Playing to Learn

Judit VARI – Emilien LECOFFRE

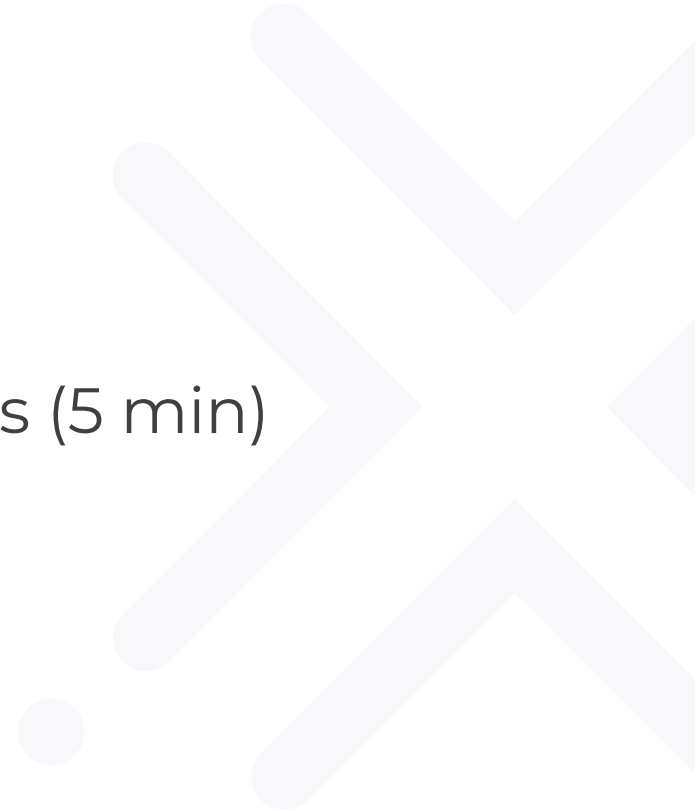Co-funded by the European Union

Agenda

Introduction (5 min)

Game, let's play ! (20-25 min)

Experience and feedback (5-10 min)

Theoretical contributions, difficulties and obstacles (5 min)

Suggestions and guideline (10 min)

Questions (5 min)

Introduction – A little theoretical diversions

The origins of this notion are in the works of Clark C. Apt (MIT political sciences) Ben Sawyer(game developper) and David Rejeski (director of the Science and Technology Innovation Program - STIP).

Clark C. Apts defined Serious Games as games that *"have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement"*

"Resources from the field of videogames reapplied for the purposes beyond entertainment including education, healthcare, productivity, defense, workforce development and more." (Bryan Sawyer, 2008)

Introduction – Definition by Julian Alvarez

1. Activity whose initial intention is to combine a game with rules and objectives, with a "useful (serious) purpose", intended, in a non-exhaustive and non-exclusive way, to train, inform, communicate, coach or care.

2. Digital or non-digital game, intended for a non purely entertainment purpose (e.g. training, advertising, etc.), simultaneously offering game mechanics and useful applications from among the following three: spreading knowledge, dispensing instruction or gathering data.

Introduction – Types of serious games

- Game for advertisement **(Advergame)** ;
- Game for teaching **(Edugame)** ;
- Game for medicine **(Health game)** ;
- Game for defense **(Military game)** ;
- Game for politics **(Political game)** ;
- Game based on news **(News game)** ;
- Game associated with databases **(Datagame)** ;
- Game associating simultaneously teaching and advertisement **(Edumarket game).**

Introduction – The Quantum Prisoner : What is it ?

Game : https://quantum-prisoner.com/

The Quantum Prisoner is an adventure video game designed and developed by the CEA to spread scientific culture to the general public. It will lead you, for a period of **6 to 8 hours**, to new experiments between science and science fiction.
To progress through the story, you will be confronted with thirty or so logic and reflection puzzles, bringing into play scientific and technological concepts.

Educational aim: To discover various scientific concepts **from secondary school to high school** via puzzles that use a method of resolution similar to a scientific and experimental approach.

More generally, the game can be used to illustrate the experimental approach and the science professions.
The game can also be installed on touch-screen terminals or offline tablets for events or practical work.
Time of the complete game: 6-8h. **Time of a puzzle: 15mn.**

Introduction – Launching the game

Game : https://quantum-prisoner.com/
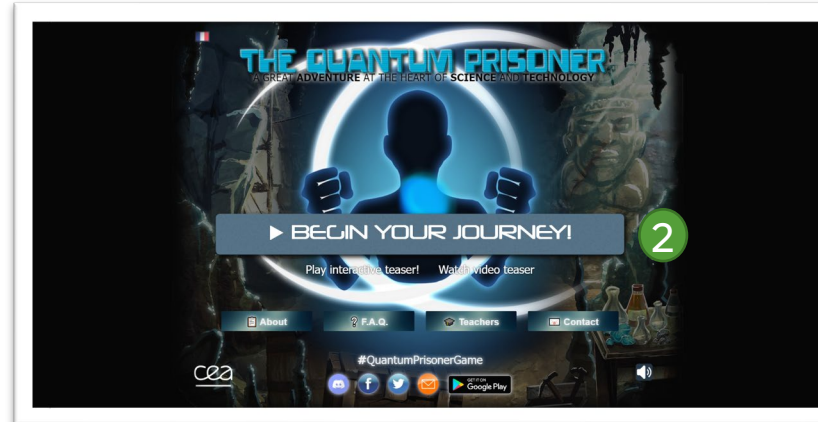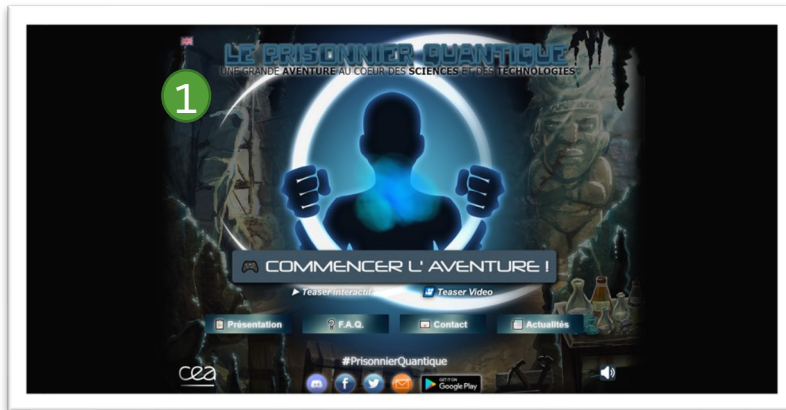
Game, let's play !

Game : https://quantum-prisoner.com/

- Left click to move / pick an object / look at the scenery
- Big blue arrow to come back to the main room
- You have an inventory on the bottom left
- You can **drag and drop object** from / to this inventory
- Light bulb to look at a hint

You can help each others !

This icon indicates that a clue has been unlocked to help you if you get stuck.

Experience and feedback

How do you feel about this experience ?

What did you like (or not) about this serious game ?
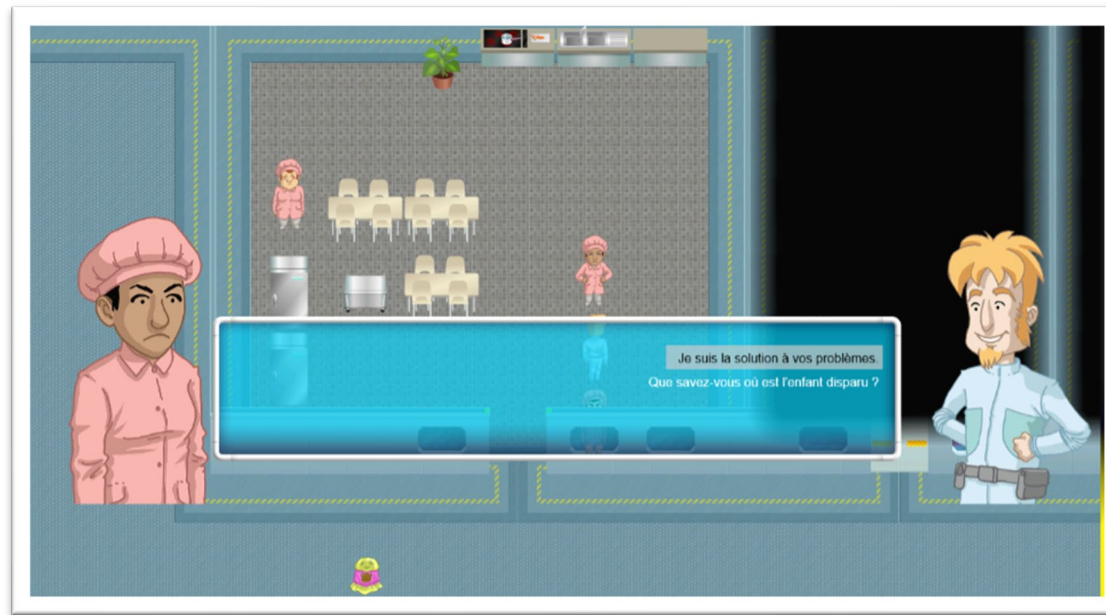
Who is the target of a such game ?

Did you learn something ?

Could it be played in distance learning ?

Theoretical contributions - What does research show?

- Are Serious Games innovative ?
- Are Serious Games fun ?
- Do you have to be a gamer to learn from a Serious Game?

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Theoretical contributions - What are the key points to look out?

With an exemple : **"The Ethical Odyssey"**

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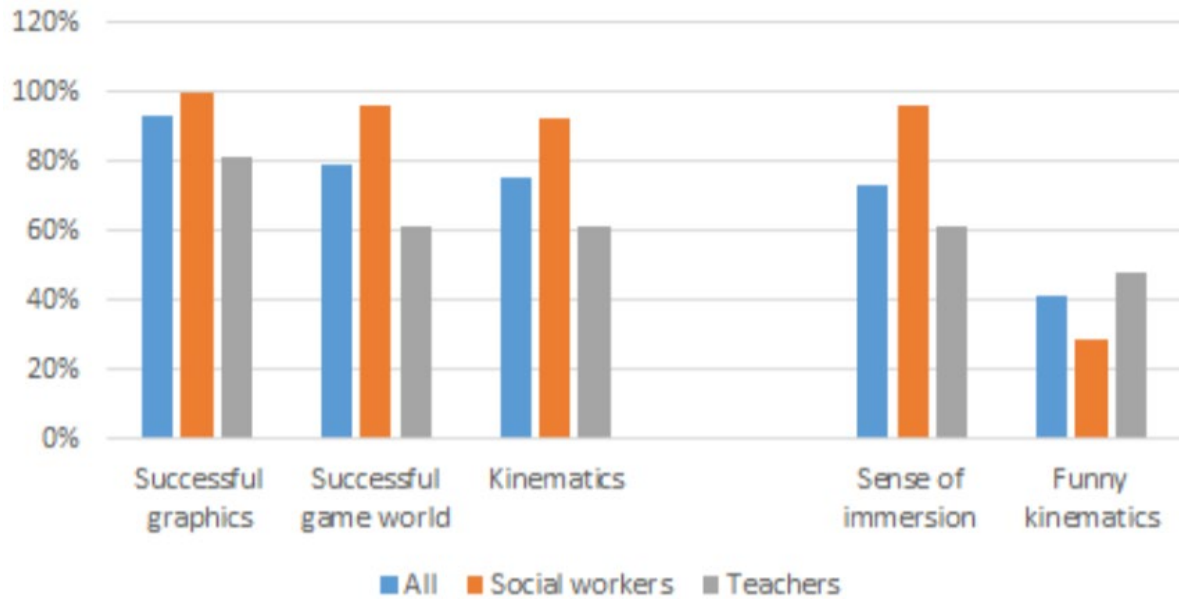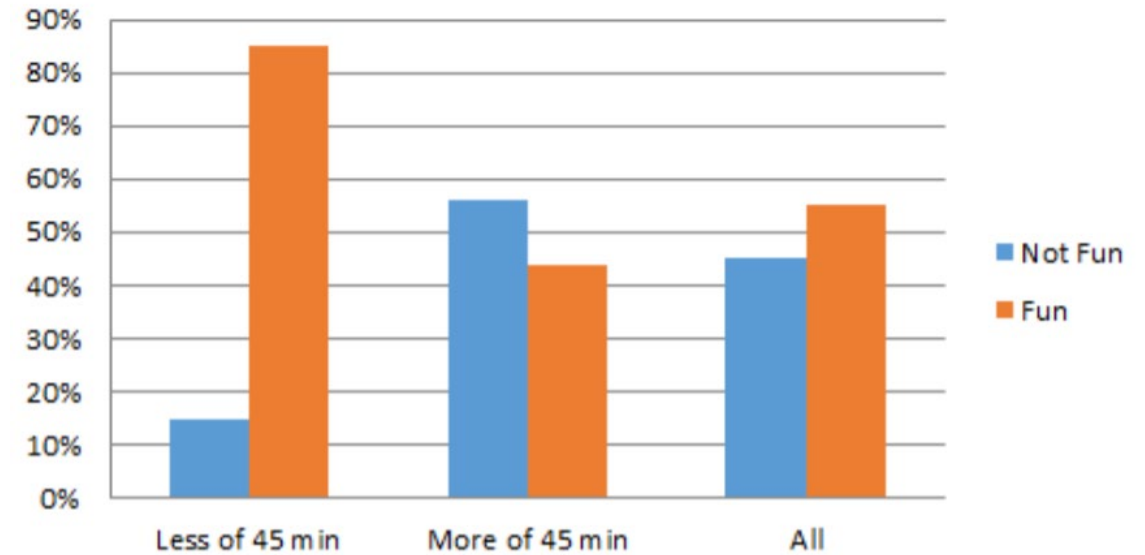
Suggestions and guideline

1. Define the educational objective(s), the target audience and the concept
2. Identify key messages
3. Build the architecture
4. Distribute key messages
5. Write the ideal scenario
6. Create alternative paths
7. Assess with scores and debriefing
8. Give your experience the "Juiciness" it deserves
9. Reread and deploy

	Example
Educational objective(s) :	
Target audience :	
Level of knowledge of my audience :	
Concept of the game :	
Key message(s) :	
What format will my teaching scenario take?	Immersive and gamified training simulation / e-Learning
The learning experience will take place in :	1st person point of view / 3rd person point of view / other

Suggestions and guideline

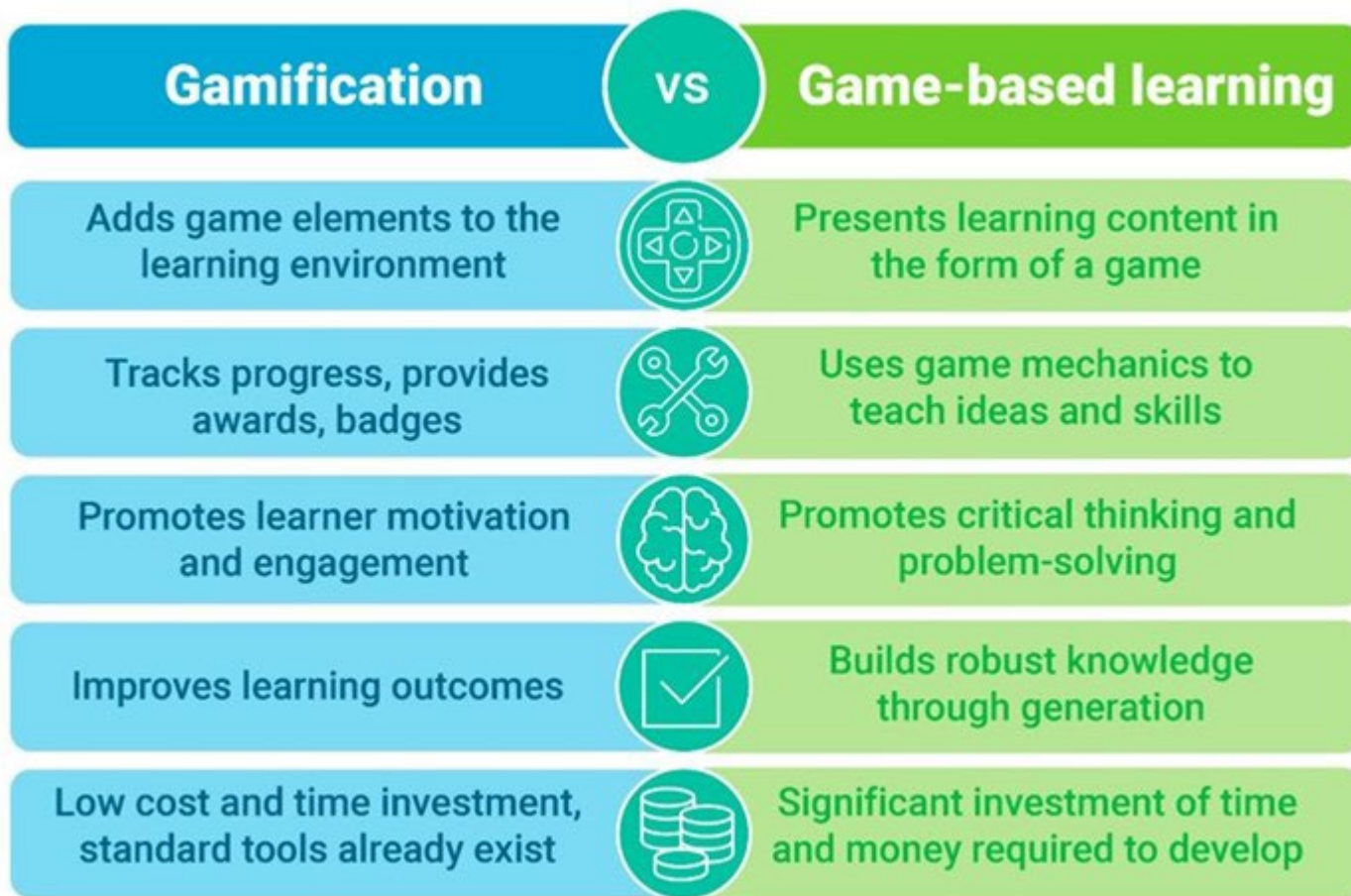|	Flight Simulator
Educational objective(s) :	Demonstrate the difference between **older 8-bit** computers, such as the Apple II, and the **new 16-bit** computers, such as the IBM PC
Target audience :	General public
Level of knowledge of my audience :	Basic knowledge about civil aviation
Concept of the game :	Comprehensive simulation of civil aviation
Key message(s) :	Superiority of the IBM PC over competitors
What format will my teaching scenario take?	Immersive and gamified training simulation
The learning experience will take place in :	3rd person point of view

Edutainment

GAMIFICATION CONCEPT

| GOAL | LEARNING | SKILL | ACHIEVEMENT |
| CHALLENGE | REWARD | COMPETITION | USER ENGAGEMENT |

	GAMIFICATION	GAME-BASED LEARNING	SERIOUS GAMES / APPLIED GAMES
WHAT IS IT?	The use of game elements in a non-gaming context	The process and practise of learning by using games	A custom-built game with a specific (learning) objective
WHY USE IT?	- Increase engagement - Extrinsic motivation for learning or training	- Increase engagement - Transfer knowledge, - Learn new skills - Abstract knowledge	- Increase engagement - Increase extrinsic and intrinsic motivation - Abstract knowledge - Transfer knowledge - Train new skills - Create awareness - Change behaviour
HOW IS IT USED?	Extra layer within existing environments, learning or training programs	Uses existing games which can be repurposed for the learning objective	Games that are created from scratch for a specific purpose or objective
WHERE IS IT USED?	- Digital platforms - Classroom - Public spaces	Classroom with instructor	- Classrooms - Companies - Public places - At home
FOR WHO IS IT?	- Competitive people - Performance-oriented people	- Students - Pupils - Groups of people Only under supervision	Tailored to any audience independently or in a group

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Any questions ?

Thank you

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