriculum theory: Meaning, development, and use*

The prototype

Levels

The APP must allow to move on various levels (max 3):
Level 1. **Curriculum** with modules
Level 2. **Modules** with lessons
Level 3. **Lessons** with activities



1. The **curriculum** is made of a set of modules, which constitute the first level. It can correspond to a period of one year or a semester. More rarely two years or six months. (the period will be freely set by the designer)

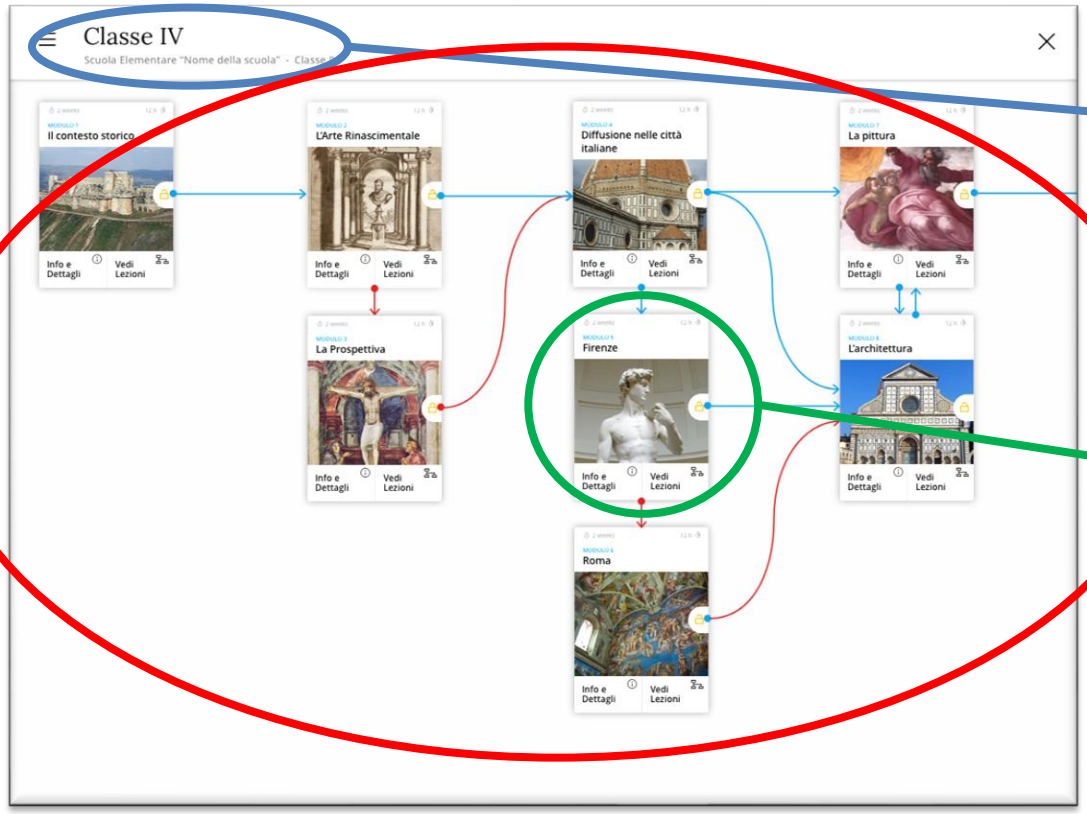
2. Each **module** is made of lessons. The module corresponds to a period of several weeks.

3. Each **lesson / work session** is made of activities. The duration in hrs and mins (Project work, for example, could be designed as a few hours a week for 10 weeks)

Session/lesson

- The concept of "session" instead of "lesson": a teacher may wish to design a 'work session' as 'preparation – lesson – homework'. It is better to design the whole sequence, than to separate these into 3 distinct ones, where the other two cannot be called 'lessons'.
- Sometimes the lesson may not be in class, it may be a trip to a museum, for example. For this reason, the term 'session' is much more flexible as a sequence of quite different contexts for learning.

General structure of three levels - definitions

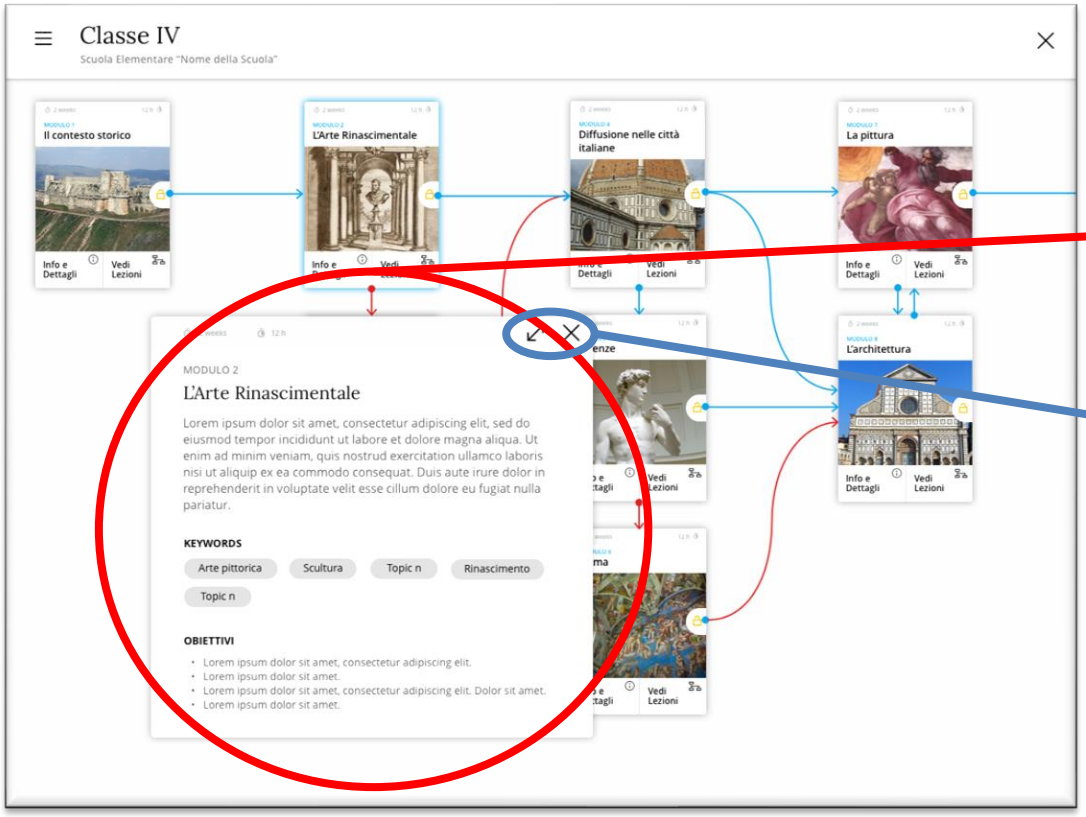


Title

Maps

Node/CARD

General structure of three levels - definitions

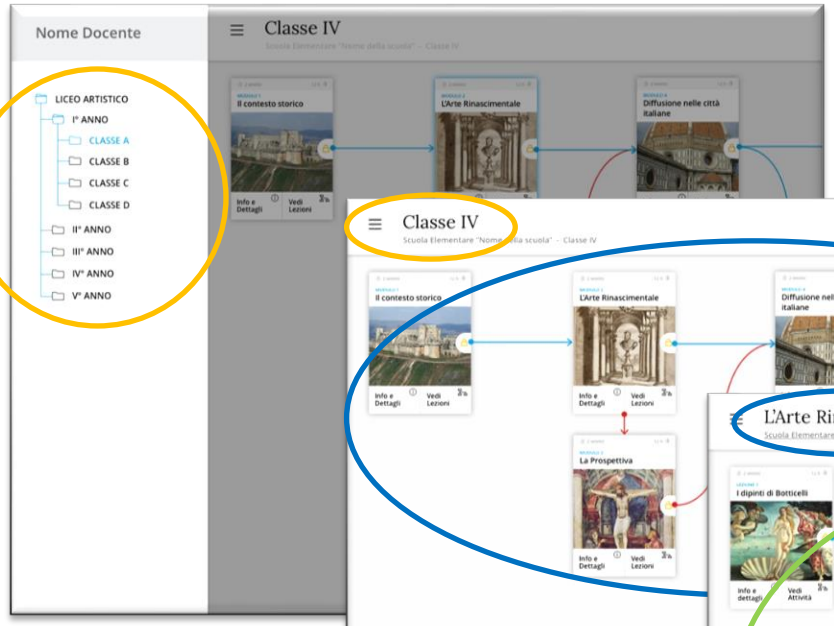


FORM or **pop-up**.
They open up when you click a button in the **NODES**.

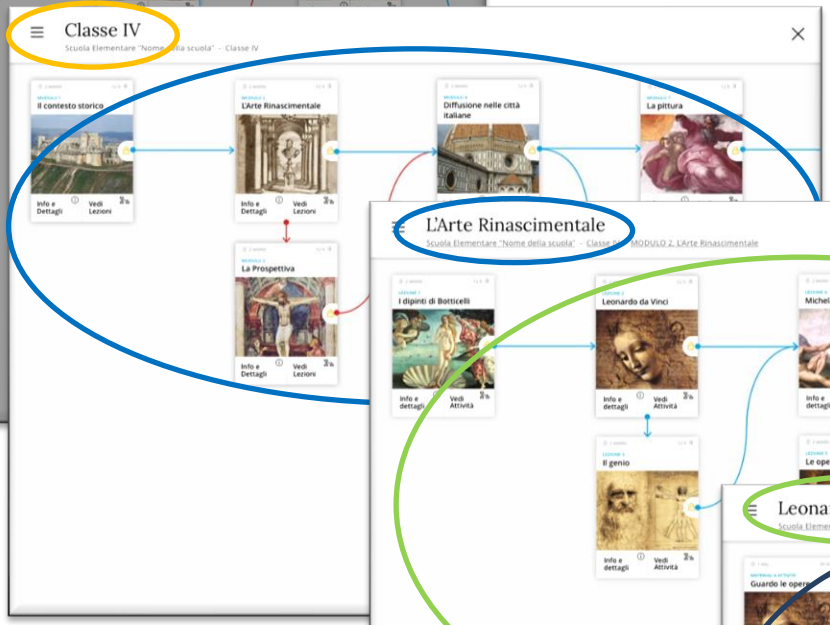
It is a moveable pop-up.

It includes **X** for closing the form, and a button for expanding (fullscreen) the FORM.

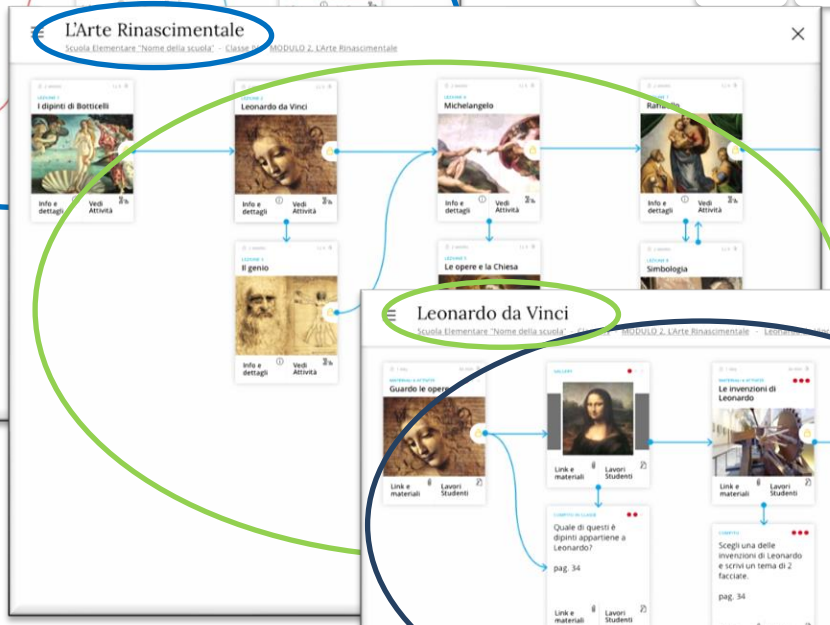
Curriculum



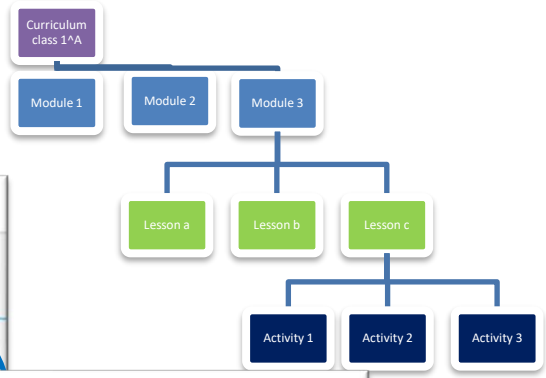
Curriculum with modules



Modules with session/lessons

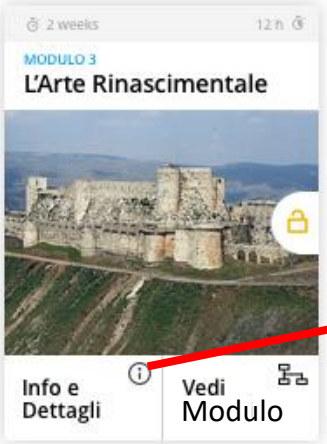


Session/lessons with Activities



Levels 1/2 – The NODES Curriculum

Both levels Curriculum and Module have the same NODE structure



- Learning time
- Title
- Picture
- Open/Close level
- Button opening a **FORM**
- Button with **link** taking to the lower level map (from curriculum to module, from module to lesson)

Level 3– The NODES of the Lesson's map

The structure of the Lesson's NODES

Title

Picture

Button opening the **FORM** regarding the activities' description

Button opening a **FORM** where to include the works done by students during their activities (only the teacher can upload the works, because students don't have personal account).

The FORM of the activity

The **FORM** includes the following fields (filling all the fields is not mandatory):

- **Title** (the same appearing in the map's node).
- **Learning time** (same of CARD)
- **Type of activity** (Learning **Through** …).
- **Work organisation** as class, group, student.
- **Description** and assignments.
- **Topics** (keywords).
- **Objectives/competencies**.
- [Empty field with teacher's **initial notes**]
- [Empty field with teacher's **final notes**]
- **Link** n – Material n to be used in the class (Resources 'attached' as urls, or uploaded files).

Other features

- Usable online and offline
- The materials, during the design phase, must be uploaded on the cloud and then either dragged or inserted in the activities FORM.
- The materials are visualised as clickable icons-links, to be enlarged in wider windows that can be seen on the Interactive Whiteboard.

Graphic

- The map structure is free: the teacher can make it as central, hierarchic, tree structure, etc.
- The FORM should be modifiable in shape and colour
- It could be possible to include a picture in the FORM

OPEN QUESTIONS:

- The design processes are different in the various countries. What level of flexibility should a digital artifact used for the design process have?

- Can a digital artefact, used for the design process and visible to everybody during the class, foster both the teachers' competences and the active students' participation?

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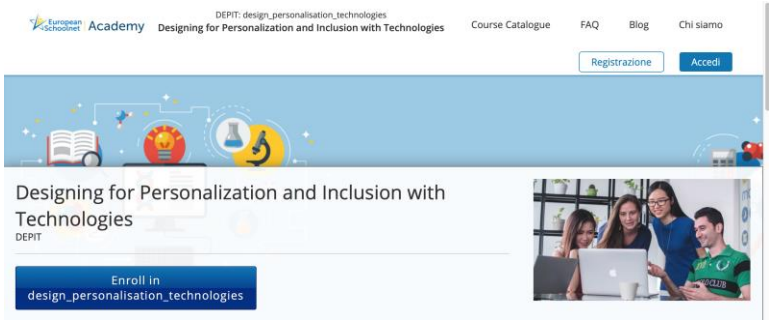
Final outputs:

The DEPIT APP website:

https://depit.unimc.it/

The MOOC:

https://www.europeanschoolnetacademy.eu/courses/course-v1:DEPIT+design_personalisation_technologies+2020/about



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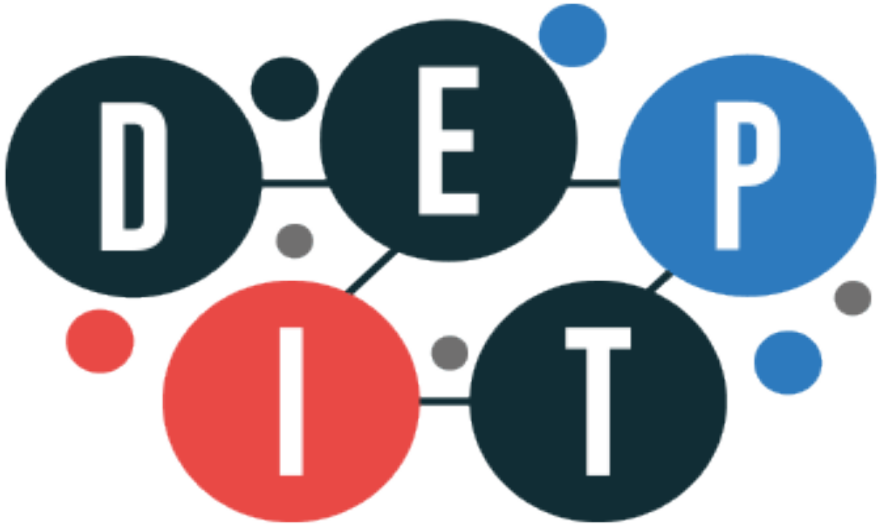

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