Tools and methods to design
Mixed Reality Learning Games (MRLG)

SEGAREM (SErious GAmeS and Mixed Reality)

1 Concepts
   - Learning games (LG) are digital environments using game mechanisms to enhance learning.
   - Mixed reality (RM) merges both real and digital worlds. Augmented reality and virtual reality are part of RM.

2 Research issues
   Providing tools and methods to support the design of Mixed Reality Learning Games (MRLG)
   - Currently, lack of tool or method for MRLG design despite some formalisms already exist for education
   - Steps for MRLG design:
     - Creativity
     - Formalization
     - Development

3 Preliminary outcomes
   Based on:
   - Study case in the SEGAREM project: Lea*n IT (transposition of existing game in a MRLG)
   - Analyse and comparison of existing formalisms for the learning scenario modeling

4 Proposal for the formalization of MRLG

Global elements
- Pedagogy
  - Learning objectives
- Target learner
  - Prerequisites
  - Age
  - Number of participants
- Game elements
  - Game type and/or global game goals
  - Fantasy theme
  - Game principles
- Context
  - Location
  - Devices
  - Position of device (if relevant)

Workflow
- Learning scenario
  - Modules
  - Acts
  - Activities
- Fun scenario
  - Worlds
  - Levels
  - Stages

Detailed workflow
- Related to interactive objects

5 Conclusion and perspectives:
   - Implementation of the proposal in authoring tool according to the feedbacks from GBL workshop
   - Offering a framework to design, develop and execute MRLG
   - Conducting experiments in authentic situation

References:
2 Games mechanics from François-Gilles Ricard, société Symetrix, in Marias C. and Dupin V. Le Serious Game Section : les secrets de jeu au service de l’enseignement, presentation at Serious Game Expo, 23/11/2010, Lyon.
3 See Florent Delomier’s work