

# E-SCAPE

## Education for Societal Changes based on Active Pedagogies and Empowerment



Methodology for game- based learning scenarios taking place in  
Digital Escape Rooms

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# 1. Main characteristics, advantages, and requirements of educative escape rooms

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## 1. 1. Educational Escapes rooms and Gamification. What is gamification?

Escape games are a form of gamification, but what is gamification?

*Gamification” is “the use of game-design elements in non-game concepts.*

Karl M. Kapp is one of the most important references for gamification, stating that this methodology is learner-centred because it can be tailored to the needs of each individual and motivate them to take charge of their own learning.

He offers an exhaustive analysis of the application of game dynamics in didactic environments in his book 'The Gamification of Learning and Instruction. Game-based methods and strategies for training and education'

*Gamification is the use of game mechanics, aesthetics, and game thinking to motivate people towards action, learning and problem solving. (Karl Kapp)*

The attractiveness of these new approaches and teaching activities by educators is determined by the constant need to retain the attention and motivation of their students and to create significant and motivating learning experiences

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## **1.2. What is an Escape room?**

Escape rooms aren't something novel – they are an evolution of other types of games and activities such as point-and-click games, live-action games, haunted houses, reality television and puzzle hunt to incorporate a spirit of playfulness within the activity with subtle winks to observant players.

An Escape Room is a game experience, where you will be challenged to try to get out from a room where you have been trapped. To escape, you will have to accomplish several different idiosyncrasy challenges, for you to find the key that opens the exit door.

*"The escape room is a learning strategy that favors motivation and creates greater engagement of students in learning" (Nebot and Campos, 2017).*



## Putting the player/learner at the centre of the design is the most important thing

The earliest well---documented activity calling itself an “escape game” was from the publishing company SCRAP, known as the Real Escape Game. It was run in Kyoto, Japan, in July 2007 as single room game for teams of 5---6 players (SCRAP, 2007). Over the years, SCRAP has continued to run escape rooms, but has also become known for running a Real Escape Game Event, which is for hundreds or thousands of players in a large space.

Escape rooms require teamwork, communication, and delegation as well as critical thinking, attention to detail, and lateral thinking.

They are accessible to a wide age range of players and do not favour any gender; in fact, the most successful teams are those that are made up of players with a variety of experiences, skills, background knowledge, and physical abilities.

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Escape rooms not only offer an interesting, challenging and creative space for participants, but also allows them to live a learning experience, working to find the solutions using their own knowledge, developing skills and competences, and feel fully responsible for their own progress.



### 1.3. What makes an escape room educational? Differences between an educative and a traditional Escape Room

The educational escape rooms contribute to the training process...

- Providing an environment in which participants can put knowledge, skills, and attitudes into practice.
- They have learning objectives

- Developing skills and abilities
- Encouraging creativity, deductive reasoning, and logical thinking
  - Evaluating the knowledge that the participants have acquired on a topic.

*“Educational Escape Rooms are resources that make learning a fun activity, in which the group of participants develop teamwork, based on their knowledge and skills, to decipher the riddles posed to achieve the resolution of the challenges. In it, collective action is worked on and skills such as proactivity, participation, interactivity and, in short, active learning are developed (Nicholson,2016).”*

According to this, the educational or training escape room differs from the traditional ones in that they have learning objectives, designed to acquire knowledge, and putting skills into practice.

The educational or training escape room differs from the traditional escape room in that it has learning objectives, that is, it is designed to acquire knowledge and put skills into practice.

In front of the traditional escape rooms, the EDUCATIONAL escape rooms

- Have previously defined learning objectives
  - Have as specific targets a specific group to whom you want to teach something. •
- Pose a series of challenges that make up the plot / story and are related to the learning objectives



it is important to set tangible learning and competence development objectives and how these objectives will be achieved

## Which is the training GAP that we want to cover?

During the escape game, learners must identify with one or several problems as well as the content areas covered by those problems.

- Learners must develop different solution and action strategies.
- Learners must select a problem-solving strategy.
- Feedback from the learning environment must be responded to or utilized by learners.
- Useful strategies must be pursued by learners.

The pedagogical design of an educational escape room must combine eight key attributes:

- A strong and coherent narrative

- A structure of competition and rankings that provides immediate feedback on progress
- A clear and achievable short-term goal and objectives
- A specific design oriented towards formative goals
- A set of rules, instructions and constraints that are applied in a structured, tiered context
- Voluntary participation implying an acceptance of the established rules

## And Freedom in five fundamental areas

- ✓freedom to fail,
- ✓freedom to experiment,
- ✓freedom to create an identity and personalise it,
- ✓freedom to strive, and
- ✓freedom to interpret.

The educational escape room contributes to the training process because it:

- ✓Motivates and reinforces skills and knowledge
- ✓Stimulates cooperation and social interaction
- ✓Allows to progressively increase the degree of difficulty of tasks

Some other advantages of educational escapes rooms are:

- Improves problem solving skills
- Encourages collaborative work
- Promotes Learning to think
- Facilitates motivation and learning by doing
- Improves learning immersion
- Develops imagination



- Promotes enjoyment
- Promotes social interaction and communication
- Promotes social relationships
- Encourages creativity
- Promotes leadership behaviours

## 1.4. What is a virtual escape room?

The Escape Rooms are defined as adventure games in which players solve a series of puzzles, logic games and riddles using clues, hints, and strategy to complete the objectives at hand in a limited time, most commonly granting about sixty minutes. The virtual Escape Game has no spatial or temporal limits, and it is possible to play alone or in multiplayer mode.

The main difference, with the offline escapes rooms, is that you participate online. These types of escape rooms may be available anytime, anywhere, if you have a computer and an internet connection

The participants of online escape rooms will engage in from their homes using video conferencing platforms, as opposed to physical escape room games which will be held at a specific place. For online escape rooms, there is no limit on the number of groups that can play simultaneously



### Advantages of Virtual Escape Room

- Larger scope and range of activities involved
  - Content can be added as soon as its released
  - More choice of experiences
  - Bringing people together over distant to join in the Escape Room from different locations. •
- They are cheaper than the physical ones

## 1.5. Steps for designing a virtual educational virtual escape room

From a design point of view, an educational escape room is a game device composed of different key element. The design and development of virtual educational Escape rooms is a crucial phase of the process and a challenge for many educators who wish to apply these activities in the classroom

### 1. Setting the Learning Objectives

The learning objectives must be SMARTER,

- Specific
- Measurable
- Achievable
- Realistic,
- Timely
- Exciting
- Relevant

### *WHAT DO THEY ALREADY KNOW?*

### 2. Identify the characteristics of the participants.

- ✓Age
- ✓Educational Level
- ✓knowledge, skills, and attitudes.
- ✓interests and motivation.
- ✓Special needs.
- ✓Any other elements that might be relevant (family situation, social situation).

Some other issues that can help you...

- ✓Number of participants
- ✓Is the first time playing in an escape room?
- ✓Do they know each other?

✓Which are their interests?

Knowing the participants will make easier for you to select the best theme and missions for your escape room that really connects with them and captures their attention

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### 3. Choose a narrative (the history)

The narrative is an essential element so that the Escape Room is not just a curious succession of puzzles and unknowns. You need a good story to hook the audience. The narrative is what will turn the learning experience into an unforgettable experience.

It is very important at the start to consider how the narrative will be integrated into the

game The atmosphere that guarantees the success of your escape room includes:



1. The theme (time and place)
2. The narrative (the story)
3. The mission (the objective within that story that the participants must achieve)

Having a narrative that involves the whole game will leave the participants involved and immersed in a story that makes them feel challenged and motivated to solve the challenge

## *THE NARRATIVE IS THE FLOW OF THE GAME and THE BASE FOR THE LEARNING PROCESS*

There are hundreds of themes that you can use. Knowing the participants well is what will allow us to choose something that motivates them well: the future, antiquity, mystery scenes, detectives, fantasy ...

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The Theme has to do with creating the environment for the Escape ROOM as a base for the narrative or that engages the players.

Some themes we can work on...

- Ancient civilization
- Space
- The future
- A laboratory
- A detective's office
- Some period of history
- A haunted house
- A museum
- Vampires and other monsters

It is best to avoid religious or political topics unless there is a very specific learning objective

### 4. The mission

The mission includes the objectives within that story that the participants must achieve. In every escape room a mission or objective is set.



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- Open a strongbox (this is often called a breakout game).
- Investigate a crime
- Solve a murder.
- Disarming an explosive.
- Get information
- Find a missing person.
- Release someone

Or simply survive....

## 5. The GAME-FLOW

It describes the structure of the game experience for the players. Escape rooms could have a predefined sequence (sequential game) or a more flexible one (open puzzle sequence), or even hybrid solutions with more paths (Nicholson, 2016)

IS THERE ONLY ONE PATH TO GET TO THE END? ARE THERE DIFFERENT WAYS TO END THE GAME?

The important thing is that the learning objectives are achieved in the end. There are different ways of organising the game and the puzzles.

Open

The puzzles do not have to be solved in a particular order.

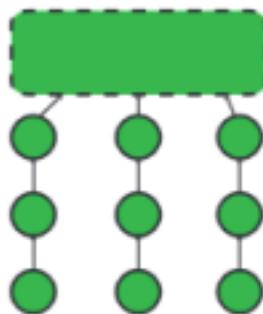


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### Sequential

One puzzle leads to another.

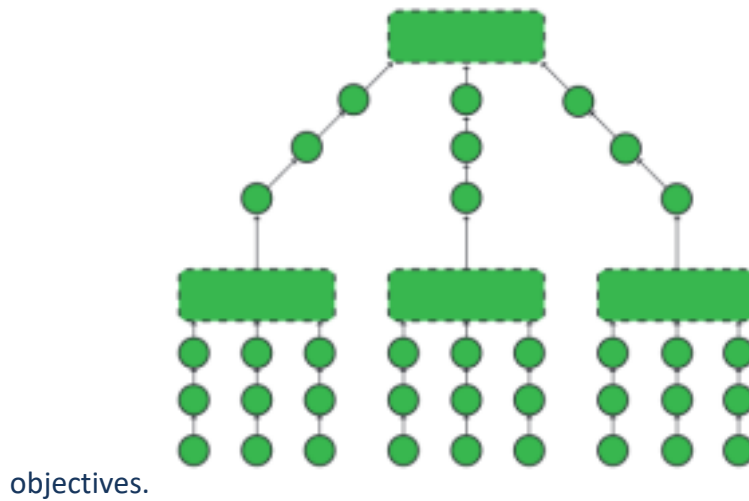
One solution gives you the clue to solve the next one until you reach the



goal.

### Pyramid

Using the trajectory models, entire games can be created by reaching mini-



## 6. The setting

The “Welcome” to the participants is the beginning of the experience, it is the moment in which the participants become the protagonists of the experience on which we have enrolled them.

Involving the participants in the Game from the beginning, capturing their attention, is what we will know as Onboarding, and we can organise this process in different ways:

- As trainers, we tell the story directly.
- Creating a video or audio that we can already contextualize in the framework of the story
- Through a mysterious letter/message
- Through an e-mail
- By means of some clue/object that fits properly into the story

In an online escape room we can choose a video explaining context

## 7. The rules



An Educational Escape Room, besides being a training experience, is a ludic experience. And like all games, it requires a series of rules that participants must follow to play. It is very important that all the participants have them clear from the beginning: The rules include **the time**.

Normally in the escapes is operated with a time limit, which the participants can control through a clock or stopwatch. (Consider the students who may not function well under pressure

<https://www.online-stopwatch.com/bomb-countdown/>

We can organize the digital narrative through tools as

<https://deck.toys/>

<https://help.deck.toys/article/120-escape-room>

## 8.The clues

At some point participants may get stuck in the game and not know how to solve an enigma.

You will have to determine whether or not the participants can ask for clues to solve the enigmas, how much information you will provide, how many times they can ask for help, whether you will offer clues even if they have not asked for them, and whether there will be any kind of penalty when a clue is received (e.g. sometime will be deducted from the score).

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Never underestimate the surprise factor! It is going to be essential to maintain the player's interest



You can use Google Slides, Google Docs, Jigsaw Planet, etc.

Then you can keep all of these in a folder in your Google Drive so everything is together.

## 9.The challenges

The challenges should be varied to provide opportunities for all players to participate and to maintain their interest during the game. It is especially interesting to create challenges in which the most unmotivated participants can win.

For an educational escape room, the challenges seek to help participants learn and develop skills and attitudes.

*DESIGN THE FLOW OF the different CHALLENGES*

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### Examples of virtual escapes rooms challenges

- Puzzles (Spatial, Physical, Codes, Graphical, Traditional, Sequences and patterns) •

Mathematical problems

- Sudokus

- Crossword puzzles
- Negotiating clues
- Virtual Padlocks
- QR codes



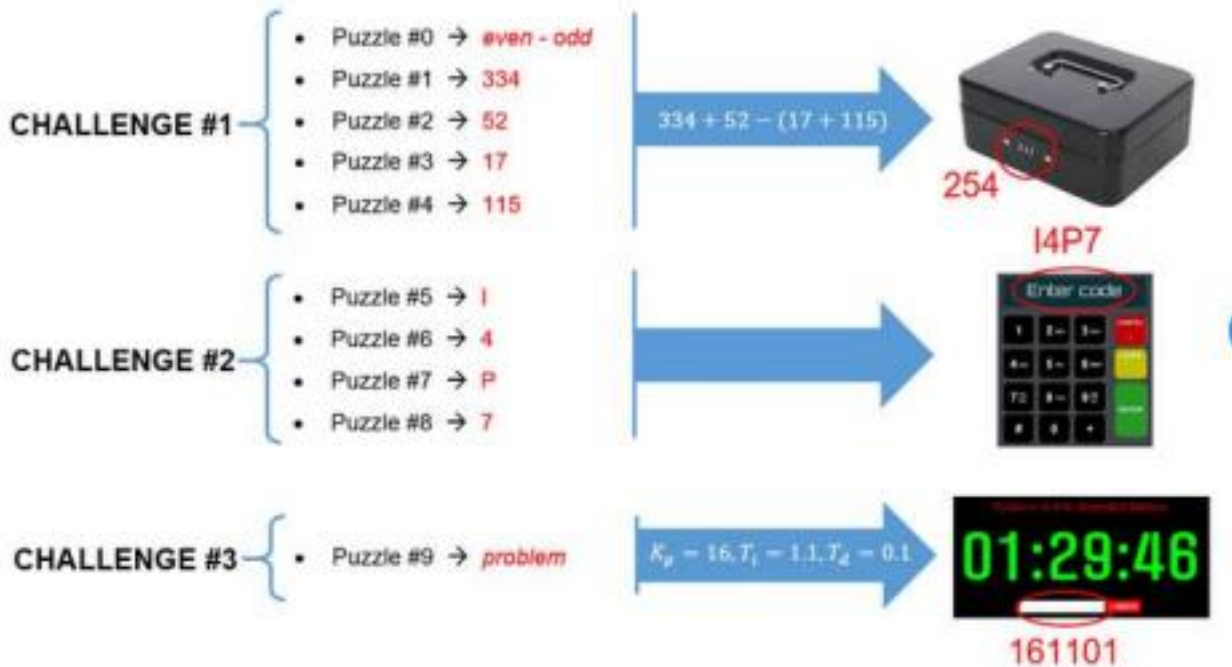
Students do not need to find a tangible item or unlock a real chest in digital puzzles. Digital puzzles can be regarded as a battery of tests for individuals in which students do not need to work in a group. The benefit is that they can be easily designed to examine students' content knowledge in specific fields directly.

An **escape room map** is useful for checking for consistency in the room

design, • Have you included a range of different types of puzzles?

- Have you included a range of different difficulties of puzzles?
- Have you used a variety of different types of lock?

Example of an escape challenges map of the classroom breakout designed to support learning of the course "Industrial Process Control". By Inés Tejado. Universidad de Extremadura



It is better to start with simple challenges and increase the difficulty as the game progresses. as the game progresses

Some useful resources...

[https://www.wordplays.com/crossword-solver/hidden-message-\(6,7\)](https://www.wordplays.com/crossword-solver/hidden-message-(6,7))

<http://bestcodes.weebly.com/codes-list.html>

<https://www.fakewhats.com/generator>

<https://www.fodey.com/generators/newspaper/snippet.asp>

<https://tickets.kadsoftwareusa.com/>

<https://wakelet.com/>

<http://www.365escape.com/Room-Escape-Games.htm>

It could be helpful to draw out a gameflow chart so that you can see the big picture of the how players will progress through your game.

This can also allow you to make decisions about when players will find certain clues and can help

you decide to layer a puzzle into pieces if you'd like. You can make the gameflow linear or have multiple paths to some solutions

- THERE ONLY ONE PATH TO GET TO THE END?
- ARE THERE DIFFERENT WAYS TO END THE GAME?
- MAKE SURE THAT ALL PATHS LEAD TO LEARNING

## And now Choose a Platform for your Digital Escape room

There are many online platforms to choose from.

### Zoom

Most virtual escape rooms are run through Zoom.

Google Sites ([sites.google.com](https://sites.google.com)). Use Canva ([canva.com](https://canva.com)) to illustrate the space

- with your own photos, graphics and drawings.
- Add and view clues on a Jamboard ([jamboard.google.com](https://jamboard.google.com)).
- Make digital puzzles and keys with Google Forms ([forms.google.com](https://forms.google.com)).

Before applying the escape room, the creators need to test all the puzzles and materials, determine the time needed for the activity, re-examine, and refine all the instruction.

Testing the escape room allows educators to discover mistakes in game design and to discover confusion around certain tasks to ensure students' success

Some tools for designing a virtual escape room.

- **Room Escape Maker**. Easily create a room model where you can connect game elements.
- **Genially**. Use the templates that come pre-designed

## Deck Toys

This free breakout platform has a unique immersive reader feature that can scaffold readers. You will need to create an account.

<https://deck.toys/>

## Digital BreakoutEDU

This site has tutorials on using google suite tools to create escape games. It includes a 5-minute introductory video, a template, and examples of embed pdf, google quiz, slide, and YouTube that can enhance your breakout.

<https://resources.breakoutedu.com/puzzleresources>

## Room Escape Maker

This free web application provides resources you need to create puzzles.

<https://roomescapemaker.com/>

## Build a Breakout Experience in Metaverse

This video is a detailed step-by-step guide to help you create a digital breakout using a free augmented reality platform, Metaverse.

<https://www.youtube.com/watch?v=bkCXRQndkkg&feature=youtu.be>

## Genially

This is a free application that helps with creating online interactive content.

This tool has a gamification section with templates you can use to get started. The premium templates are not free and are designate with a star. You will need to set up an account.

<https://app.genial.ly/templates/games>

## Google Forms

It offers the possibility to design surveys or quizzes.

*The escape room must work as an  
active learning environment. Don't forget to taste it!*

## 1.6. The Evaluation:

An essential part of any educational activities will be the evaluation which must be fair, formative, consensual and must consider the learning and teaching process. It is important that participants can talk about the experience. You must collect their impressions to improve it

Once the digital escape room experience is over, it is interesting to analyse with the group how they have solved, or not, the mission and what they have learned

A group briefing is therefore very important.

It is the moment to comment on what has worked and what has not, with the aim of learning and improving for the future.



### Open-answer reflection questions for the evaluation

1. Did individuals take certain roles in the team? What was yours?
2. What was motivating you to finish the activity?
3. What skills were necessary to succeed in this activity?
4. What would you have done differently?
5. Was there anything else that stood out to you? (Optional)

### Some examples of close questions

- I thought implementation would be a waste of time.
- I am not interested in escape rooms.
- I could cooperate with the rest of the students
- The process was very difficult to me.
- There was good cooperation with the group
- I shouldn't have involved with the escape room and the action plan from the beginning

To assess pre-knowledge and knowledge acquisition, a test based on the learning environment's objectives can be developed

It is also very important that the teacher evaluates his/her own escape room experience: Based on the feedback they have received, what aspects do they have to maintain, incorporate, improve and omit?



