The TERENCE Project

Selected Highlights

http://www.terenceproject.eu

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The TERENCE Project

TERENCE is a 3-year **collaborative** project

- of the FP7 framework
- for Technology Enhanced Learning (**TEL**)
- with 12 partners and 2 consultants
- for developing an **adaptive learning system**
- that recommends, to its users, its learning material
  - stories and games
- and learning tasks
  - reading and playing
- to stimulate their reading comprehension ➜ demo
- The project is thus highly cross-disciplinary **but with a common thread**
- So is this presentation (we hope :-))

Thread - Outline

STEP I - Introduction: the TERENCE ideas in a nutshell

STEP II - What: the design of the learning material and tasks

STEP III - Who: users and adaptation

STEP IV - How: the evaluation of the material and adaptation

STEP V - The end: conclusions

STEP I: Introduction

Thread - Outline

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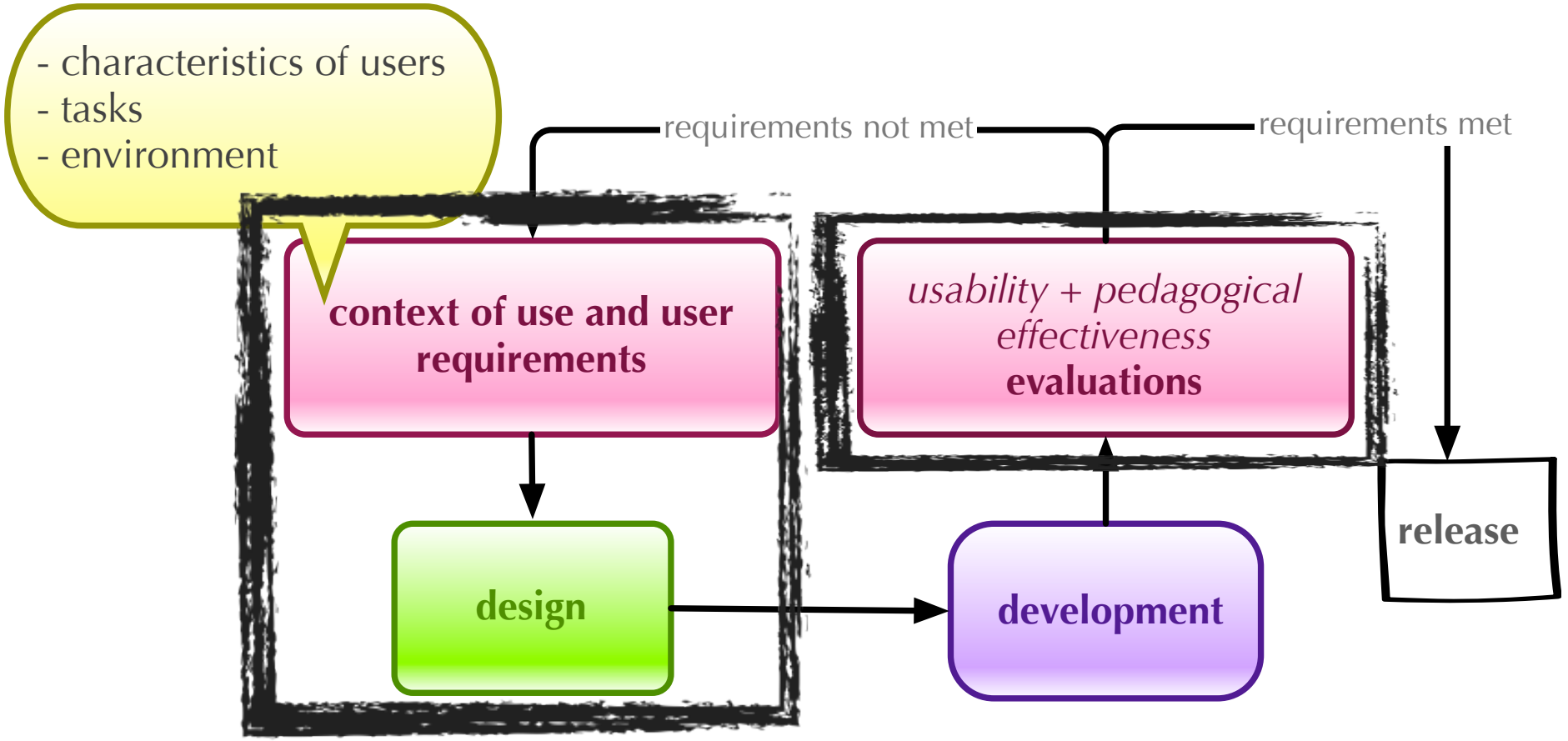
The TERENCE Goals in a Nutshell

- The **goals** of the TERENCE system are
  - to stimulate and assess reading comprehension
  - by developing and recommending adequate learning **material** and effective learning **tasks**
  - for its **learners**
- then we decided to
  - **design** the TERENCE system by merging the user centred and evidence based

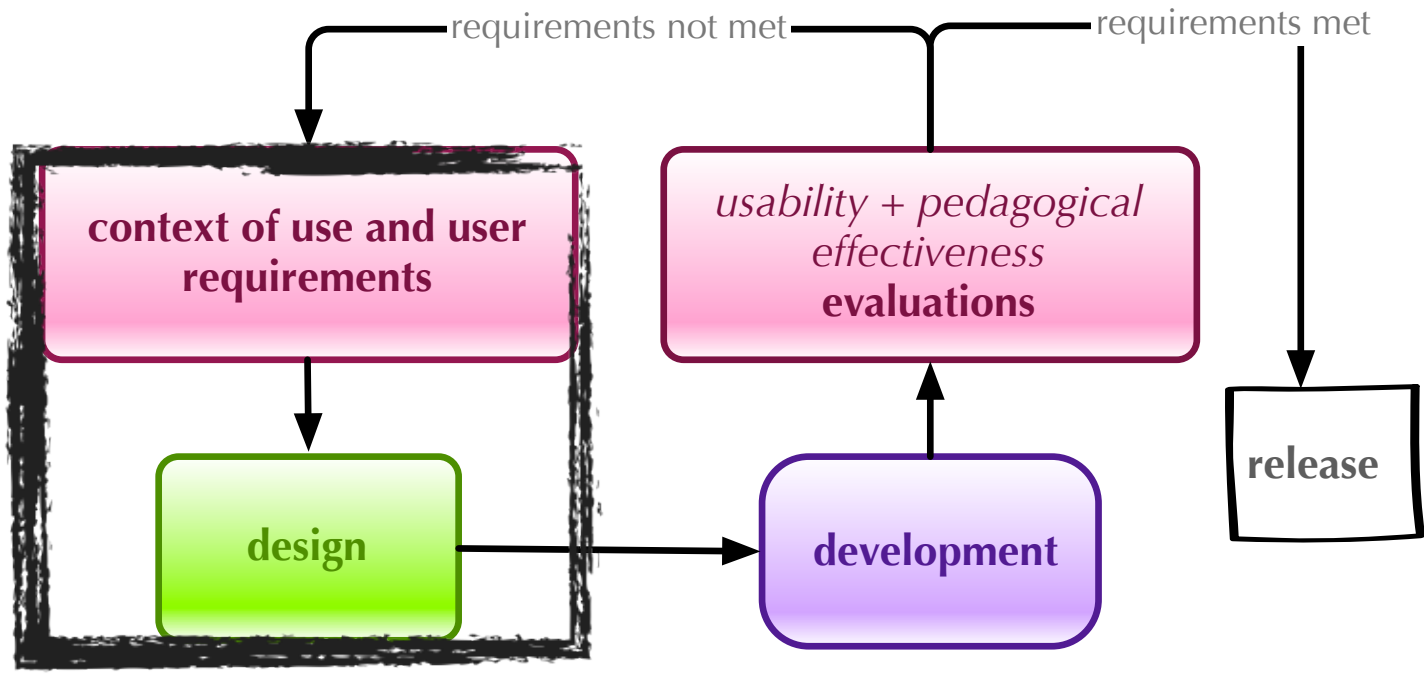
TERENCE: UCD + EBD

- ✓ UCD is from interaction design and EBD is from evidence based medicine



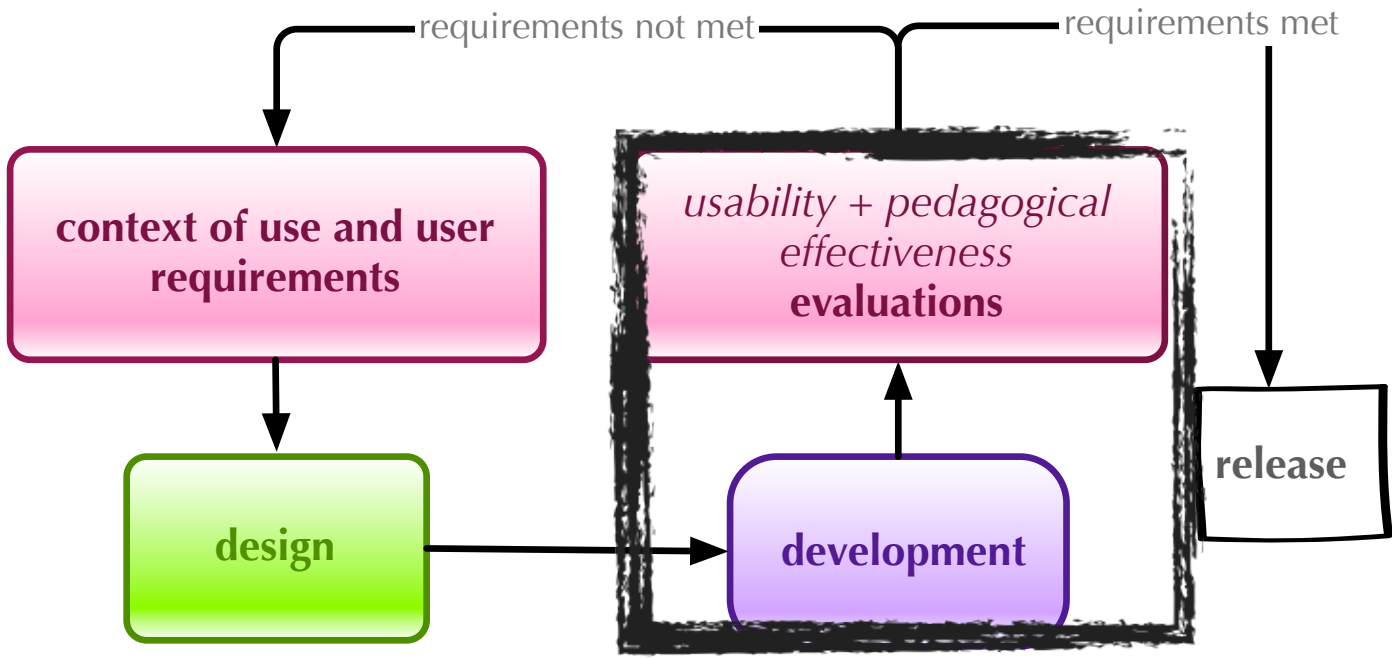
Early Stage

GOLDEN BULLETS	HOW WE GET IT WITH UCD+EBD
adequate material	by involving all users in the context of use analysis (UCD)
effective tasks	by letting stimulation plan experts frame the tasks within a stimulation plan (EBD)
recommendation	by analysing the characteristics of learners and designing the system recommendation accordingly



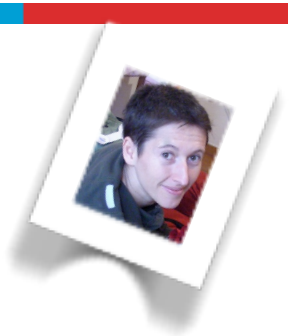
Latest Stage

GOLDEN BULLETS	HOW WE GET IT WITH UCD+EBD
adequate material	via pedagogical evaluations
effective tasks	by pedagogical evaluations
recommendation	by usability evaluations



STEP II: What

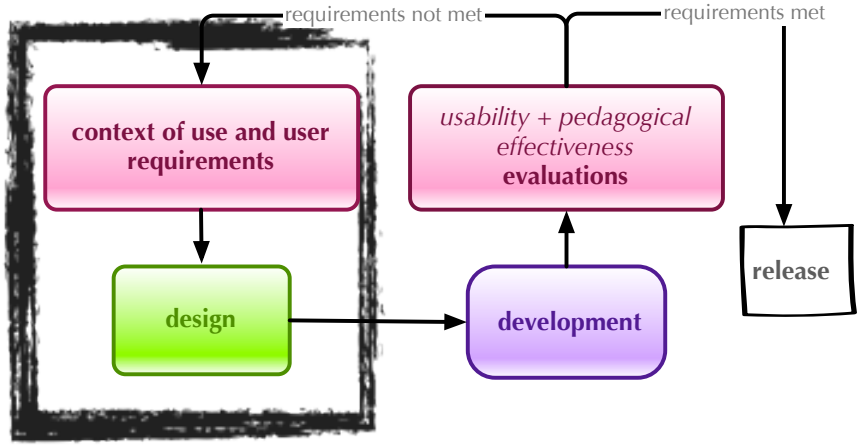
Thread - Outline



STEP I - **Introduction**: the TERENCE ideas in a nutshell

STEP II - What: the design of the learning material and tasks

a. the data for the learning material
b. the design of material and tasks of the system

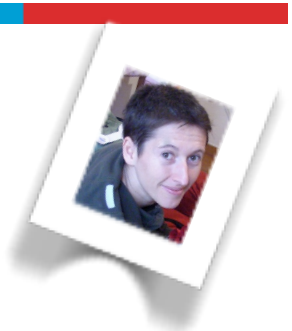


STEP III - **Who**: users and adaptation

STEP IV - **How**: the evaluation of the material and adaptation

STEP V - **The end**: conclusions

Thread - Outline



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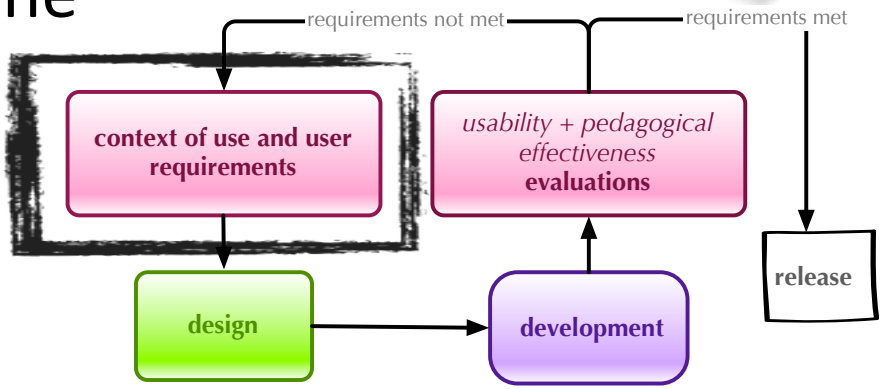

STEP III - Who: users and adaptation

STEP IV - How: the evaluation of the material and adaptation

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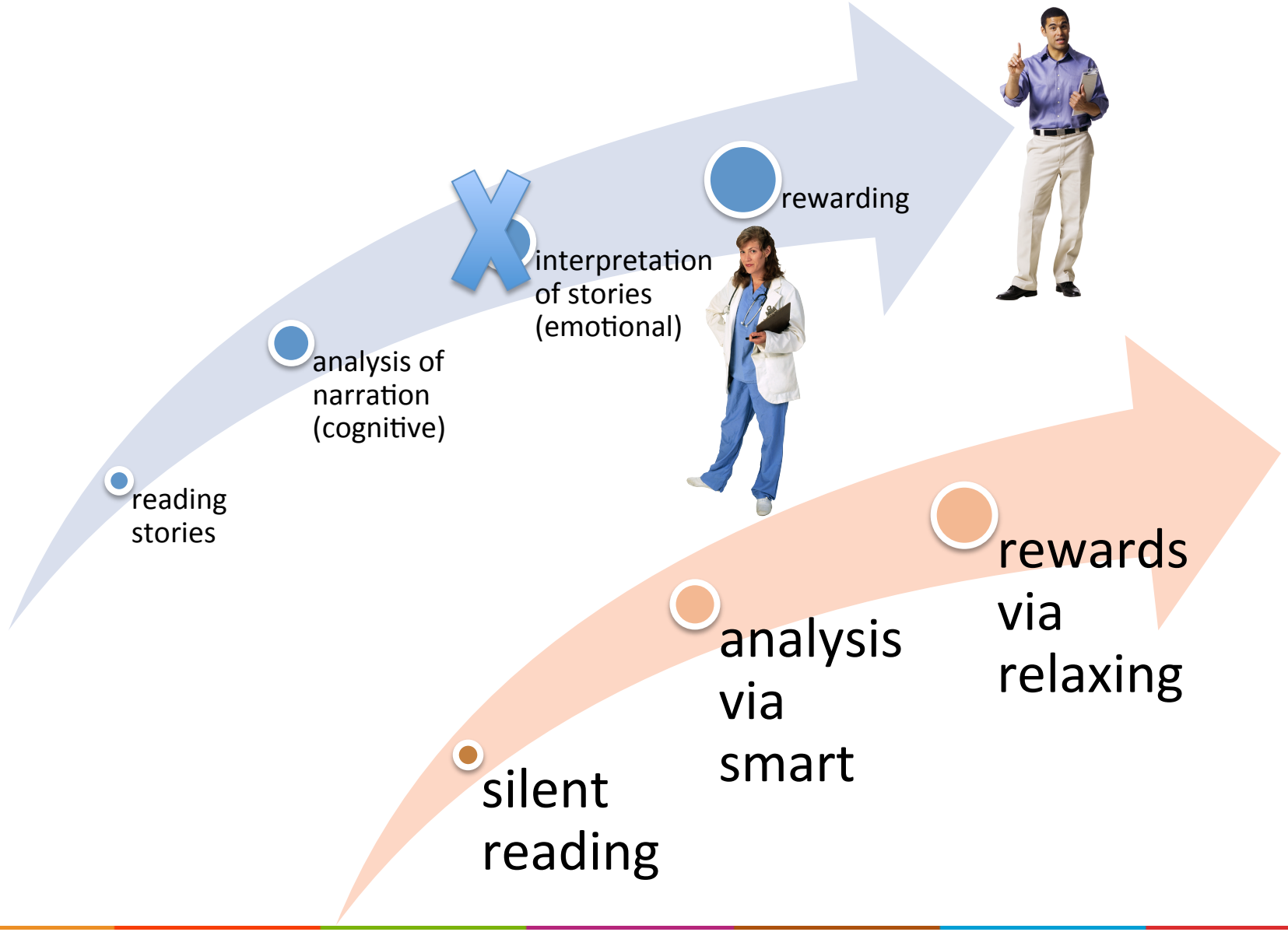
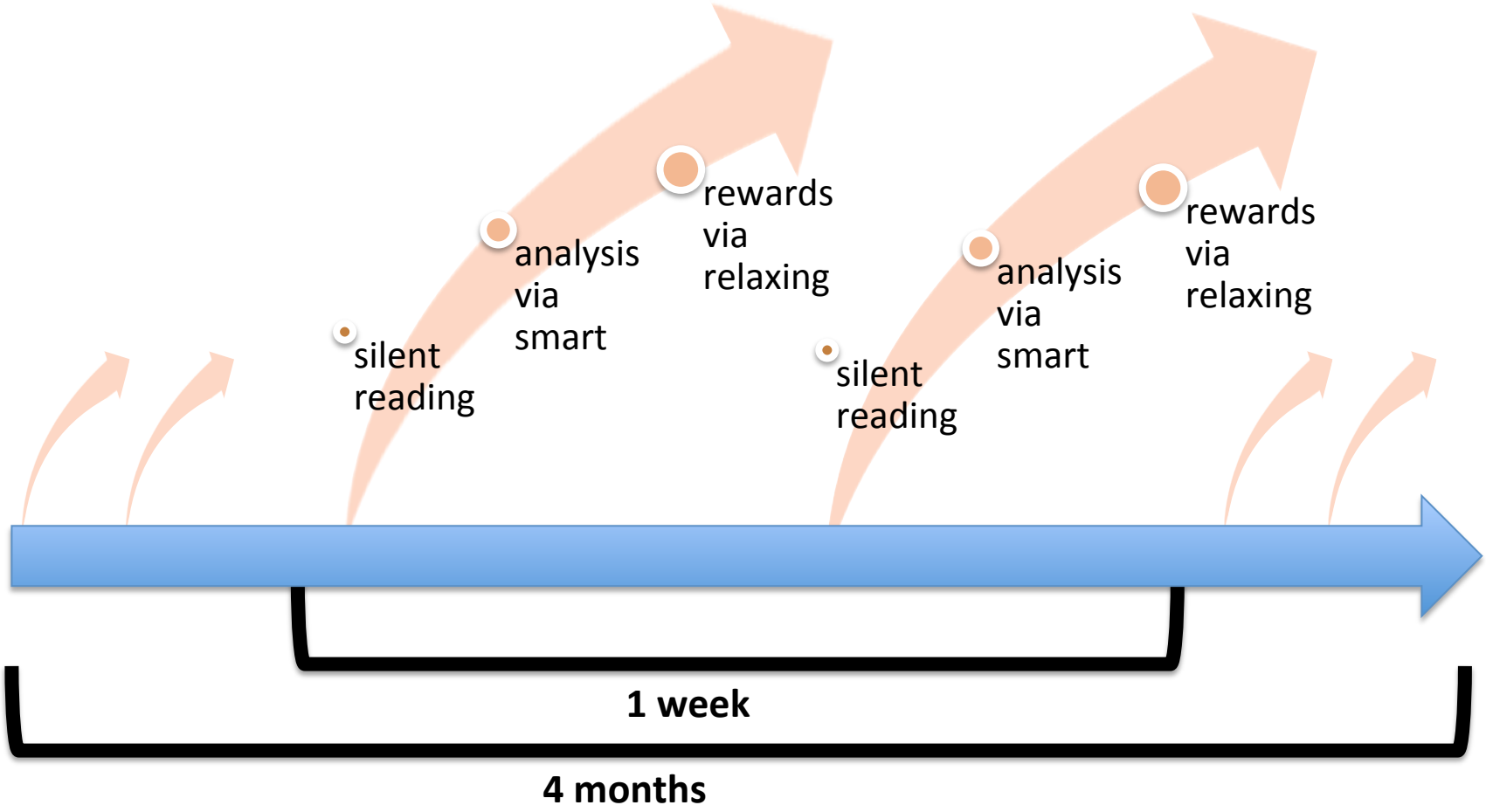
Data Gathering

- **Data**: the main data for designing the learning material (stories and games) and tasks (reading and playing) are from
  - **contextual inquiries** with
    - IT & UK diagnosis
    - IT & USA evidence-based medicine therapy experts
  - **field studies** with educators
- **Educators** in the field studies:
  - 30 in Italy and 15 in UK
- **Diagnosis or therapy** experts:
  - 6 in Italy, 4 in UK and USA

Learning Tasks



Scheduling of Learning Tasks



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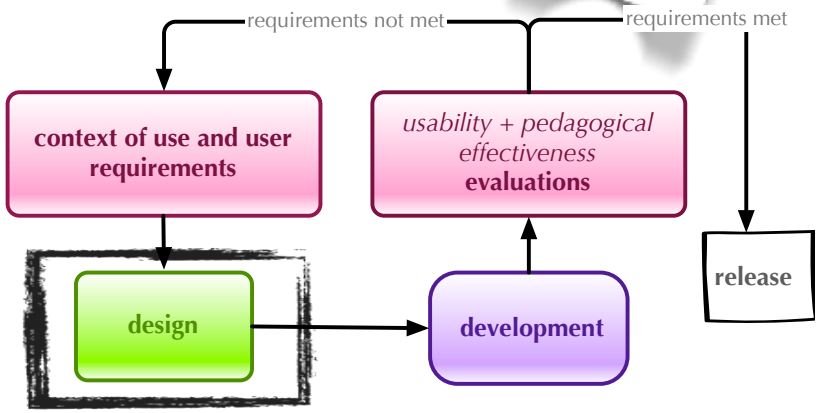

STEP III - Who: users and adaptation

STEP IV - How: the evaluation of the material and adaptation

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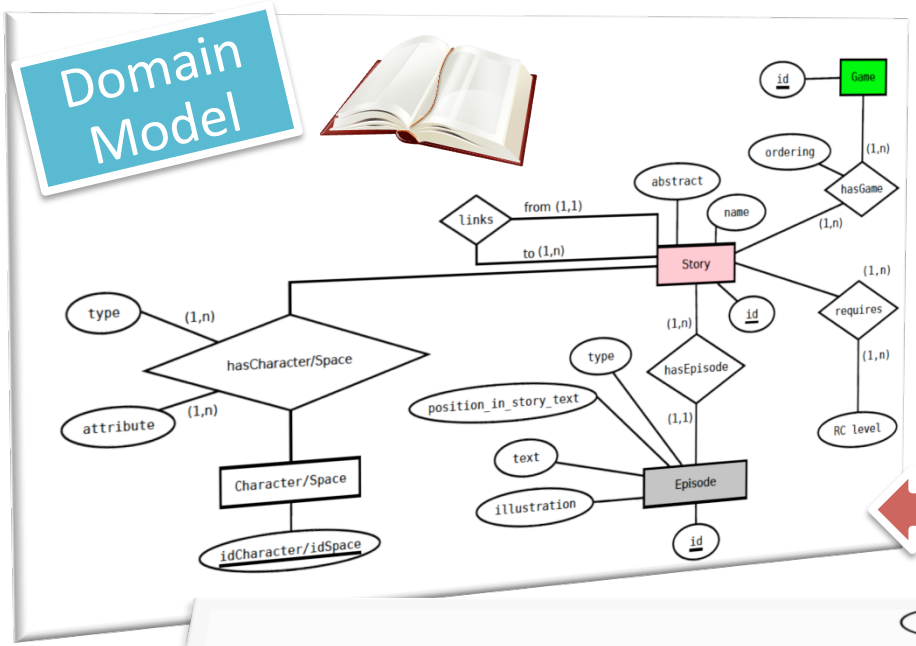
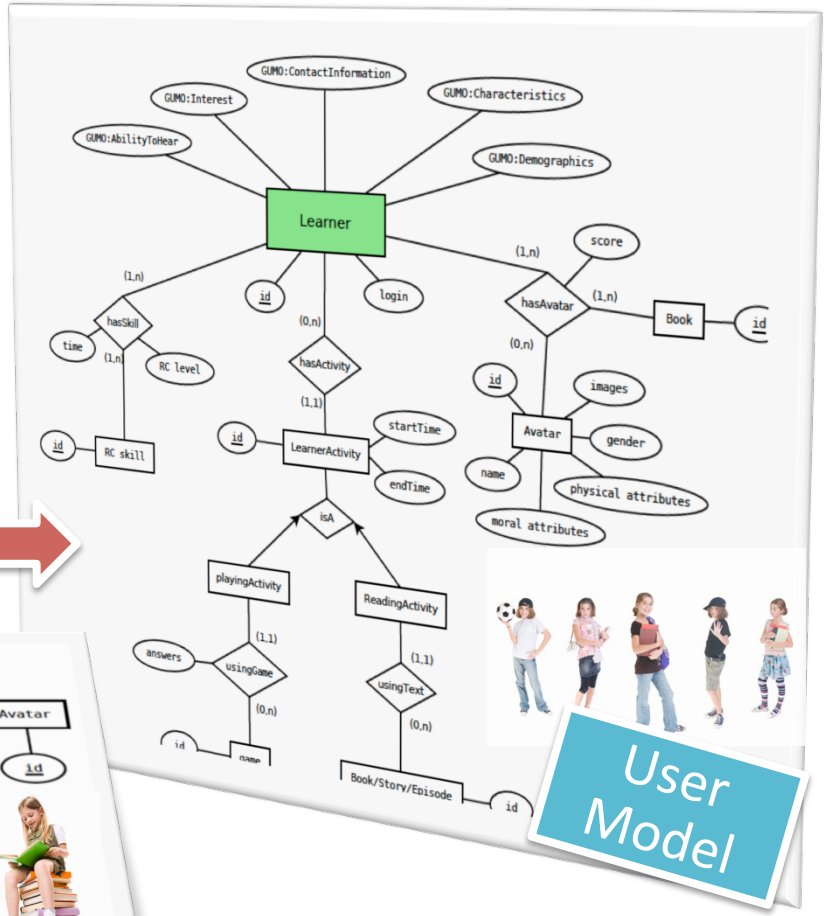
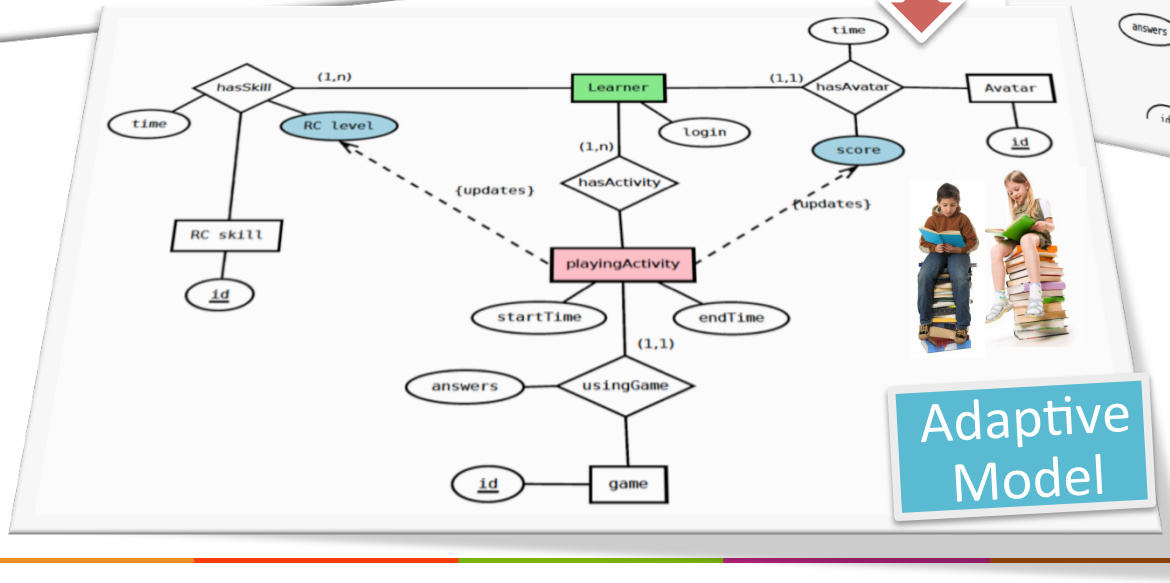
Usage for Stories and Games

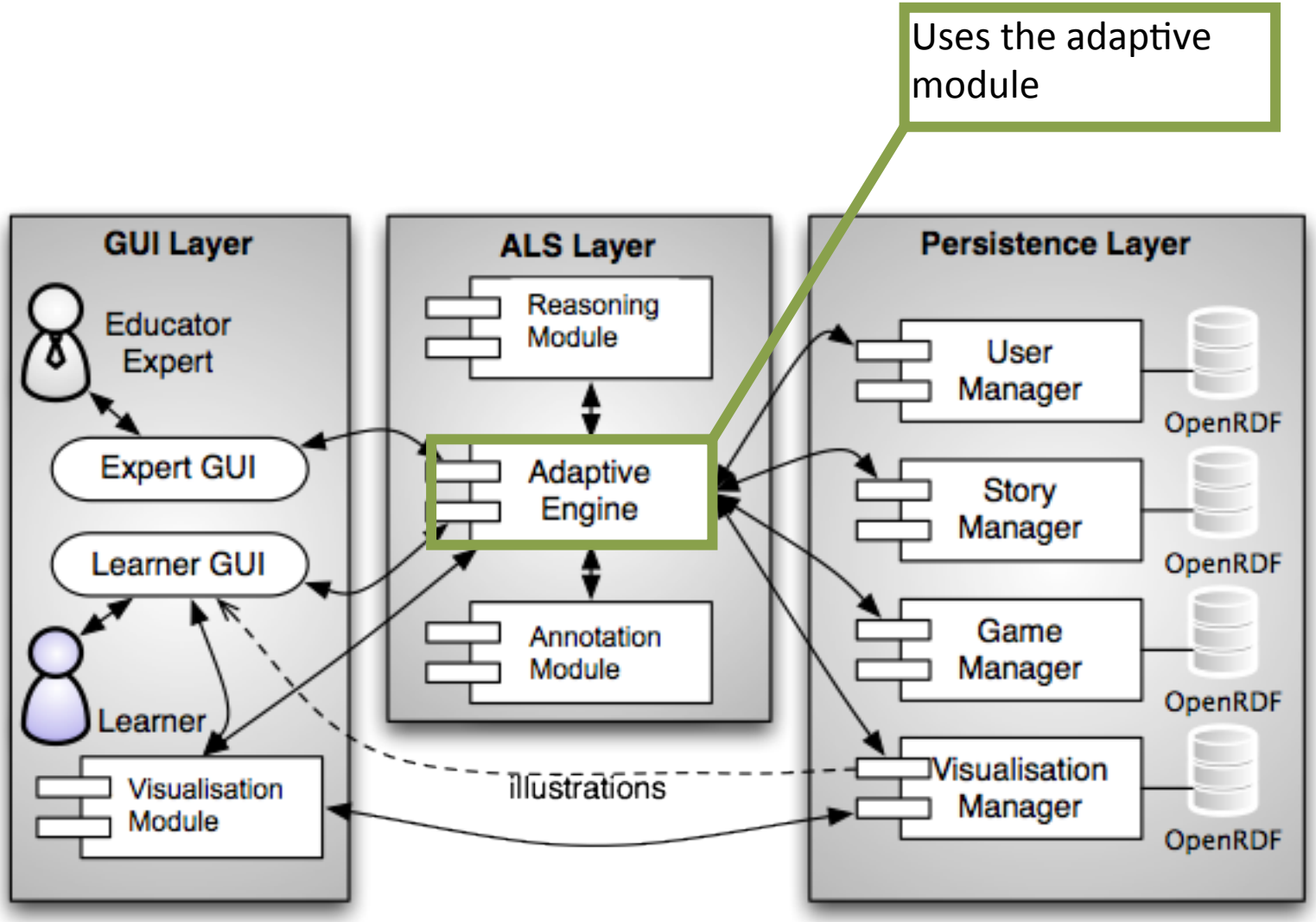
- The requirements for the learning material and tasks were used to
  - design the conceptual model of the ALS
  - design the books of stories
  - design stories in levels
  - design relaxing and smart games, e.g.,
    - the levels of game
    - the game framework and rules

Conceptual Model








Uses the adaptive module
GUI Layer
Educator Expert
Expert GUI
Learner GUI
Learner
Visualisation Module
ALS Layer
Reasoning Module
Adaptive Engine
Annotation Module
Persistence Layer
User Manager
Story Manager
Game Manager
Visualisation Manager
OpenRDF
OpenRDF
OpenRDF
OpenRDF
illustrations

Usage for Stories and Games

- The requirements for the learning material and tasks were used to
  - design the books of stories
  - design stories in levels for the TERENCE learners
  - design relaxing and smart games, e.g.,
    - the levels of game
    - the game framework and rules

Design of Stories

Structure: in general, a good story should have

a setting,

an initiating event,

an internal response,

an attempt,

a consequence and a reaction or final solution.

Plot: stories and characters should be appealing to **nowadays'** young readers: narrative should be greater than descriptive content, with a focus on protagonists' goals, actions and reactions

Characters: animate characters (persons, robots, ghosts, animals etc.) are preferred for children **aged 7-11**

Length: prefer short stories or stories segmented into short episodes for the TERENCE **learners**

Levels: stories are divided into 4 levels of varying text complexity and coherence (see next slide) for the TERENCE **learners**

Levels of Stories (UniPD, UoS)

Learner Level	Acquired skills		
	Global Coherence	Local Cohesion	Lexicon/syntax
Level 1	Poor	Poor	Poor
Level 2	Poor	Poor	Good
Level 3	Poor	Good	Good
Level 4	Good	Good	Good

Usage for Stories and Games

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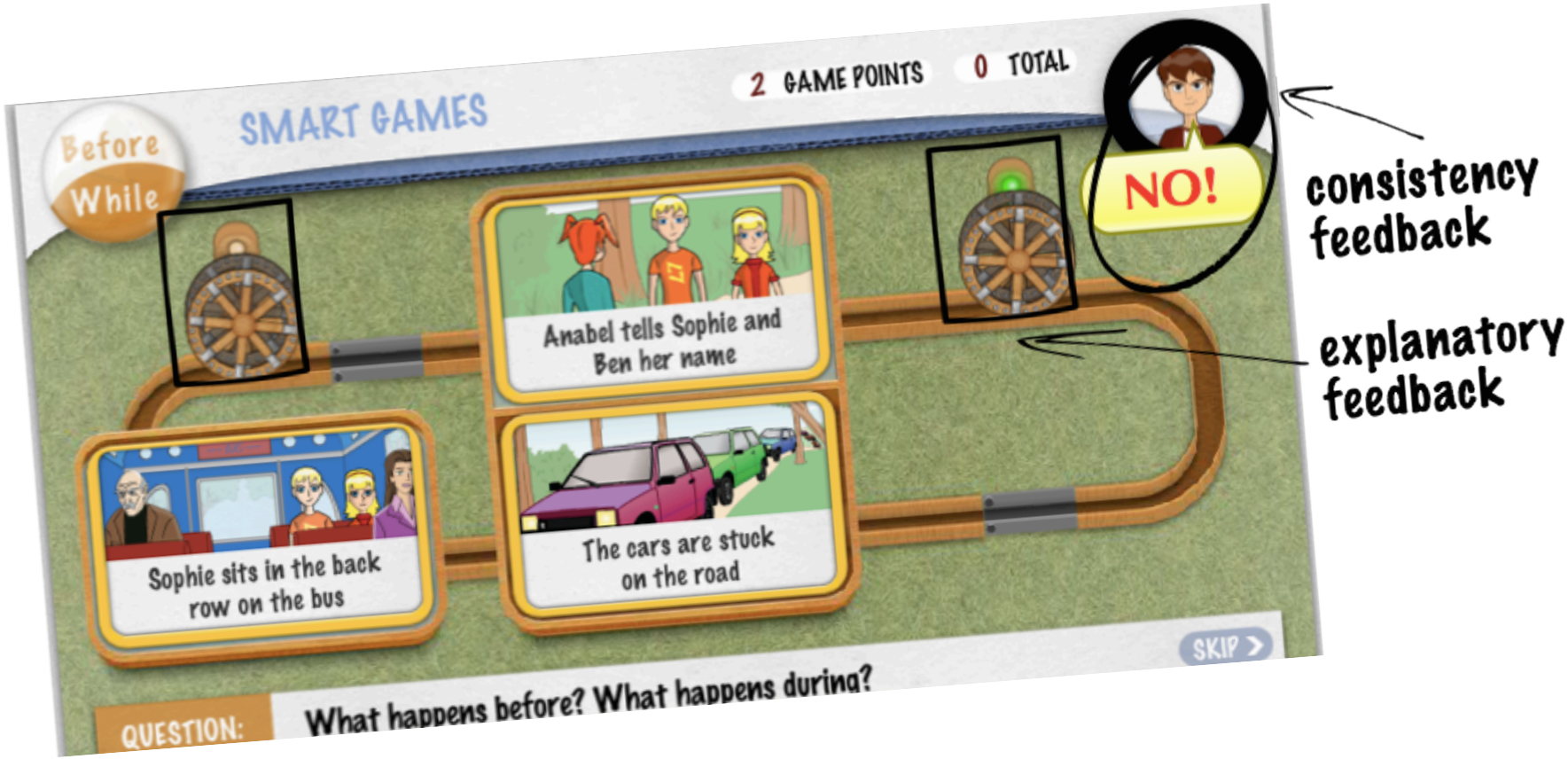
    - the game framework and rules

Rules for Smart Games

Design of rules depends on the stimulation plan and its organisation constraints, e.g., on time:

Learner actions	States of the system	Constraints
no solution	interaction feedback	time for interaction f.
	solution feedback	time for solution f.
correct solution	"yes"-consistency feedback	
wrong solution	"no"-consistency feedback	
	explanatory feedback	

Consistency and Explanatory Feedback



Game Framework

Instructions	Questions	Motivational	Interaction	
Choices	Availability is state dependent			
Solutions	Choices or their combinations that are correct/wrong (c/w) solutions			
Feedback	Interaction	Consistency (c/w)	Explanatory	Solution
Smart points	Proportional to the learner's ability in the game level			
Relaxing points	Constant			
Avatar	Happy/sad states			
Time	solution constant	interaction constant		
Rules	States of the system, actions of the learner, constraints			

Framework ➔ Structures ➔ Data

Instructions	Questions	Motivational	Interaction	
Choices	Availability is state dependent			
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Avatar	Happy/sad states			
Time	solution constant	interaction constant		
Rules	States of the system, actions of the learner, constraints			

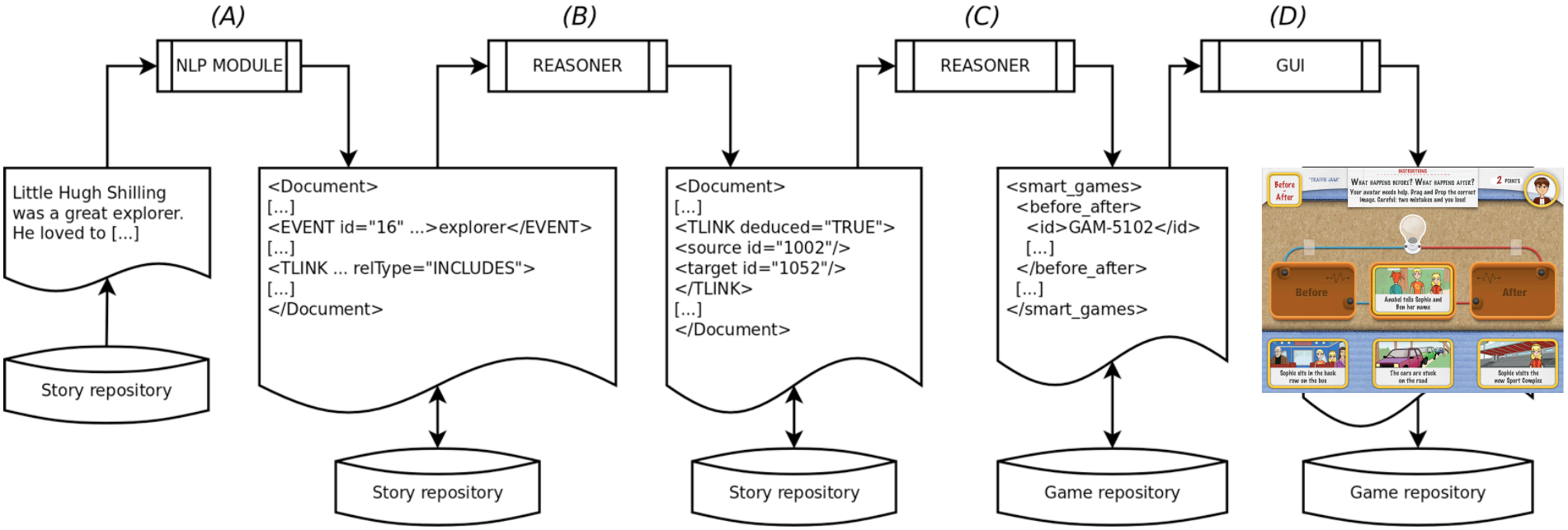
```
<smart_games xmlns:ns2="http://terenceproject.eu/timeml">
 <who>…
  <choices>
   <correct>CORRECT</correct>
   <entity id="1977"/>
   <text></text>
  </choices>
…
<event>to see</event>
  <instructions></instructions>
 </who>
```

reasoning

natural language generation

```
 <before_after>…
<choices>
<correct>AFTER</correct>
    <event tense="PAST" mood="" id="938"
class="OCCURRENCE" polarity="" pred="to launch">launched</
event>
    <text>Ida launches herself into the icy water.</text>
   </choices>
   <choices>
…
<event vform="" aspect="" modality="" morphology=""
tense="PAST" mood="" id="824" pos="" class="OCCURRENCE"
polarity="" pred="to disappear">disappeared</event>
   <instructions>Aidan disappears from sight.</instructions>
  </before_after>
```

Structures ➔ Data



automated

automated

automated + revisions by educators

automated + illustration of pieces

Before - After

"TRAFFIC JAM"

INSTRUCTIONS

WHAT HAPPENS BEFORE? WHAT HAPPENS AFTER?

Your avatar needs help. Drag and Drop the correct image. Careful: two mistakes and you lose!

2 POINTS

Before

Anabel tells Sophie and Ben her name

After

Sophie sits in the back row on the bus

The cars are stuck on the road

Sophie visits the new Sport Complex

Brainstorming

- Suggestions for **stories**?
- Suggestions for **games**, e.g., adding games concerning whether
  - a character in a story/event has certain
    - goals
    - emotions
    - behaviours
    - good/bad relations with other characters (D1.1, D1.4)?
- Other suggestions?

STEP III: Who

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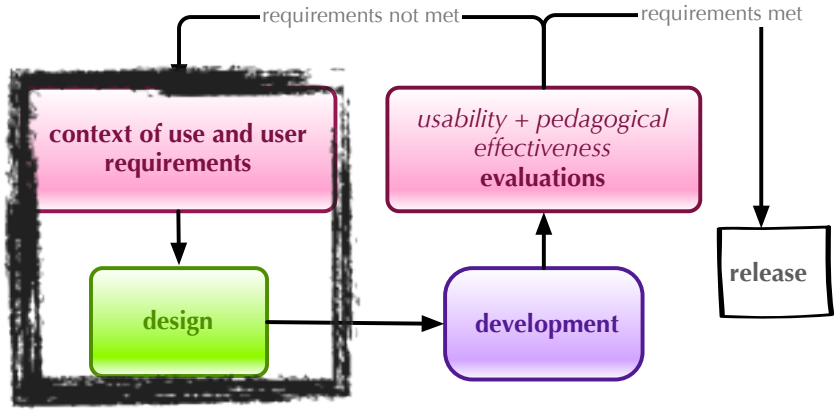

a. the data about users
b. the design of the adaptation to users

STEP IV - How: the evaluation of the material and adaptation

STEP V - The end: conclusions

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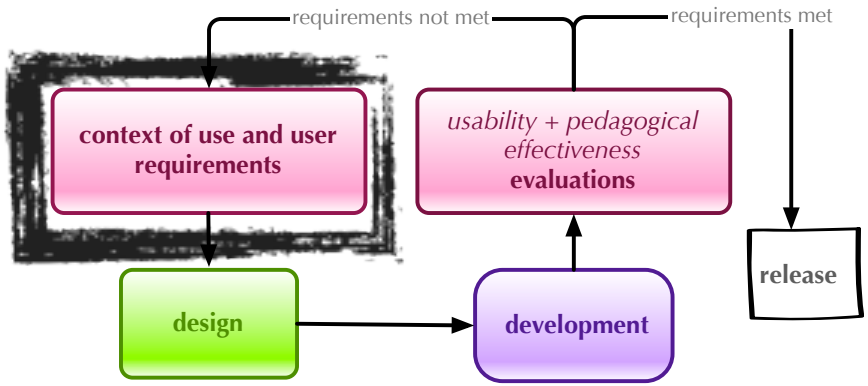

STEP IV - How: the evaluation of the material and adaptation

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From Types to Classes of Users

Stakeholder	Type	Classes
Primary (main end user)	Learner: deaf, hearing	?
Secondary (input to the system)	Educator	?
Secondary (input to the system)	Expert	?

Data Gathering for Classification

Data: the main data for defining classes are from

1) brainstorming meetings and inquiries with diagnosis experts
2) field studies
   - **participants**: in the field studies
     - 282 learners in Italy and
     - 226 learners in UK

Goals: requirements concerning reading comprehension (RC) and interaction for the adaptation

Data Gathering Activity for Interaction

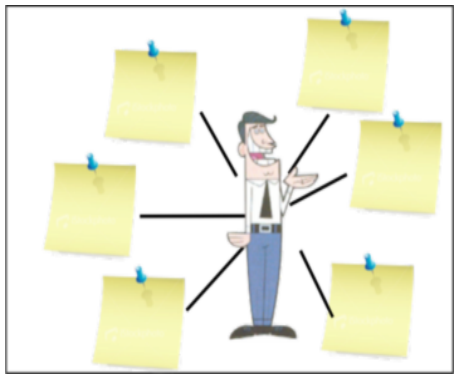
Console Activity	
Goal:	to learn about their favorite consoles and game consoles
Description:	learners have sheets with stickers for game consoles and a map. They put the sticker of their favourite console in the centre of the map, and answer the questions on the map, e.g., (1) where do you play this?, (2) why do you play with this?
Material:	stickers; sheets

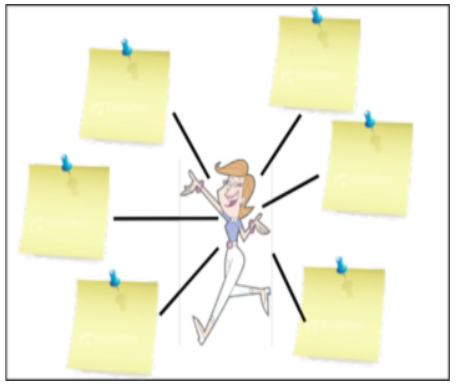
Data Gathering Activity for Interaction

Character Activity	
Goal:	to learn about their favorite game characters or avatars
Description:	each learner, in turn, chooses a card from the container; learners are asked their opinion about the extracted characters
Material:	character cards; container

Data Gathering Activity for Interaction

Interaction with Parents Activity	
Goal:	to learn about what they do with their parents
Description:	learners receive a sheet with a picture of a mum, and another with that of a dad. They are asked to list six (or less or more) activities they often do together with their mum or dad
Material:	post-it





Data Analysis for Interaction

- Data **management**: data were stored in a data base (open office)
- **Statistic analysis** (STATA):
  - natural variables like gender and age were defined
  - other dichotomy variables were derived
- Data **analysis**:
  - associations of variables for a first classification (e.g., North/Centre)
  - then a refinement of it according to the relevance of the classes for the ALS

Resulting Classes via Personas

Type	# Classes	Clustering
Learners	5 in IT	age
		deafness level
	3 in UK	gender
		area (rural, town)
		country
Educators	4	experience
		technical skill
		age
		gender
Experts		role

Characteristics	
	**Persona Name: Carla.** **Age: 11.** **Gender: Female.** **Classroom: III.** **Comprehension skill: Poor Comprehender.** **Deaf/hearing: Deaf.**
Summary of the class represented by this persona	Represents the class of children aged between 7 and 11 years old. Deaf belonging to an Italian school. Has passion for drawing. She writes every day in her secret diary. Good use of technologies for research on Internet.
Personality	She is polite and quiet.
Role in classroom	She is active, careful, and diligent.
Role out of the class	She is nice, responsible and kind.
Console/Technology	She plays with the Nintendo WII and DS; she uses the computer to browse and chat with friends. She uses the technology alone.
Socio-Cultural Level of his/her own family	High.
School performance	She learns very easily. Differently than 2 years ago, her level of frustration is increased with age.
Environment	
Time spent with family	She does her homework with her parents, she spends her time with her mother and she draws and reads stories with her father.
Time spent with friends	She meets her cousin every day to do homework or to play with her. She goes out with her friends after her homework.
Homework	She does her homework in the afternoon supported by parents.
Life style	
Outdoors Activities	She likes to see friends regularly, she likes to going out and plays with her dog, and she likes to do shopping with her grandmother.
Indoors Activities	She plays with Nintendo WII, and DS, She read, writes, and draws. She likes to play with her cousin.
Home activities	She read fairy tales with dad, she watch TV and she chat with her friends.
Sport activities	She loves walking and cycling with her mom.

Requirements

Type of Requirements	Subtype	ID	Colour Code
Non-functional	Data	**NF_DR**	
	Physical	**NF_PER**	
	Constraint	**NF_CR**	
	Interface	**NF_IR**	
	Technological Environment	**NF_TER**	
	User(s)	**NF_UsR**	
	Usability	**NF_UR**	
Functional		**FR**	

Learner Requirements

Requirement	Le_NF_TER 1
Type	Technical environment requirement– Non-functional requirement.
Description	The system should have a size of 10.1”.
Motivation	Children need a device large enough to be usable, and the 10.1” touch screen is a good size for touch screens because it allows a correct view of all the elements on the screen.
Source	D1.1 - Section 8.2.1.1.1
Priority	Medium

Learner Requirements

Requirement	Le_FR_5
Type	Functional requirement.
Description	The system will allow learners to choose a book in a guided modality.
Motivation	Learners, in guided mode, choose a book. The system starts from the first story, and “unlocks” new stories according to the comprehension skills they demonstrated during the training (i.e. reading and game solving).
Source	Brainstorming and inquiries, D2.2, D2.3
Priority	High

Learner Requirements

Requirement	Le_FR_12
Type	Functional requirement.
Description	The system will show games after each story.
Motivation	After each story, the system shall show a set of smart games and relaxing games according to the stimulation plan.
Source	D2.1, D2.3 and brainstorming with Jane Oakhill and Dina Di Giacomo.
Priority	High

Learner Requirements

Requirement	Le_FR_29
Type	Functional requirement.
Description	Independently of the all considered variables (e.g., gender), the order of preference of avatar is as follows: person, fantasy, and animal. Instead, if we consider the gender of learners, we have the following refinement of the above order: Male: person PR, person NPR, fantasy NPR, fantasy PR, and animal NPR. Female: fantasy NPR, person NPR, person PR, animal NPR, fantasy PR.
Motivation	Learner Persona Framework.
Source	WD1.2.

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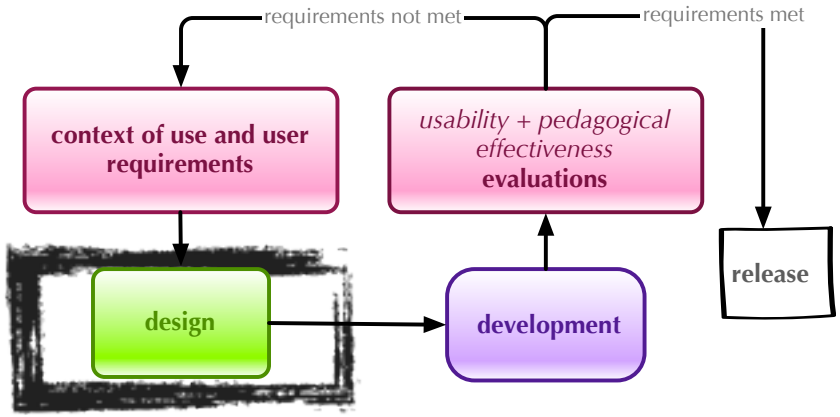


STEP IV - How: the evaluation of the material and adaptation

STEP V - The end: conclusions

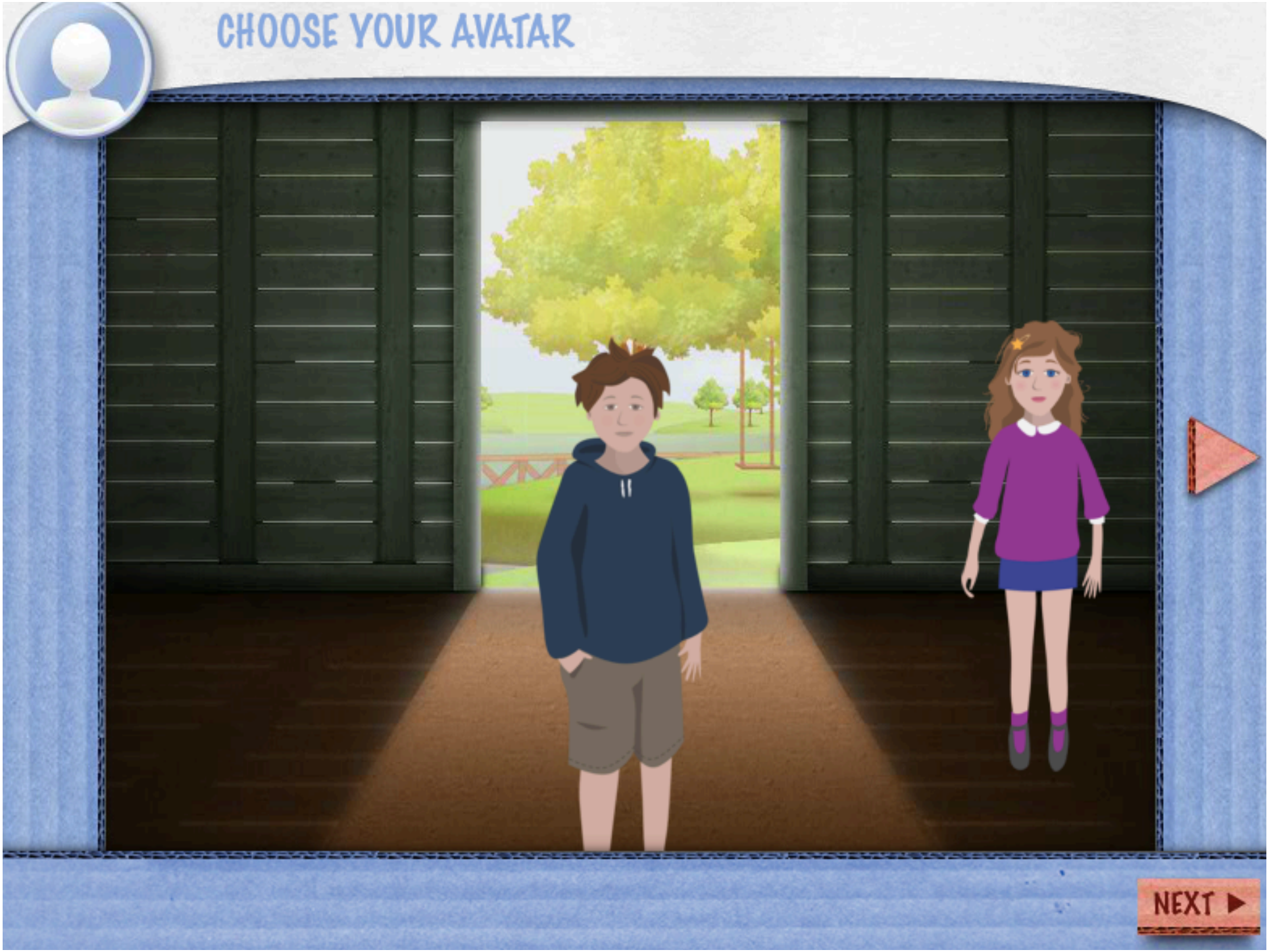
Learner Characteristics for Adaptation

Relevant bio information	
Age range	younger, older
Gender	male, female
Reading comprehension	4 levels
Deafness	with/without cochlear implants,…
Area	urban, rural

Learner Characteristics for Adaptation

Avatar: age, gender and area affect the type of preferred avatar (field studies, Le_FR_29):

- all, independently of their age, prefer **human-like** avatars to fantasy or animal avatars
  - to all, present first human-like avatars
- female learners definitely prefer **fantasy** avatars to animal avatars
  - if female learner then present fantasy animals before animal avatars
- older children prefer photorealistic avatars, contrary to younger children
  - if older then present photorealistic avatars as first, else vice-versa


CHOOSE YOUR AVATAR
NEXT

Learner Characteristics for Adaptation

Relevant bio information	
Age range	younger, older
Gender	male, female
Reading comprehension	4 levels
Deafness	with/without cochlear implants,…
Area	urban, rural

Learner Characteristics for Adaptation

Book: age, gender and area affect the types of preferred book genres (field studies, Le_FR_4), e.g.,

- older children prefer books that talk about emotions, albeit male learners prefer adventure on top
- whereas younger children books are more focused on actions

CHOOSE YOUR BOOK

NEXT

Learner Characteristics for Adaptation

Relevant bio information	
Age range	younger, olders
Gender	male, female
Reading comprehension	4 levels
Deafness	with/without cochlear implants,…
Area	urban, rural

Learner Characteristics for Adaptation

Stories (brainstorming, D2.2; Le_FR_5, Le_FR_7):

- if a learner is hearing poor comprehender then story level 3
- if a learner is deaf poor comprehender
  1. with cochlear implant then story level 2
  2. without cochlear implant then story level 1

Usage of RC levels for Story Levels

Story and RC levels matching: (brainstorming, D2.2; Le_FR_5, Le_FR_7)

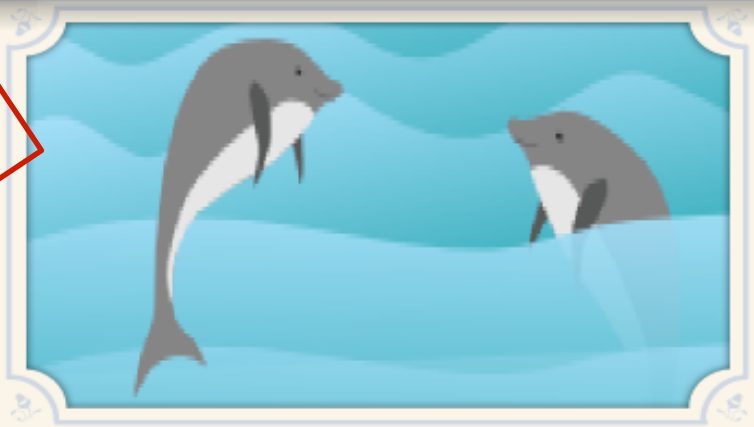
Story level	RC skills		
	Global Coherence	Local Cohesion	Vocabulary/ Syntax
Level 1	simplified	simplified	simplified
Level 2	simplified	simplified	not simplified
Level 3	simplified	not simplified	not simplified
Level 4	not simplified	not simplified	not simplified

Learner level	Acquired RC skills		
	Global Coherence	Local Cohesion	Vocabular/ Syntax
Level 1	Poor	Poor	Poor
Level 2	Poor	Poor	Good
Level 3	Poor	Good	Good
Level 4	Good	Good	Good

Part I: D2.1.2 Conceptual Models

READ THE STORY

Level 4



Ida and Sim had never been camping before and they had never been to the seaside before. Not in Ida's nine years or Sim's seven years. Today they were leaving their little flat in the city and going on holiday.

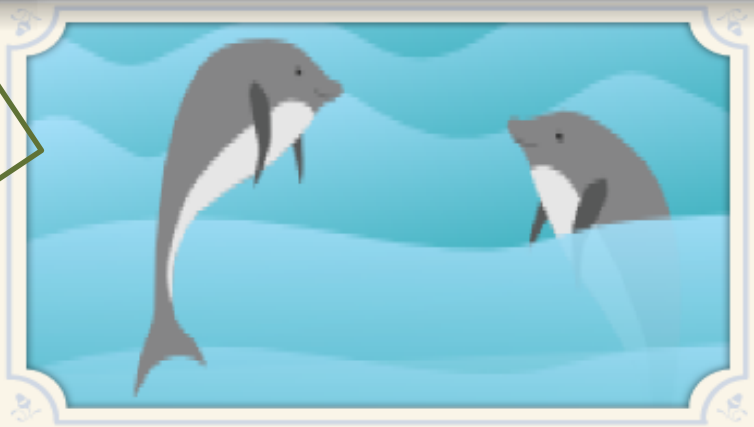
When they finally arrived at the campsite they tumbled out of the car. Then they stood and stared. It was beautiful: the campsite was a strip of emerald green grass dotted with tents, then there was a long stripe of yellow beach and beyond that the turquoise sea and the brilliant blue sky.

1 / 9

Part I: D2.1.2 Conceptual Models

READ THE STORY

Level 1



Ida and Sim had never been camping before and they had never been to the seaside before, even though Ida was nine and Sim was seven. Today Ida and Sim were leaving their little flat in the city and going on a summer holiday.

When Ida and Sim finally arrived at the campsite they got out of the car. Then they stood and stared. It was beautiful there: the campsite was a strip of dark green grass dotted with tents, then there was a long stripe of yellow beach and beyond that the deep blue sea and the bright blue sky.

1 / 9

Learner Characteristics for Adaptation

Relevant bio information	
..	..
Reading comprehension	4 levels
…	…

Relevant personality traits	
…	…
Takes up challenges	yes, no
Frustration management	high, low
…	…

Smart games (brainstorming, D2.3; Le_FR_n, for 11 < n < 29):

- the RC skill affects
  1. which levels of games are presented
  2. in which order
  3. as well as the points
- whether the learner is willing to take up challenges and the management of frustration can affect the timings of smart games, i.e., span of smart game session

RC Levels and Smart Games

more difficult

more skilled

Learner Level	Smart Games								
	Character		Time				Causality		
	Who	What	Before-After	Before-While	While-After	Before-While-After	Effect	Cause	Cause-Effect
Level 1	X	X	X	X	X	X	X		
Level 2	X	X	X	X	X	X	X	X	X
Level 3	X	X	X	X	X	X	X	X	X
Level 4			X	X	X	X	X	X	X

What?

"TRAFFIC JAM"

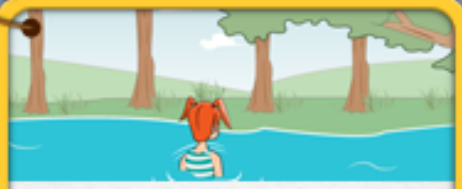
What does Sophie do in the story?

INSTRUCTIONS

Your avatar needs help. Drag and Drop the correct image. Careful: two mistakes and you lose!

2 POINTS

Sophie sits in the back row of the bus



Sophie dives into cold water

Sophie visits the new Sport Complex

Cause

"TRAFFIC JAM"

WHICH IS THE CAUSE?

INSTRUCTIONS

Your avatar needs help. Choose the correct image. Careful: two mistakes and you lose!

2 POINTS

The passangers do not remove Anabel from the roadside

Cause

Effect

The dog stands right in front of Anabel

Sophie sits in the back row of the bus

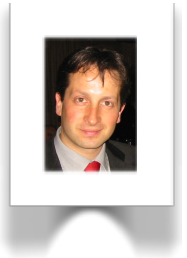
Sophie visits the new Sport Complex

Brainstorming

- Educators
- Experts
- New characteristics of learners?
- Suggestions?

Step IV: How

Thread - Outline



STEP I - Introduction: the TERENCE ideas in a nutshell

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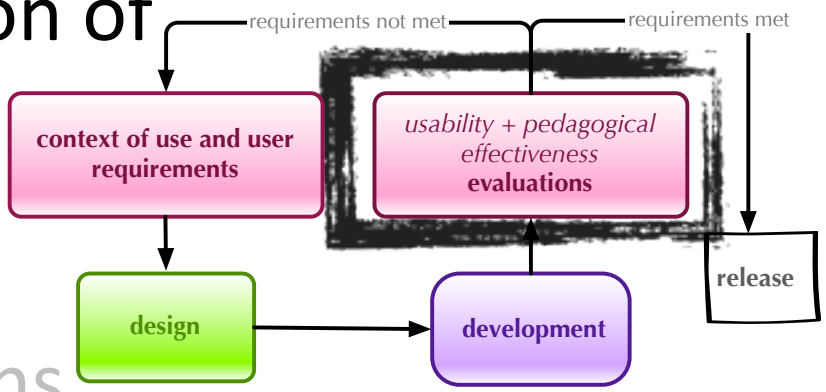
- expert based evaluation
- user based evaluation



STEP V - The end: conclusions

Expert vs User based Evaluation

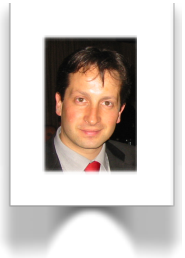
Method	Advantages	Disadvantages
User-based	- Most realistic estimate of usability - Can give clear record of relevant problems	- Time consuming - Costly for large sample of users - Requires high-fidelity prototype
Expert-based	- Cheap - Fast	– Expert-variability affects outcome – May overestimate true number of problems

Evaluations

	Expert-based	User-based	
		Small-scale	Large-scale
Learning material	x	x	x
Software usability	x	x	x
Effectiveness			x
	Jun 12, Dec 12	**Sep 12**	**Jun 13**

- Expert-based evaluation and small-scale evaluation
  - Main focus on usability so to remove biases for the large-scale evaluation
- Large-scale evaluation
  - Main focus on pedagogical effectiveness

Thread - Outline



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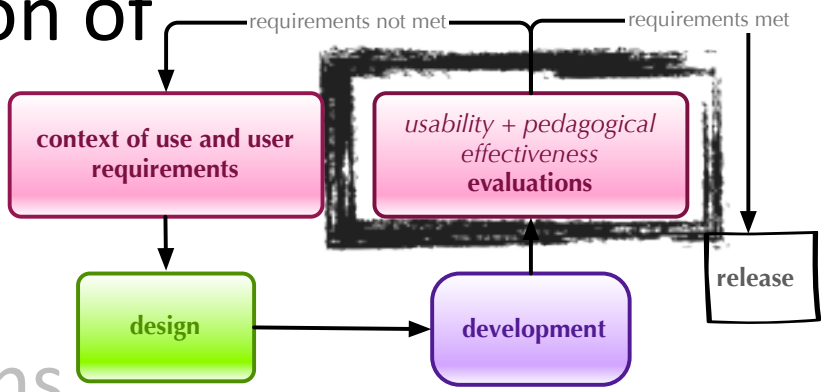


STEP V - The end: conclusions

Expert-based evaluation

Learning material:

	N. of items	Intended age range
Textual stories	16	Younger learners, 8-9 year old
	9	Older learners, 9-11 year old
Story illustrations	97	Younger learners, 8-9 year old
	65	Older learners, 9-11 year old
Textual smart games	30	Younger learners, 8-9 year old
	21	Older learners, 9-11 year old

Learning Material

Evaluators:

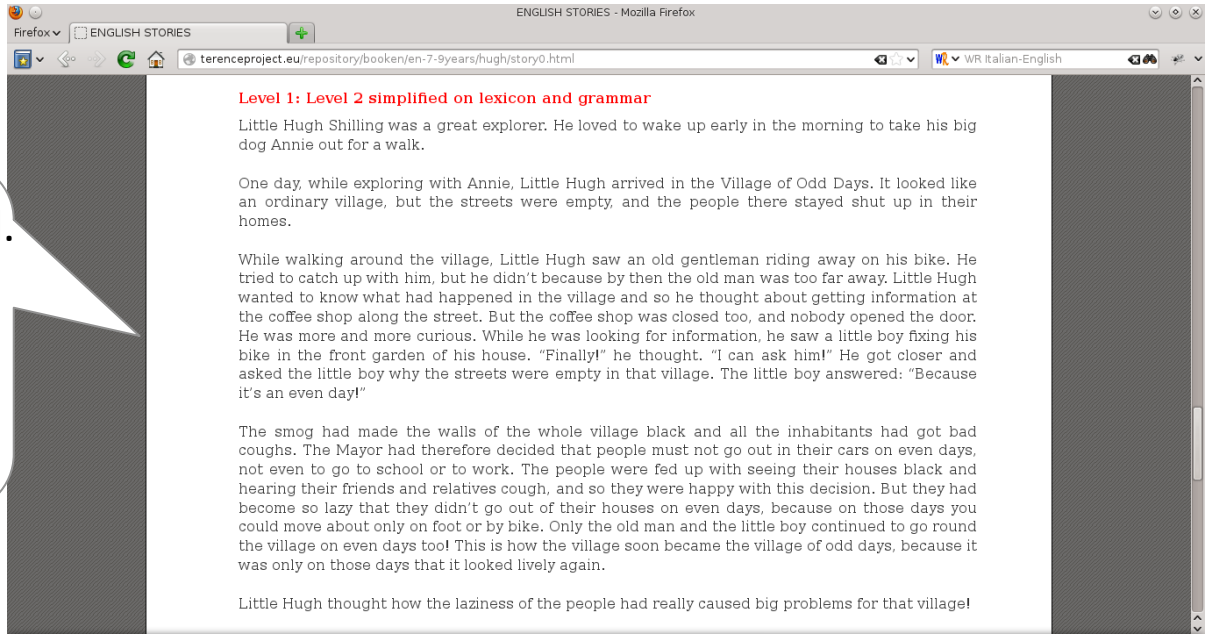
Material	Evauator	Expertise	Country	Used method
Story levels	M Marshark	Deaf people	US	Heuristic evaluation
	A Marini	Language	Italy	Heuristic evaluation
	S Baldascino	Education	Italy	Heuristic evaluation
	G Danese	Education	Italy	Heuristic evaluation
	R Bove	Education	Italy	Heuristic evaluation
Story illustrations	M Carlini	Design	Italy	Heuristic evaluation
	D Di Giacomo	Semantics	Italy	Expert review
	J Oakhill	Poor compr.	UK	Expert review
Textual smart games	B Arfé	Deaf people	Italy	Expert review
	J Oakhill	Poor compr.	UK	Expert review
	S Sullivan	Deaf people	UK	Expert review

Learning Material

Experts for story levels

G1. the story at level N−1 is easier than that the same story at level N,
G2. the story at level N−1 is simpler for the considered reading comprehension skill than the same story at level N,
G3. the story at level 1 is comprehensible for deaf readers of the intended age range,
G4. the story at level 3 is comprehensible for hearing poor comprehenders of the intended age range.

The results are positive in general. The stories at level 1 were deemed suitable for deaf learners only in 20% of the evaluated cases.



Experts for story illustrations

G1. to assess the coherence between the story text, its illustration and between the illustration choices;

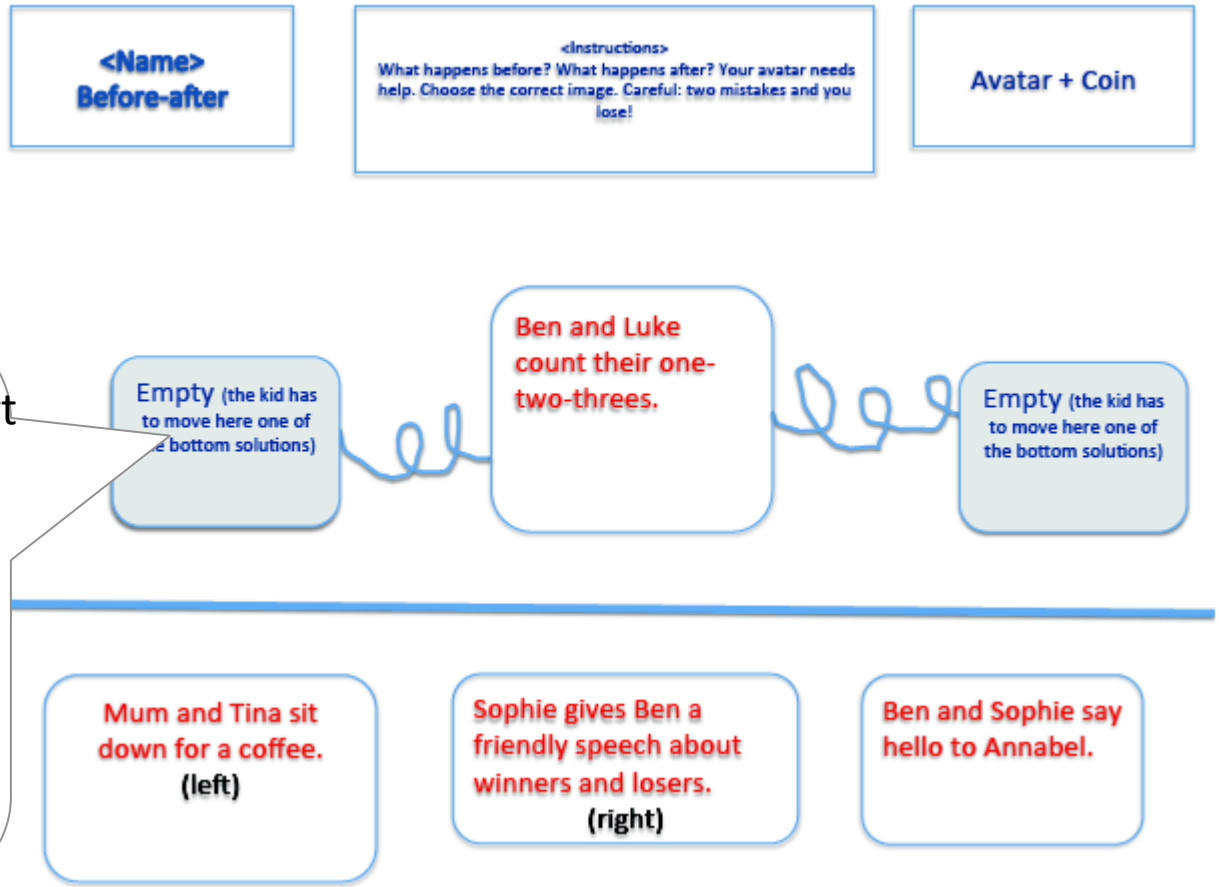
G2. to assess technical aspects of the illustrations.

Issues concerning:
- the coherence between the text and the illustration
- the coherence between the illustration choices
- illustrations of books 1 and 2 seem to be richer in details and colors
- sometimes, the illustrations clearly represent or interpret what is in the text; some times it is not

Experts for smart games

G1: assess whether the current textual instances of smart games were adequate for the stimulation plan for the TERENCE learners.

Issues:
- rarely, the events of the smart games are not that relevant in the story;
- some distractors may be too plausible, and hence not sufficiently stimulating
- smart games that stimulate pragmatic inferences could be required



Software Usability

Evaluators

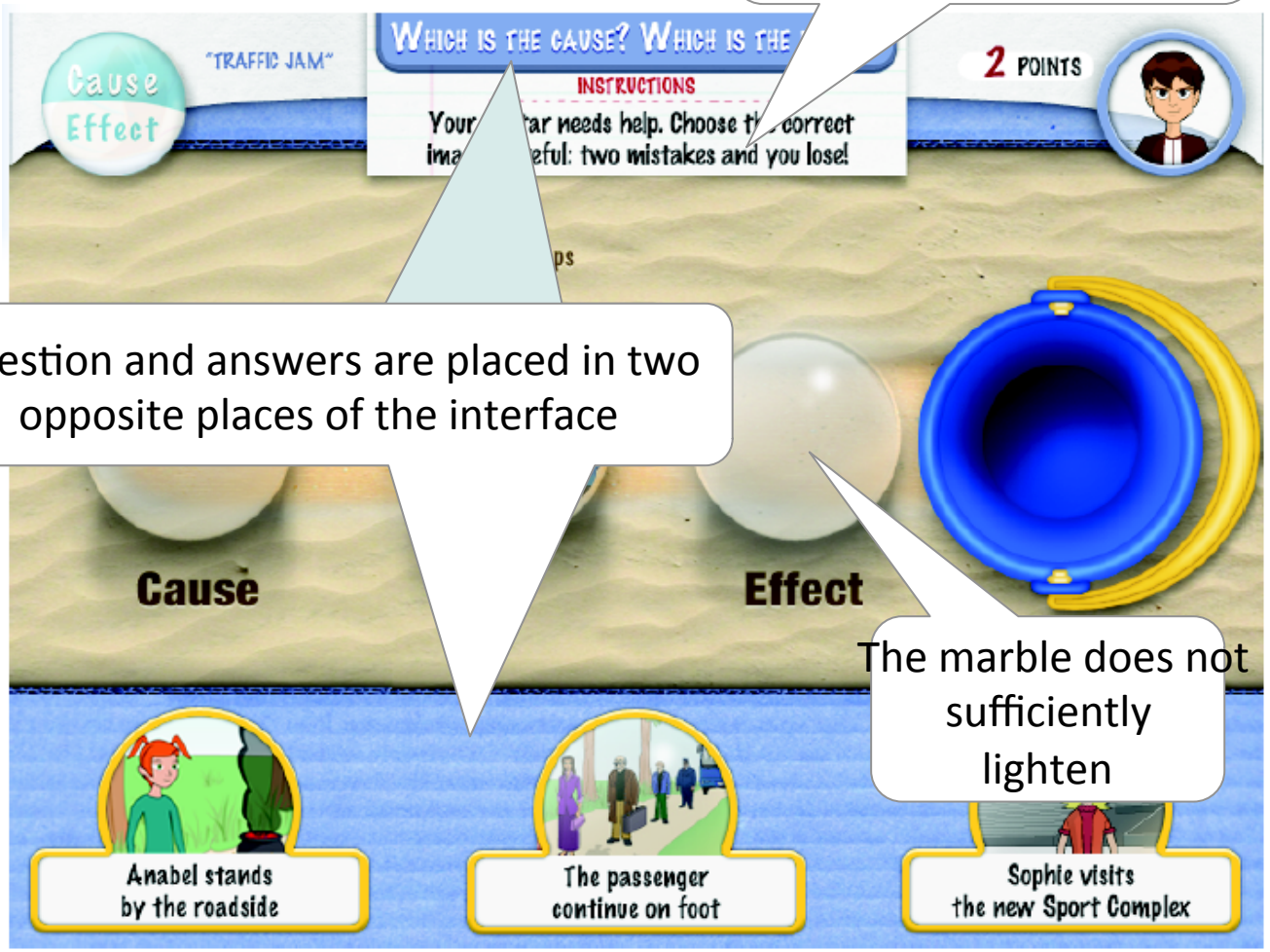
	Evauator	Expertise	Country	Used method
Learner GUI	L Tarantino	Interaction design	Italy	Cognitive walkthrough
Educator GUI	T Di Mascio	Interaction design	Italy	Cognitive walkthrough

Software Usability

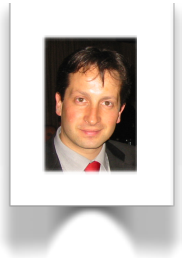
Experts for usability:

The specific goals were to evaluate whether:

G1. the interfaces follow the general visual design guidelines,
G2. the interfaces support the user's ne step to achieve a task,
G3. the interfaces provide the users with appropriate feedback



Thread - Outline



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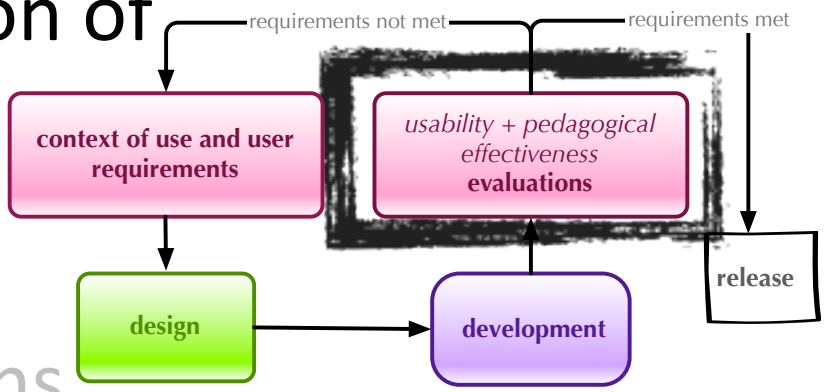


STEP V - The end: conclusions

Small Scale Evaluation

Small scale in Italy

- Experiments at
  - LNGS, L'Aquila, 11 hearing children, July
  - Rome, 9 deaf children, 5 hearing children, July
  - Avezzano, 5 hearing children, July
  - Avezzano, 11 hearing children, September
  - Bolzano, 6 hearing children, September
  - Treviso, 15 hearing children, Septembe
  - Padova, 4 deaf children, 106 hearing children, July – September
- Total: **159** hearing children, **13** deaf children

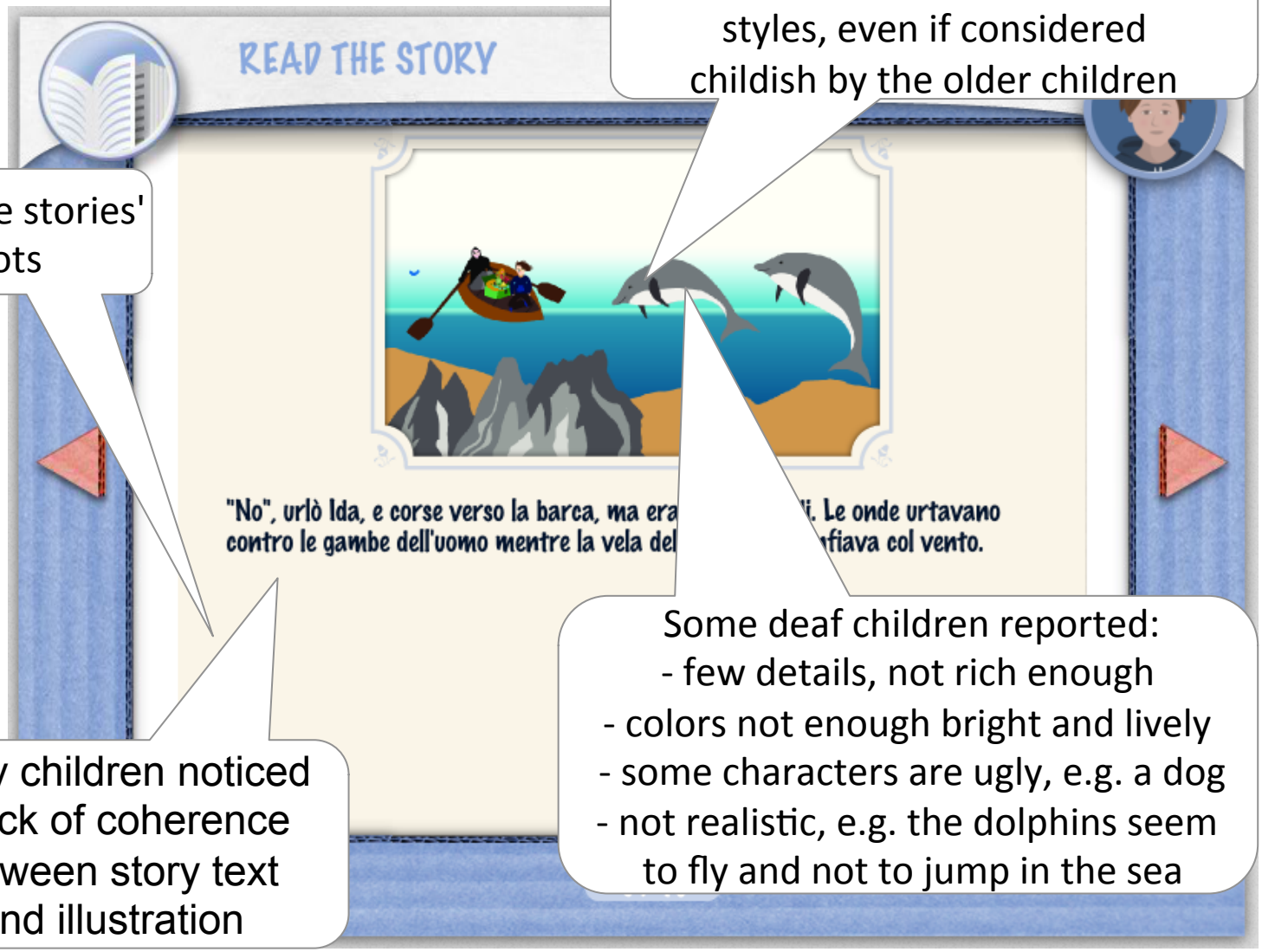
Main Results

Liked the book map concept

The green/gray locks were a bit confusing

Lack of a "back" button

Main Results



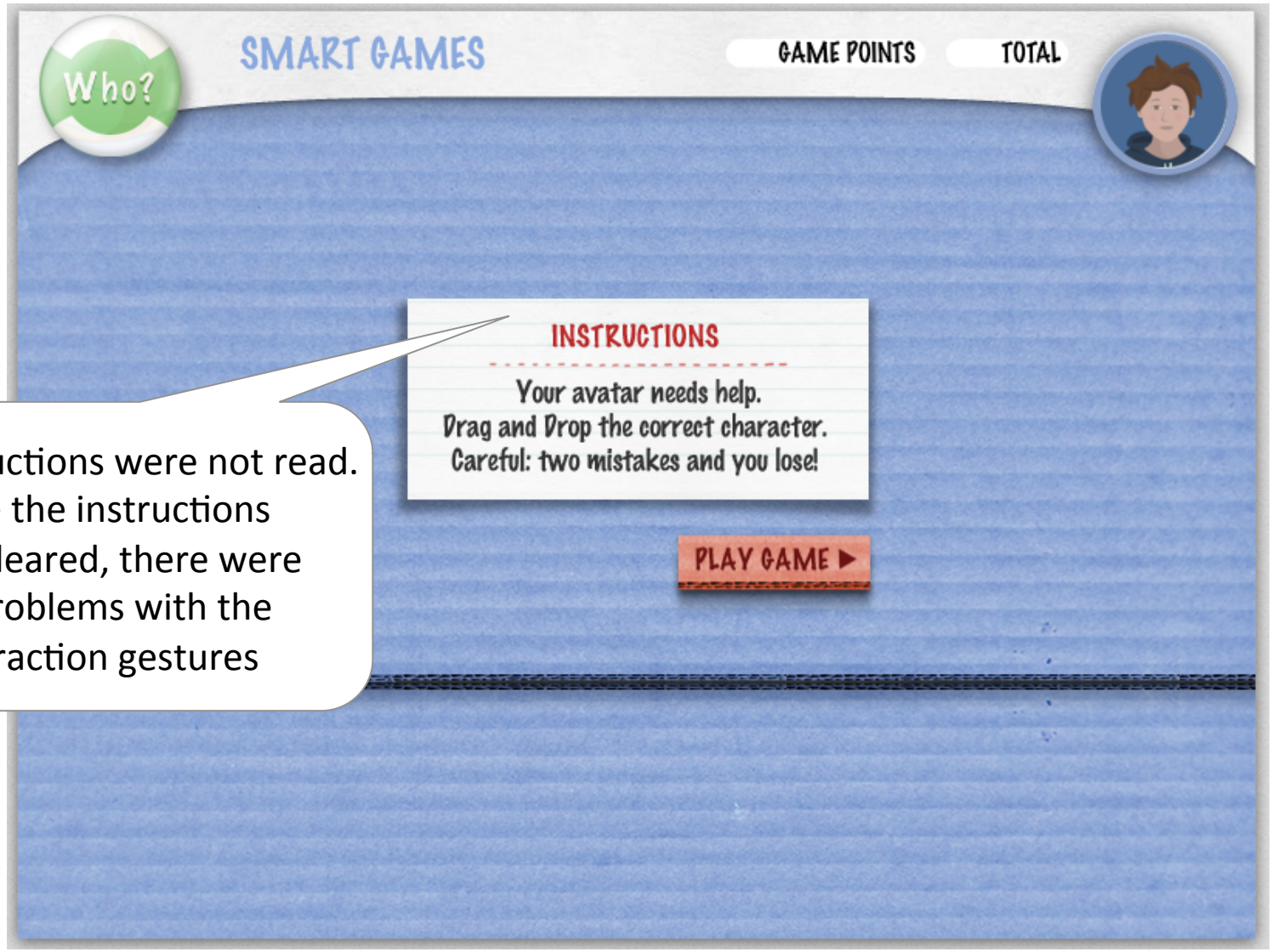
Liked the illustration styles, even if considered childish by the older children

Liked the stories' plots

Some deaf children reported:
- few details, not rich enough
- colors not enough bright and lively
- some characters are ugly, e.g. a dog
- not realistic, e.g. the dolphins seem to fly and not to jump in the sea

Many children noticed a lack of coherence between story text and illustration

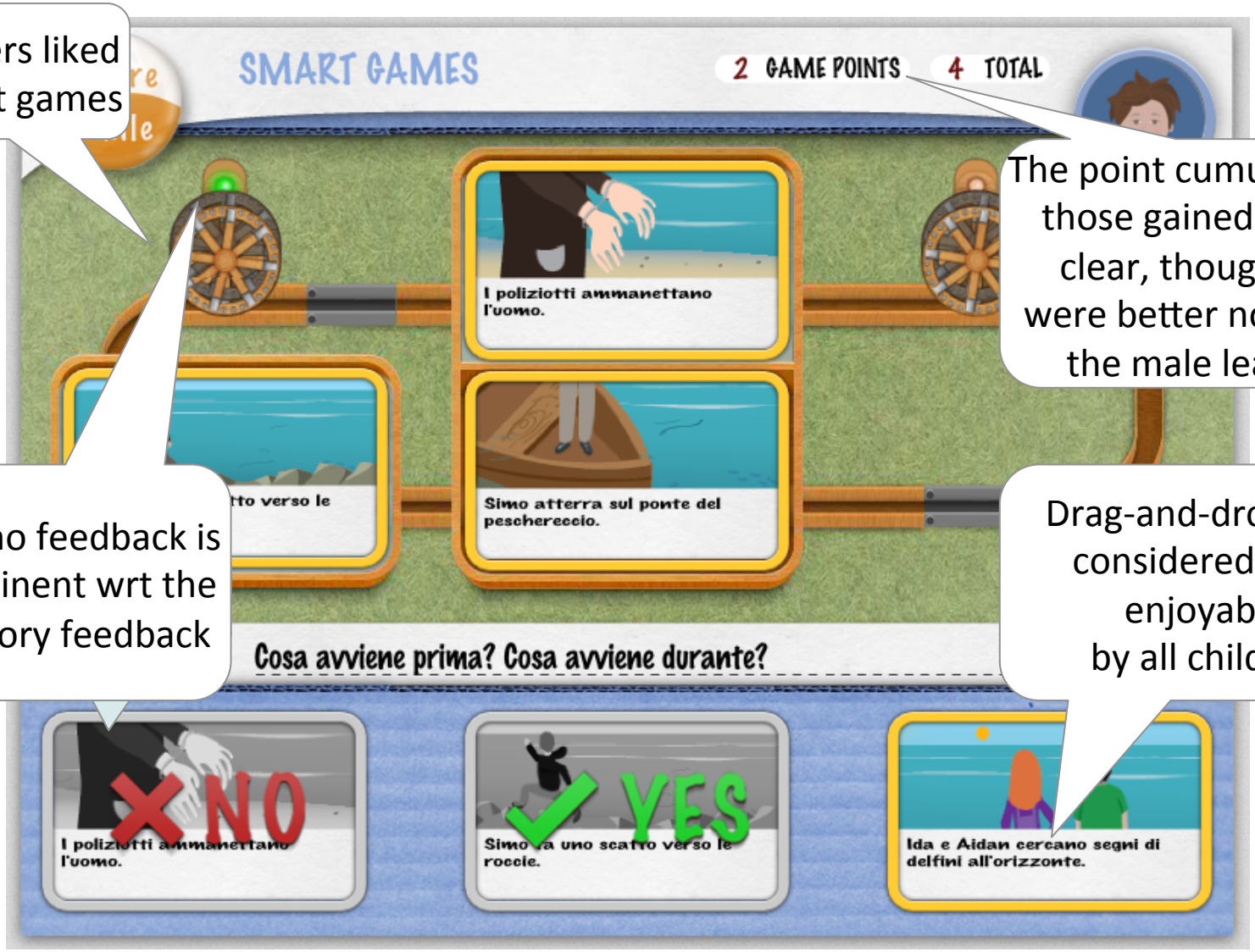
Main Results



The instructions were not read. Once the instructions were cleared, there were no problems with the interaction gestures

Main Results

All learners liked the smart games

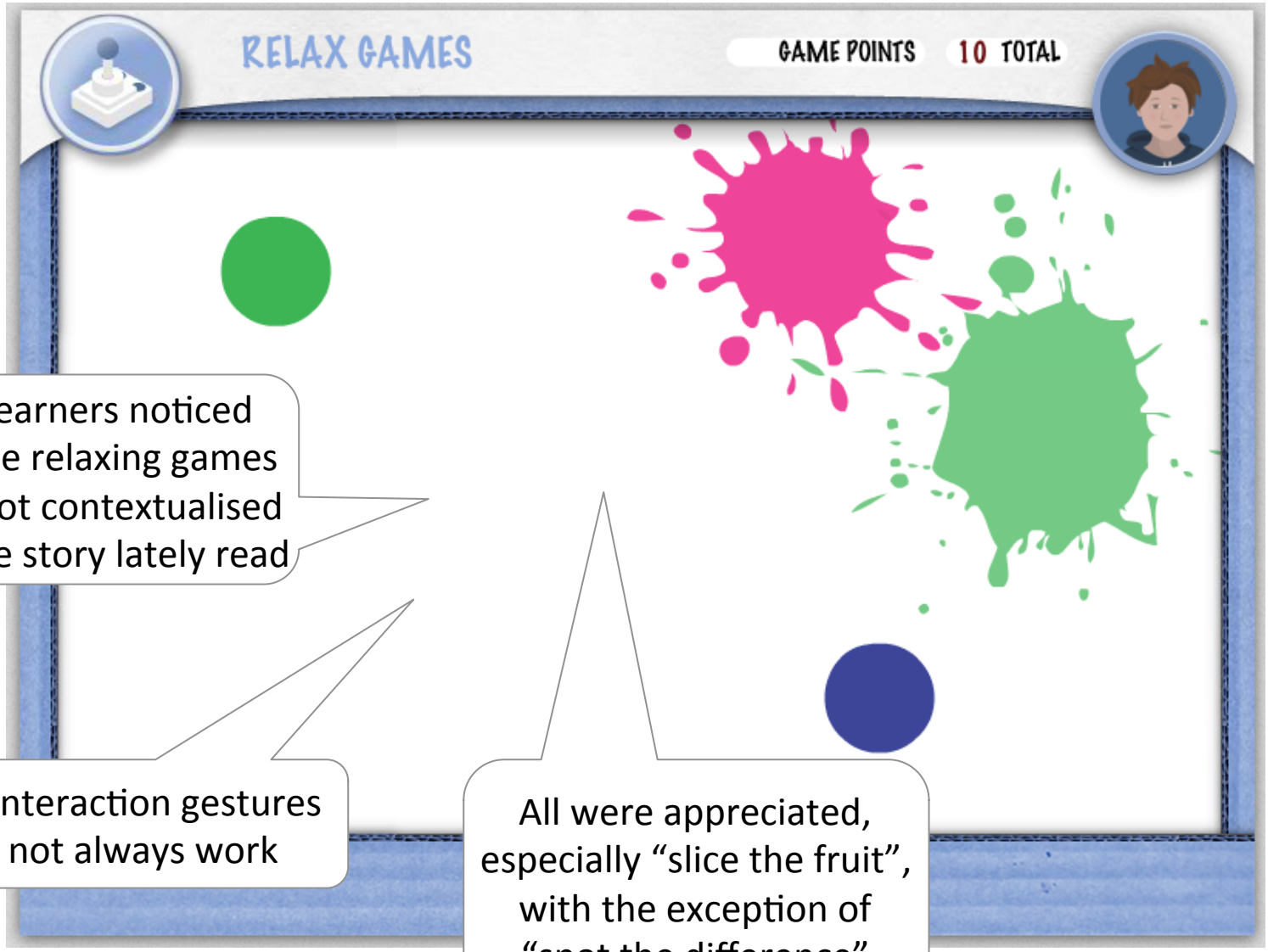


The point cumulated and those gained are not clear, though they were better noticed by the male learners

The yes/no feedback is too prominent wrt the explanatory feedback

Drag-and-drop was considered very enjoyable by all children

Main Results



The learners noticed that the relaxing games were not contextualised with the story lately read

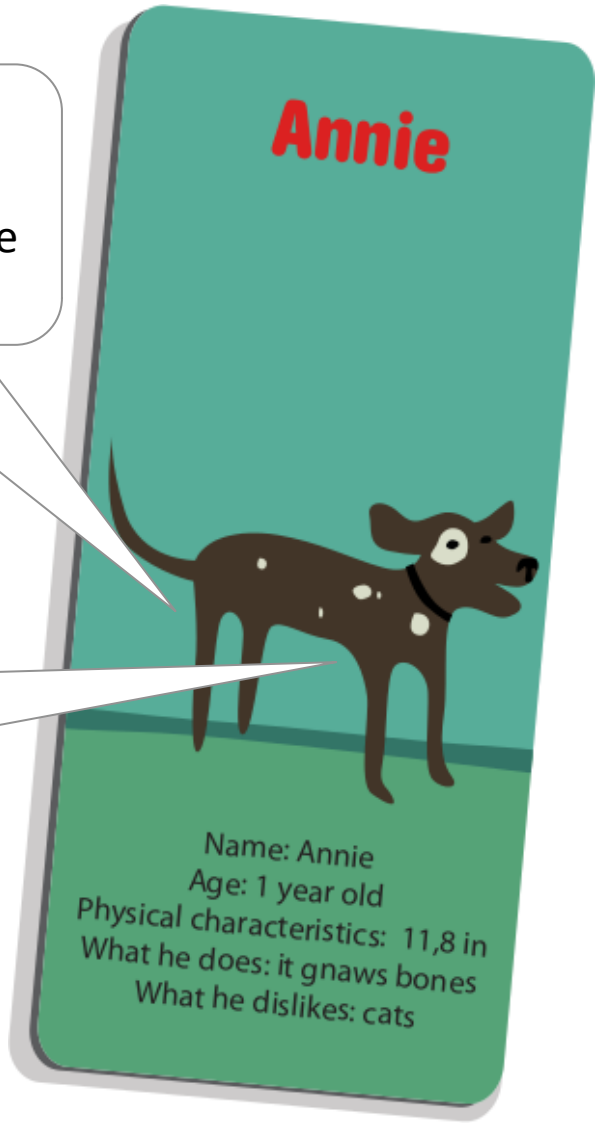
The interaction gestures do not always work

All were appreciated, especially “slice the fruit”, with the exception of “spot the difference”

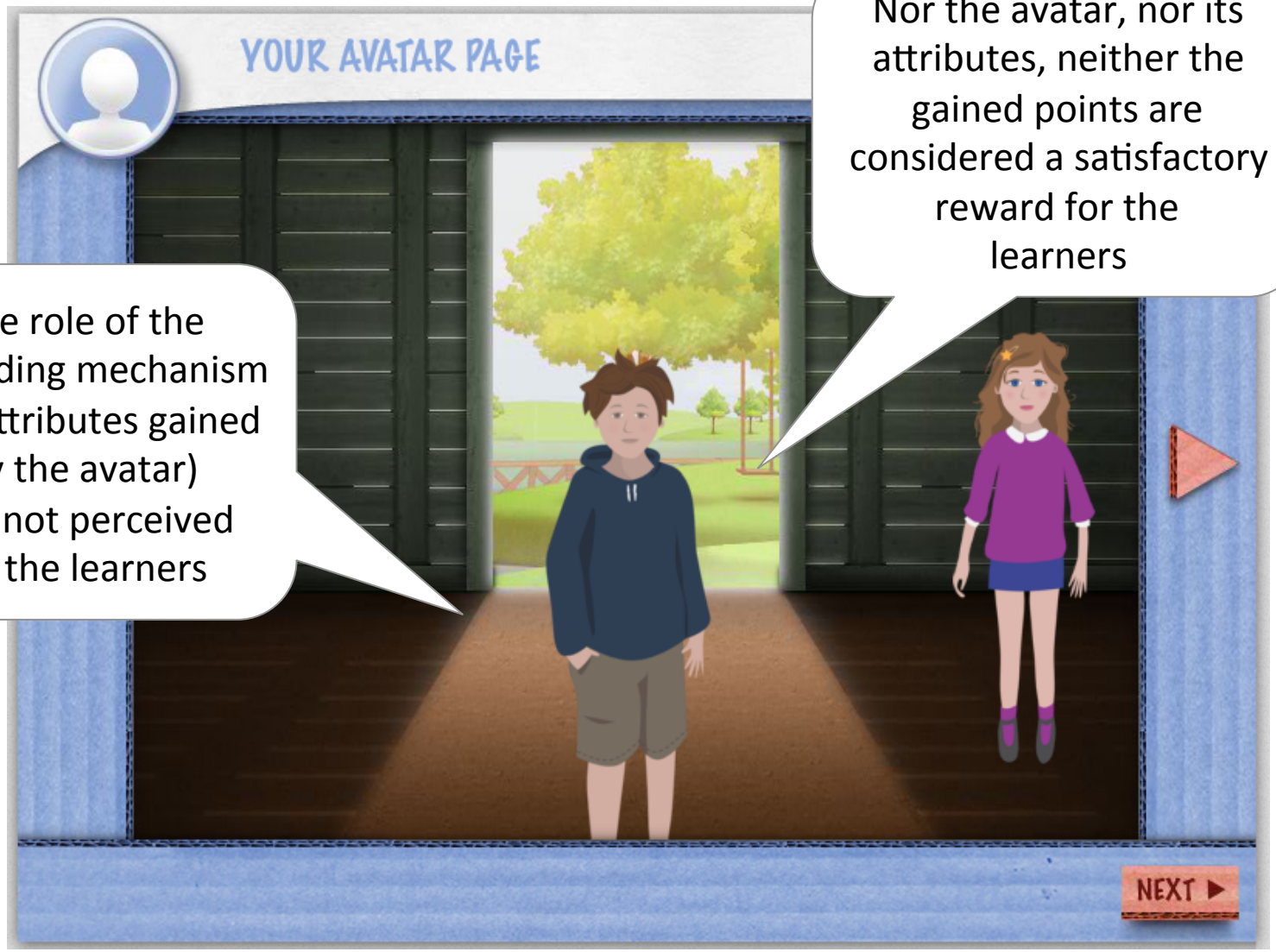
Main Results

Too many cards, unordered, sometimes unreadable or not credible

Children would have preferred cards per story, rather than per book

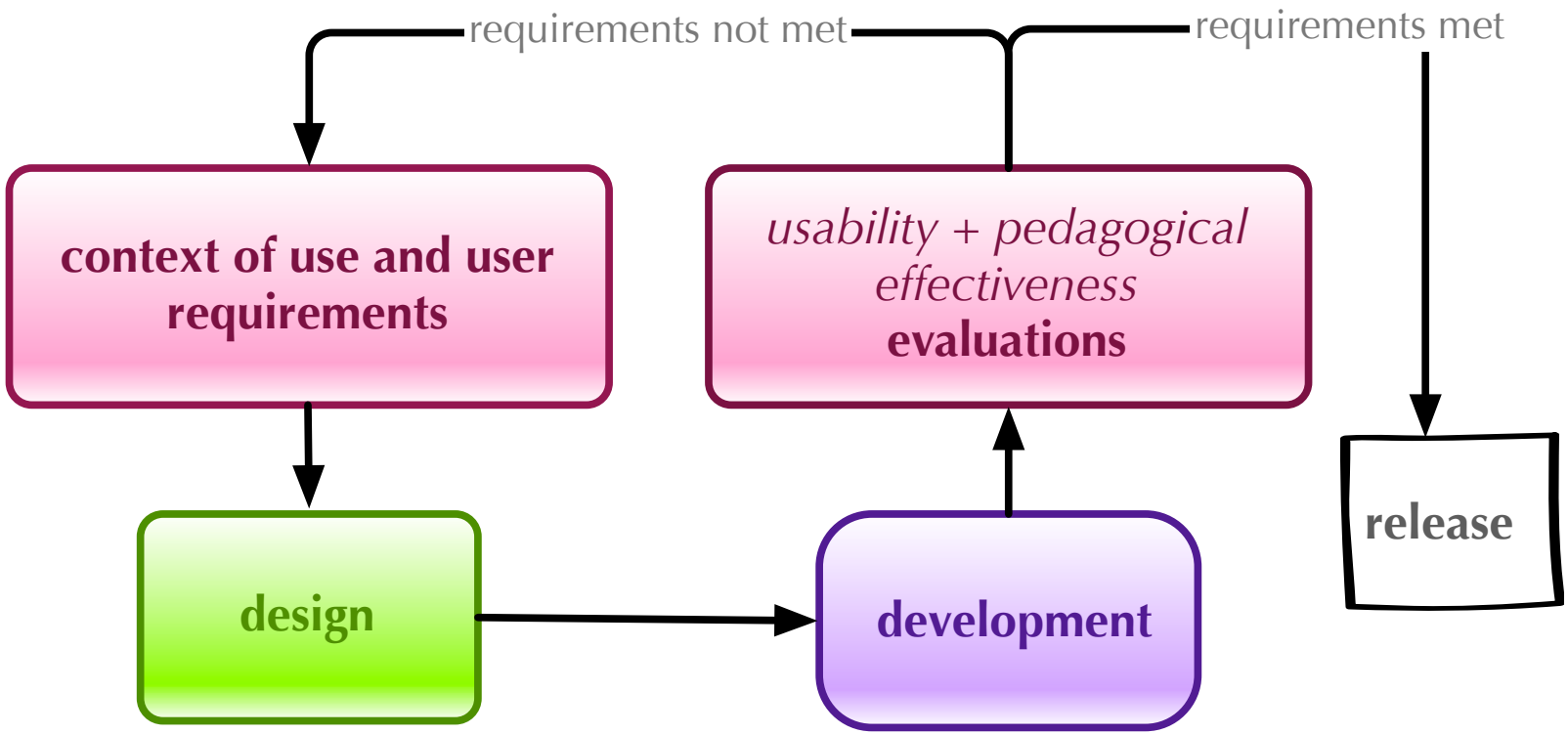


Main Results



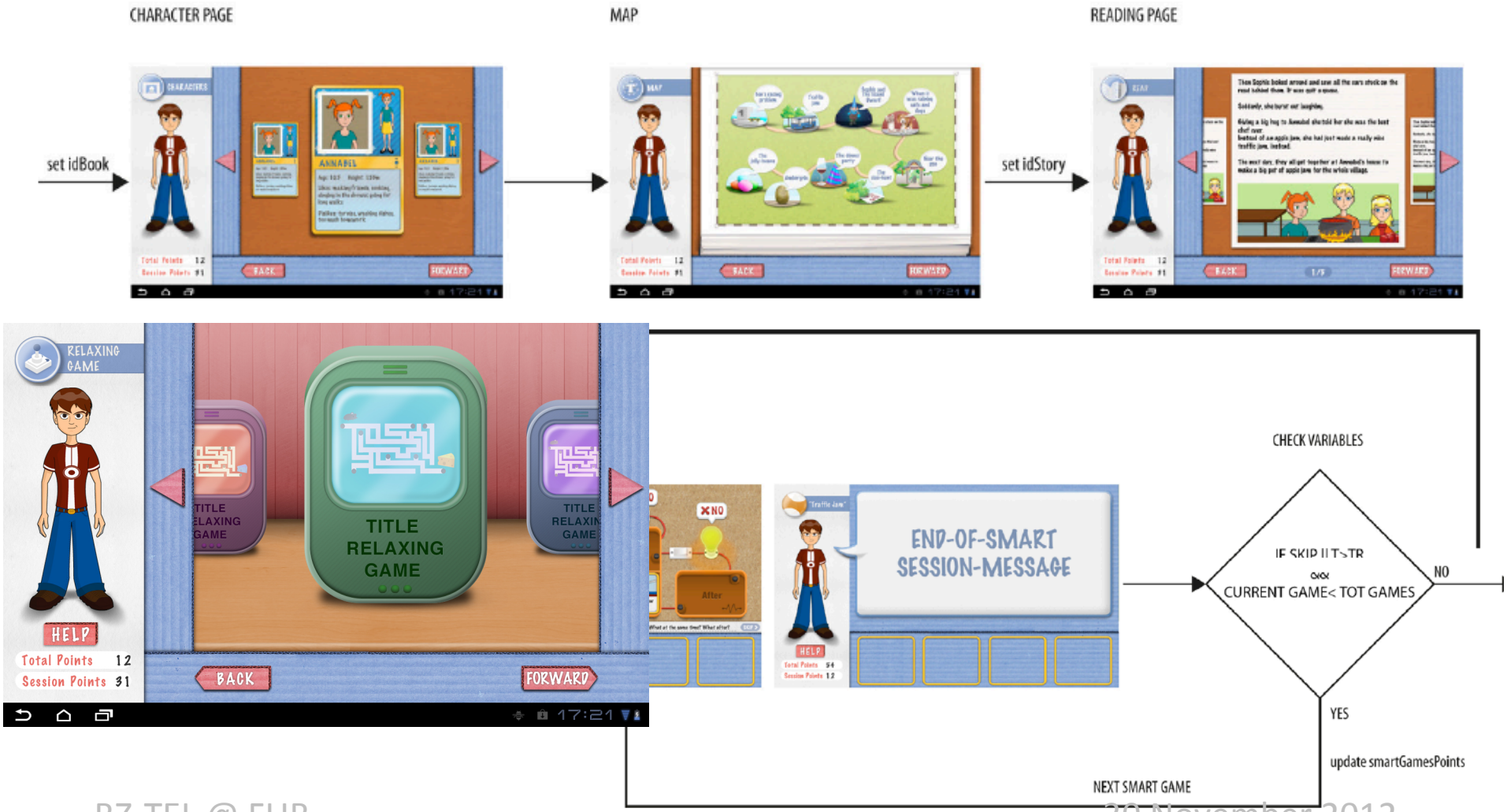
Impact of Evaluation (1/2)

- Evaluation results are used to refine the requirements and hence improve the design



Impact of Evaluation (2/2)

- Evaluation results are used to improve the design and refine the requirements



Large Scale Evaluation

The stimulation plan in short

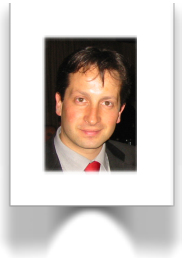
- Five months (Jan-May)
- Two sessions per week
- Each session is organised as follows
  - reading (ca 15 minutes)
  - smart games (ca 15 minutes)
  - relaxing games (ca 15 minutes)
- Pre-post tests (Nov-Dec, May-Jun), and possibly with a control group
  - UniPD in D1.1 suggests MT-tests
  - The psychological unit of UnivAQ suggests further tests, e.g., PPVT-R, “prova di comunicazione referenziale”, coloured progressive matrices, neuropsychological evaluation battery

Brainstorming

- Suggestions on how to improve
  - the expert-based evaluation
    - it ends in December
  - the large-scale evaluation, e.g.,
    - different tests,
    - different organisation of the stimulation?

Step V: The End

Thread - Outline



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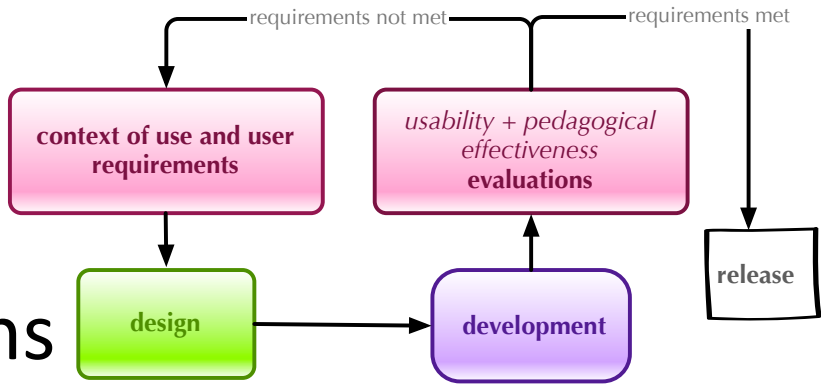

The TERENCE Consortium

Partner	Main contribution	Country
UnivAQ	SW design	Italy
LUB	SW design	Italy
LUH	SW design	Germany
KUL	NLP	Belgium
FBK	NLP	Italy
MOME	Graphics	Hungary
USAL	SW development	Spain
AMNIN	SW testing	Slovenia
UniPD	C&E Psychology	Italy
UoS	C&E Psychology	UK
UniVR	C&E Psychology	Italy
SIVECO	Dissemination	Romania
2 Expert Consultants: Marc Marschark (RIT); Paul van den Broek (Leiden U.)		


LEARNER:
THANK
PASSWORD:
YOU
LOGIN

Summary

1. **Introduction**: the TERENCE idea in a nutshell
2. **What**: the TERENCE learning material
3. **Who**: the users of TERENCE
4. **How**: the evaluation of TERENCE
5. **The** end: conclusions