# Supporting Teachers to Design and Use Mobile Collaborative Learning Games

Mobile Learning International Conference February 28<sup>th</sup> to March 2<sup>nd</sup> 2014 – Madrid



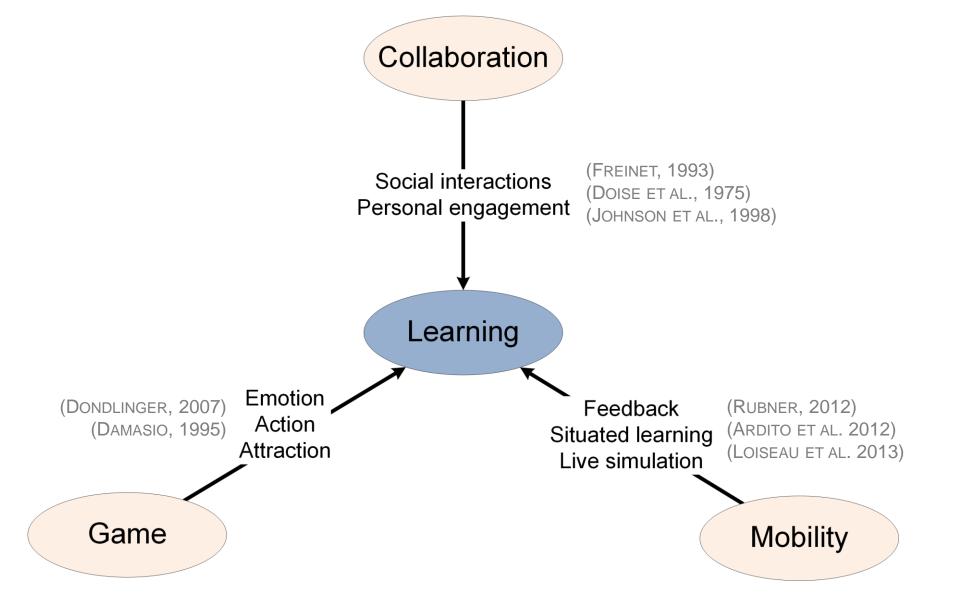
Iza Marfisi-Schottman Sébastien George

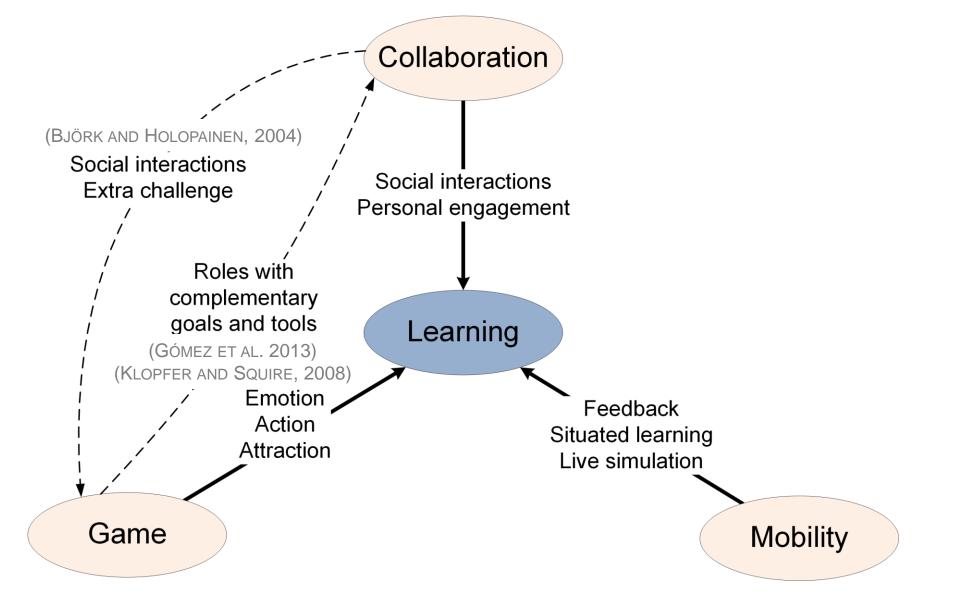


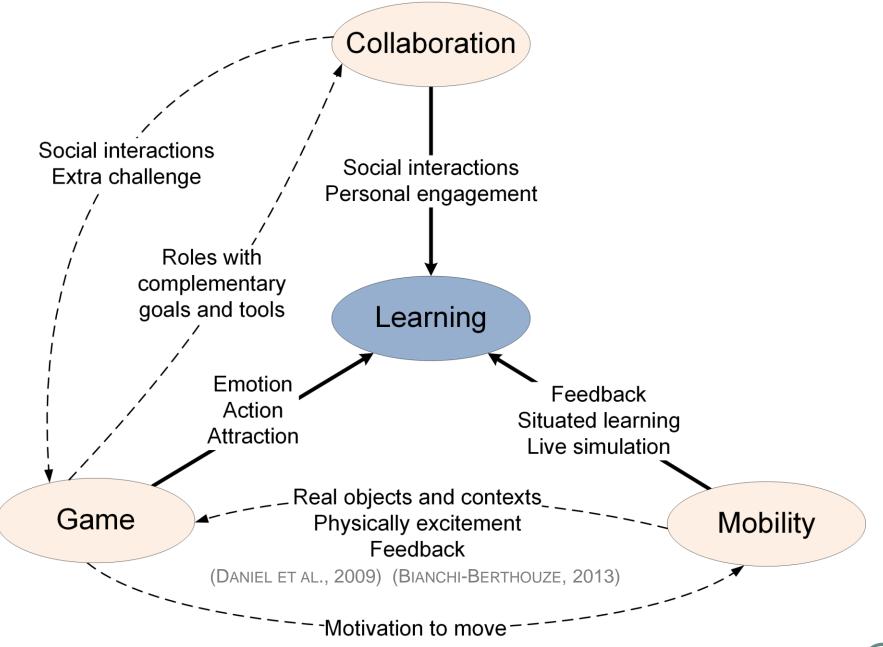


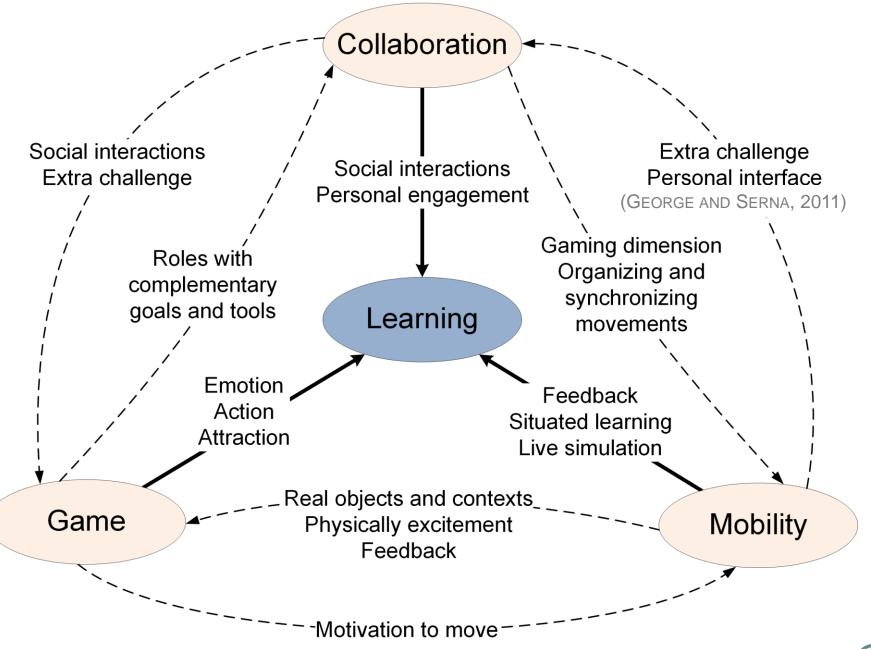


# How to motivate and engage students?











# How to Support the Design of Mobile Collaborative Learning Games?

## Guiding with Game Patterns

- Design challenges
  - Combined challenges in 3 domains
    - Mobile Learning
    - Collaborative Learning
    - Learning Games
  - Added challenge of creating effective synergy
- Game Patterns that naturally integrate these mechanics
  - Live action role-playing game
  - Mystery game
  - Treasure hunt
  - . . . .

## Live Action Role Playing Game - LARP

#### Game:

- Participants play a role with specific goals
- Mobility:
  - Real setting
  - Reconstructed environment
- Collaboration:
  - Complementary roles
  - Contradictory goals
- Educational potential:
  - Practicing social skills
  - Understanding complex subjects without a given solution
  - Understanding complex mechanisms involving several actors



HEROIC FANTASY LARP



LARP BATTLEFIELD EQUIPMENT

## Mystery Game

#### Game:

- Collect and analyze clues to solve the mystery
- Mobility:
  - Real setting with real objects
  - Actors
- Collaboration:
  - Negotiation to collect or trade information
- Educational potential:
  - Case based teaching (medical, engineering, law cases ...)
  - Practice theoretical knowledge to solve a complex case



PUBLIC LIBRARY MURDER GAME



FORT WORTH - SOLVE THE CASE!

## Treasure Hunt

#### Game:

- Follow a series of clues to find a hidden treasure
- Explore and get familiar with environment

#### Mobility:

- Interact with real items
- Explore Locations of interest

#### Collaboration:

Organization to collect and trade information

### Educational potential:

 Learn about the characteristics of real items, locations and environment



**BIOLOGY SCAVENGER HUNT** 



GEOCATCHING



## How to encourage teachers to Use Mobile Collaborative Learning Games?

# Place de teacher in the center

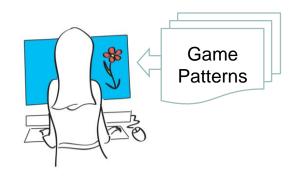
- Use and maintenance challenges
  - Testing game before
  - Adapting game to educational needs
  - Using available devices
- > Tools to help teachers:
  - Design their own MCLGs and Understand the mechanisms under the lid to adapt them
  - Monitor the student's progression in the game and Adjust the scenario in real time
  - Deploy MCLGs on the available mobile devices and fully integrate them to their course

## Design and Understand

- Authoring tools for teachers that offer:
  - A set of pre-made game shells
  - Maximum adaptation
  - Automatic generation of functional games
- Improve existing authoring tools for LGs:

EADVENTURE (MORENO-GER ET AL., 2008) STORYTEC (MEHM ET AL., 2009) GAME SHELLS (THIAGARAJAN ET AL., 2003) LEGADEE (MARFISI ET AL., 2008)

- Add game shells for MCLGs game patterns
- Guide choice and use of game shells
- Add functionalities for designing mobile games





## Monitor and Adjust

- Mobile Monitoring Tools for teachers :
  - View students' progression (Carron and Marty, 2012)
  - View high level feedback from students' actions
  - Adjust the game scenario in real time (Ponder et al. 2003)
  - Pilot a game character (Ney et al., 2010)
  - Contact students (individually or by group)





## Deploy

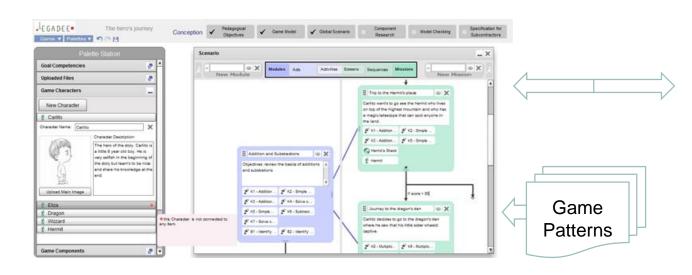
- Tools and Standards to support :
  - Deployment of game on various types of mobile devices
  - Real time monitoring and scenario adaptation
  - Transfer content collected on field to desktop computer
  - Transfer achievements to LMS (TIN CAN API)



## (17) Work in Progress

## Authoring Tools

- LEGADEE Learning Game Authoring Environment http://www-lium.univ-lemans.fr/legadee
  - Add Game Patterns
- Treasure Hunt Editor on Android
  - Add connection to LEGADEE





# Support Collaborative Activities

- Screen Share App on Android
  - Share objects from one screen to another
  - Design collaborative activities with complementary tools



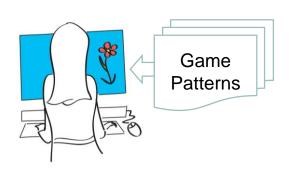


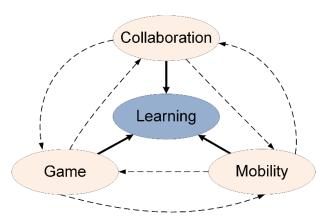


# (20) To Sum Up

## **Supporting Teachers to Design and Use Mobile Collaborative Learning Games**

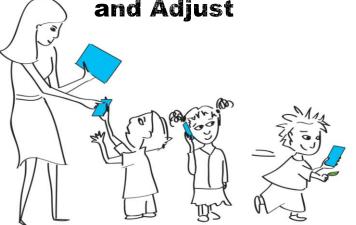
## Tools to Design and Understand









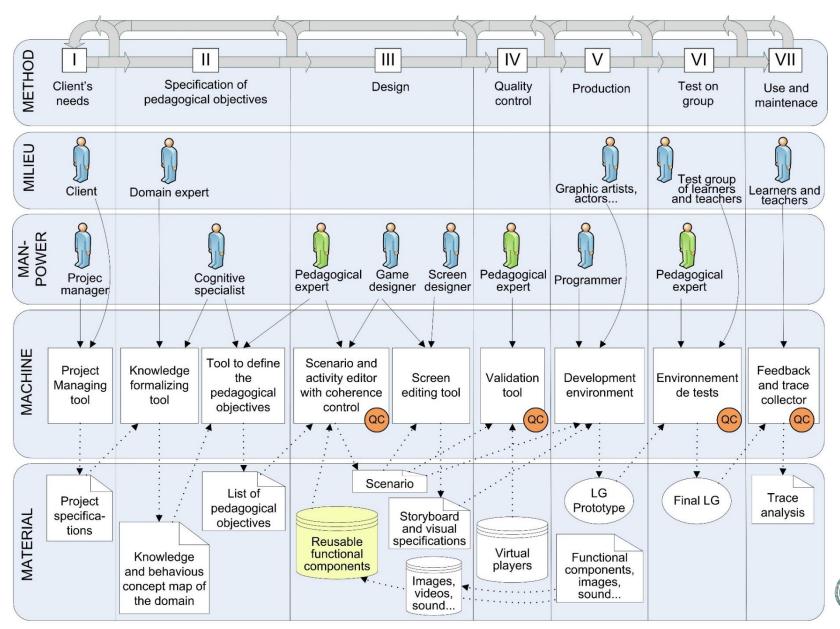




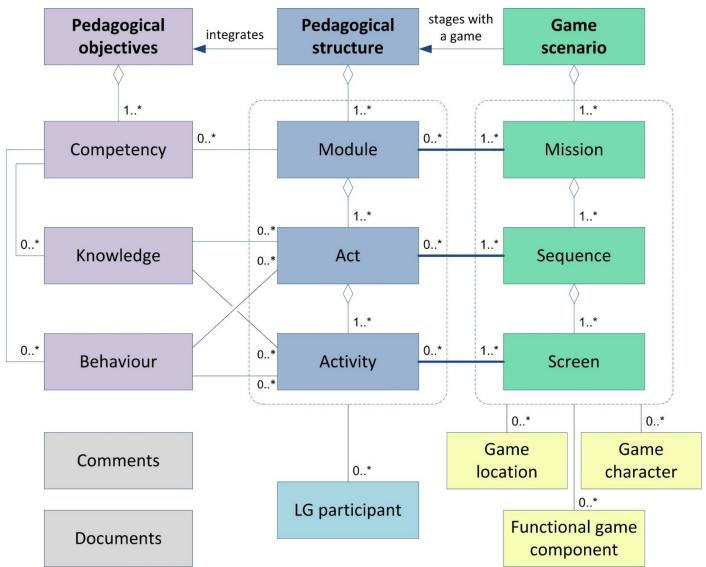
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## Legadee - design methodology



## Legadee - scenario model



Conception

Pedagogical Objectives

LG Model

Global Scenario

Component Research

Pre-validation

Specification for Subcontractors



Participants Roles & Groups \_\_ # | X

This game is a one person player game where the

player inpersonates the hero of the story.

New Group

×

New Role

Player
Role Name:

Tutor

Role Description:

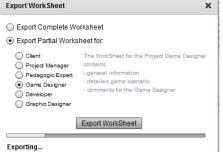


Comments		- 61	×
New Comme	ent		
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Comment Name:	ambiance in the dra	gon's den	×
Comment for:	All	Just Me	
Client	✓ Game Designer	Developer	
Project Manager	Pedagogic Exper	d Graphic De	signer
Enter Comment:			
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the light and the e	xpretion on the drag	on's face should	₩

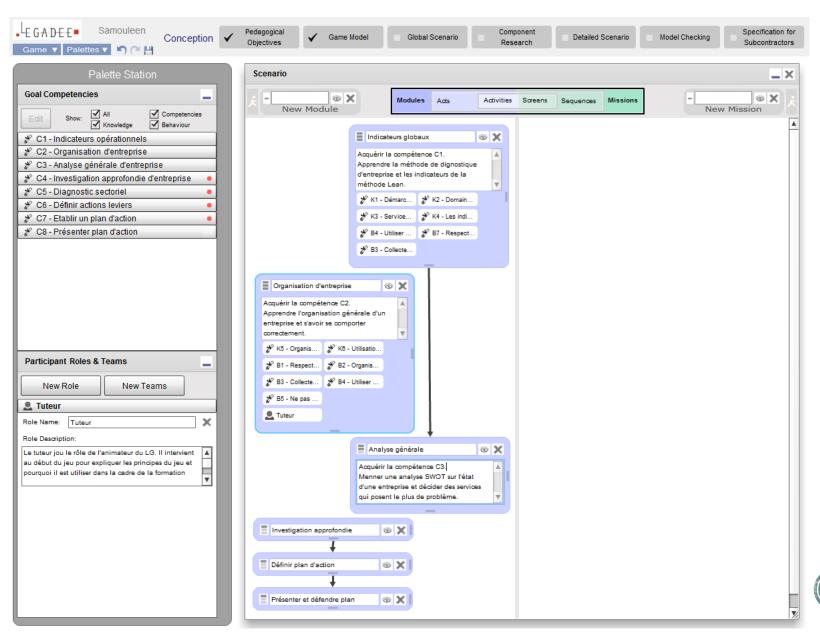


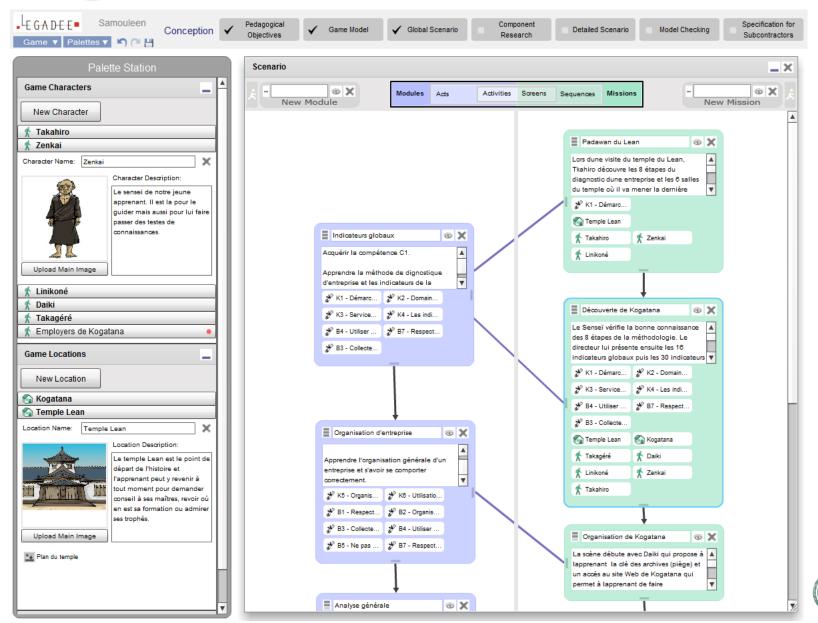
Uploaded Files
Upload New File
■ Dragon's desk
list of dragon's books
File Name: list of dragon's books
☐ Image
File Description or Comments:
This file contains the list of the books in the dragon's den. The hero can read
them to gain experience.
Upload the File
example of code for evaluation

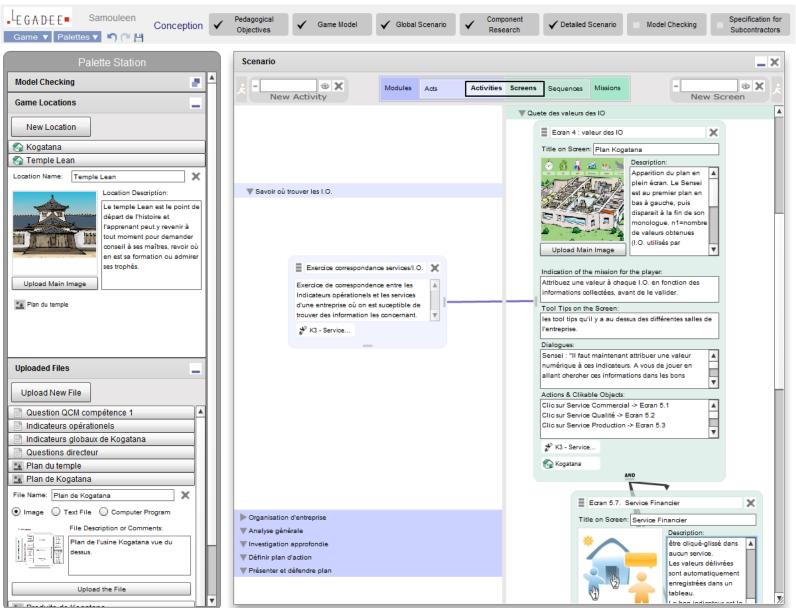




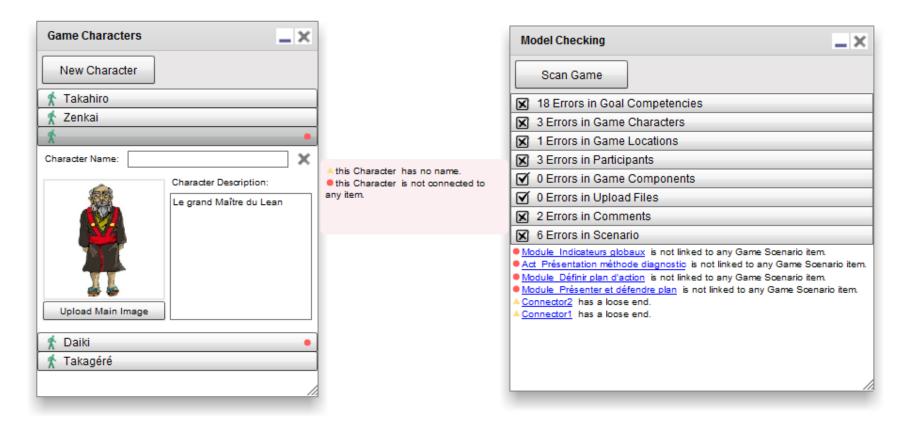








### Validation tools for complete and coherent LG scenarios



#### Samouleen - français

Complete WorkSheet

Date of creation: Fri Jun 22 2012

This WorkSheet was automatically generated by the LEGADEE plateform.

#### General Information

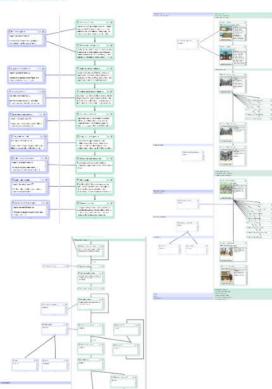
Title: The hero's Journey - not complete

Indentifier: 2

Game type: Adventure Game

#### Global View of the Scenario

#### Global View Level 1



... vision global du scénario niveau 1, 2 et 3

#### Modules

Missions

Acts

Sequences

Activities

Screens

climb up the 1st mountain

Title on the Screen: Up the 1st mountain



Descriptions: The player has to solve 10 additions to get to the top of the fact moutain. The mountain is represented by 1000 steps. If the player answers correctly, Carlife can climb the number of steps corresponding to the solution of the addition. If the player is wring, Carlifo steps where his . If, Carliff has not option to the top of the mountain after the 10 additions (they have to be all answersed correctly), the slips back down the mountain and the games sats again until the gets to the top. The additions that the player is the step of the properties of the solution that the player is the solution that t

Indicatyion of the Mission for the Player: Solve the 10 additions to get the the top of the mountain

Tool Tips on the Screen; Up the 1st mountain

Title on the Screen: None

Dialogues: None

Actions & Clickable Objects: The player can enter a number and cklick on the OK button.

Linked Items

Knowledge: K2 - Simple Additions

Help the dragon finish his homework

Previous Scenario items: Go into the Den

Title on the Screen: Free Eliza



Description: Carlto reads to talk to the despen nicely and figure out what he want's. It turns out the Oragon is just fee up becomet became and he has no one to help him. He though Elias could help him but she is as bad as he is. His parents where
Indicatlyion of the Mission for the Player: Free Elias

Tool Tips on the Screen: Free Eliza

Title on the Screen Catife. Why did you take title? Diagon: Leave me alone or III burn you to dust I .... When the player Degon; I I fall the same I Math to officult for me and on one can help. Carlie; I can by to help you if you wan? Oregon; to help me at all Carlie; i can they at least Dragon; OK, lets by, ... When the user close on the plots of the parents... C Diagoness Several Rem in the Grapon see has too lot of jets, computer, elias, formerod, exam papers, plots of diagon part Actions & Clickable Objects; The player can click on the dragon, the exam papers on the deal, the computer and elias. The J object to get the Dragon to East.

Next Scenario items: Find the mistakes in the dragon's exam

... storyboard avec tous les écrans dans l'ordre

#### **GameCompetencies**

#### GameCharacters

#### Linikoné

Description: The dragon kidneps Elics and seens nesty at the beginning of the story but little by little, you understand that he is just said and frustrated he can't understand math. His perent's have died and he has no one to help him. He though Elics could but she is too young.



#### Carlifo

Description: The hero of the story. Carito is a little 5 year old boy. He is very selfah in the beginning of the story but learn's to be nice and share his knowledge at the end.



#### **GameLocations**

#### Hermit's Shaci

Description: The house where the hermit lives on top of the mountain. The interior is very modest appart for the magic gold tel



#### GameComponents

#### A Chalumot Quiz Dungeon

Chalumot Quiz Dungeon Nain Image

Identifier: URIS-RF12

Provider: LIRIS

Contact: Patrick Prévôt

lumber of client Comments: 2/5

Description: Chalumot is a multi question quiz where the student has to answer correctly to get out of the dungeon.

Adaptability: You can change the questions and the inside decor of the dungeon.

UseStatistics: This component has been used 3 times.

Detailed Description and Examples

lated peschplon and example

#### GameUploadedFiles

#### .

Question examples File Type: Text File

File Description or Comment: A few examples of question to ask the player. There should be at least 30 different quetions so the the player can play again without having the same questions twice.

#### Link to the file

...

## Legadee - experimentations

More than 22 Learning Games designed with Legadee





