The Mirror project:
a 3D hospital to train stressful situations

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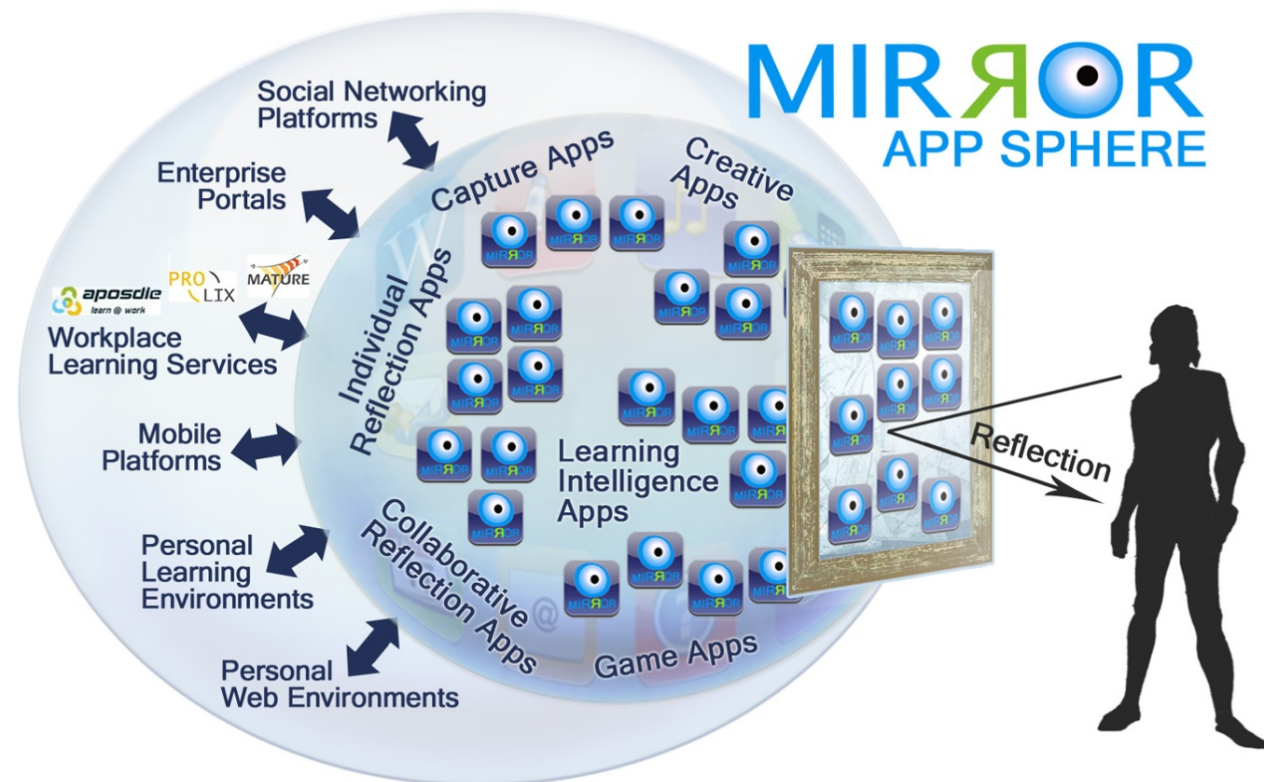
The MIRROR project

- **MIRROR – Reflective Learning at Work** (www.mirror-project.eu) is a FP7 project with the aim of encouraging human resources to reflect on previous experiences at the workplace and learn from them.

- The project's focus is the **creation of a set of applications** that enable employees to learn lessons from their own experiences (as well as from the experiences of others) and thereby improve their future performance: this is done both individually and collaboratively.

The MIRROR project

- Main objective: to empower and motivate employees to **learn by reflection**

The MIRROR project

- Among all the techniques explored by MIRROR, **Serious games** have a special role as they provide virtual experiences to reflect upon.

- Within this framework, *imaginary* **developed a 3D game** in 2 versions for the health and care sector to train nurses and carers deal with difficult dialogues and stressful situations at work.

- Special attention was put on the **reflection process** during the training and to giving users a **virtual tutoring** support during the gameplay. The Virtual Tutor inside the game will **reduce the necessity of guidance outside** because it already gives to learners all the support that they might need.

Theoretical framework

- The figure of the Virtual Tutor is based on the **Vygotsky's social learning theory (1978)** that emphasizes the essential nature of social dimensions to learning.

- The importance of peer learning was stressed by the author in the development of the notion of the **Zone of Proximal Development (ZDP)** defined as 'the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky, 1978, p.57).

- The Zone is not, therefore, some clear-cut space that exists independently of the process of joint activity itself but it is created in the course of **collaboration**.

Theoretical framework

Starting from this theoretical background, some **key aspects for the development of a Virtual Tutor inside a game** were identified :

- **act as co-learner** able to support learners' knowledge construction;
- provide a cognitive model of competent performance;
- have **no position of authority** with respect to the learner, because this create a trusting relationship that might facilitate self-disclosure of ignorance and misconception;
- **monitor** learner **performance**;
- **diagnose**, **correct** and **manage** misconceptions and **errors**;
- **add** to and **extend** learners' current **capabilities**;
- **modify** learners' **current capabilities**;
- **rebuild new understanding** when learners have a misconception.

3D Serious game: the design process

- Choice of topics: **difficult dialogues** and **challenging behavior**;

- **Align** with the **reflection model** studied in the Mirror project;

- **Set up structure** (branching story + mini games + interaction with the tutor + reflection exercises with the learning diary);

- Participatory phase for **content collection (realistic situations)** with test beds;

- **Design graphics** (3D virtual hospital and 3D virtual care home);

- Study and design the figure of the **Virtual Tutor (Maria):**

  - **push:** learners can ask for Maria's help whenever they feel it is relevant;

  - **pull:** in some precise situation, Maria will be shown inside the game through a pop-up window to help users deal with difficult situations.

Formative evalution

Test beds in the project:

- **1**: focus group with 7 carers during April 2012;
- **2**: interview with a Manager and with 10 nurses during May and July 2012.

Other samples outside the project:

- **Other samples (learning experts and business experts)**: usability tests, interviews and workshop during April-June 2012

Formative evaluation (results)

Test bed 1	Test bed 2	Other samples
'This would have been really helpful when we first started'.	'The Virtual Tutor is a **good support** inside the game'.	'**Mini games are really fun** and teach me something that seems to be really important'.
'It's **really helpful**'.	'I was really immersed inside the game'.	'**Tutor really helps** me during the game'.
'Mrs Violet looks exactly like Mrs XX and she says exactly those sorts of things!'.	'The **game is really innovative**, I like the challenges I have to address and the mini games'.	'The tutor's feedback, the scores and the learning diary help me to reflect about my game experience'.

Outlook and further activities

- The gaming environment will be enhanced with the introduction of a configuration-interface (**'wizard tool'**) with which **users or groups can insert some of their own content**, as well as set and tune some gaming features.

- More **content** will be added.

- The same setting will be developed for a **business scenario** (generic company).

- An Italian version of the 3D virtual hospital will be created for a pilot of an **emergency situation** with an Italian emergency service.

- **Mobile versions** for Android and IOS will be produced.

Any Questions ?

![imaginary logo]

Thank you for your attention!

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