GAMIFYING

EDUCATION

· Board games ·

H·A·N·D·B·O·O·K

GAMIFYING EDUCATION

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PLAYVERSITY

Playversity is an online hub for educational games and playful educators. We strive to change the way learning is perceived by spreading the use of quality game-based learning solutions in the youth work and education fields.

Youth workers, teachers, youth leaders, managers and everyone else who might benefit from using games in their educational process are welcome here.

We aim to create a community of game-based educators who will support each other, share their experiences, knowledge, and resources to improve the education process all around Europe and the world.

If you are curious to dive into the world of educational games and game-based learning news and would like to interact with like-minded individuals, then **join the growing online community of Playversity here**:

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About the project and handbook

This is the last of three handbooks produced within the project **"Gamifying Education"**. It introduces different types of games for learning and provides ready-to-use educational games that can be applied to school, summer camp, youth center or training environments.

"Gamifying Education" is a strategic partnership project focusing on exchange of best practices in game-based learning by further developing educational games, namely table-top games, escape games and live action games, that have been initiated during Key Action 1 training courses and hold big educational value potential.

The strategic partnership aims to further develop, share and promote game-based learning practices as an efficient and innovative approach to learning and to make game-based learning more present in formal and non-formal education institutions.

This handbook is divided in three main sections: the first one is dedicated to a **brief introduction to game-based learning** and the analysis of board games as a learning tool. In the second section you will find the scenarios of **five board games** which can be accessed in separate folders and contain:

- **Game outline** with detailed description of the game, step-by-step gameplay, introduction stories, debriefing questions, tips for follow-up activities and list of materials.
- **Printable materials.**
- **Additional documents** to make it easier for the facilitators to prepare and run the games.

Lastly, in the last pages you can read the **testimonials** of the youth workers and educators who took part in the third training mobility of "Gamifying Education", implemented from 13th to 17th of October 2022 in Galicia (Spain).

The organisations behind

et.shokkin.org
@shokkinest

Shokkin Group (Estonia) is a youth organization composed of young people aged 15-30, youth workers, educators and youth work trainers.

The organization was founded in 2011 with the main aim of empowering young people of Estonia to live a pro-active lifestyle by providing them with opportunities for personal, professional and social growth.

beinternational.cz
@beinternationalngo

Be International is a youth organisation based in Brno, Czechia.

We believe in a world where young people enjoy their learning, are engaged in public affairs and develop themselves through non-formal education.

Our journey towards a better world leads through synergy of local activities, international youth mobilities and volunteering.

ticket2europe.eu
@Ticket2Europe

Ticket2Europe is an organization founded in 2016 with the mission is to open up new paths and development possibilities for young people, specially those in NEET situation or coming from regions with geographical obstacles.

Its activities and projects focus on areas related to European values and topics such as human rights, social inclusion, peace building or youth employability.

@PuzzleOptimEast
@puzzle.optimeast

Puzzle OptimEast is a youth organization based in Romania since 2014 as a place where youth have the opportunity to grow in a safe environment and prove that in small towns it is also possible to be active.

Its activities focus on the fields of personal and professional development, entertainment, culture, sport, and tourism through non-formal education activities and equality.

Funding bodies

Erasmus+ is the EU's programme to support education, training, youth and sport in Europe. With a budget of €26.2 billion for the period 2021-2027, the programme places a strong focus on social inclusion, the green and digital transitions, and promoting young people's participation in democratic life.

Erasmus+ has opportunities for people of all ages, helping them develop and share knowledge and experience at institutions and organisations in different countries. The programme also offers opportunities for a wide range of organisations, including universities, education and training providers, think-tanks, research organisations, and private businesses.

More information: **ec.europa.eu/programmes/erasmus-plus/about_en**

To bring Erasmus+ as close as possible to the participants and make sure it works well across different countries, the EU works with National Agencies to manage the programme.

The National Agencies are based in Programme Countries and their role involves providing information on Erasmus+, selecting projects to be funded, monitoring and evaluating Erasmus+, supporting applicants and participants, working with other National Agencies and the EU, promoting Erasmus+ and sharing success stories and best practices.

Games and game-based learning

What is a game?

It is easy to imagine what a game is. Probably all of us played games with our peers in the streets between blocks of flats, in parks, schoolyards and forests. Many of us played at least one video game or board game, visited an escape room or participated in a mysterious real life quest happening at a summer camp. Playing games is natural to humans, so you can probably imagine what a game is.

However, it is a more difficult endeavour to move forward from abstractly imagining to *defining* what a game is. There is a whole bunch of definitions, and we are not here to propose our own to you. Still, we picked a few of the ones we like and want to show them to you if you are interested.

If you are not really into theoretical frameworks, feel free to skip this chapter.

In her book *Reality is Broken*, Jane McGonical writes:

"When you strip away the genre differences and the technological complexities, all games share four defining traits: a goal, rules, a feedback system, and voluntary participation."

- The **goal** is the specific outcome that players will work to achieve. It focuses their attention and continually orients their participation throughout the game. The goal provides players with a sense of purpose.
- The **rules** place limitations on how players can achieve the goal. By removing or limiting the obvious ways of getting to the goal, the rules push players to explore previously uncharted possibility spaces. They unleash creativity and foster strategic thinking.
- The **feedback system** tells players how close they are to achieving the goal. It can take the form of points, levels, scores, or progress bars. In its most basic form, the feedback system can be as simple as the players' knowledge of an objective outcome: "The game is over when . . ." Real-time feedback serves as a promise to the players that the goal is definitely achievable, and it provides motivation to keep playing.
- Finally, **voluntary participation** requires that everyone who is playing the game knowingly and willingly accepts the goal, the rules, and the feedback. Knowing establishes common ground for multiple people to play together. And the freedom to enter or leave a game at will ensures that intentionally stressful and challenging work is experienced as safe and pleasurable activity.

Dave Gray, Sunni Brown and James Macanufo claim that every game has five basic components:

Game space: A shared, alternative world where the rules of the real world are suspended and which the players enter willingly. Players technically agree to suspend reality and replace it.

Boundaries: A game has boundaries in time and space (e.g. when the game starts and ends, outlined playing area).

Rules for interaction: Technically a component very much connected to game space - by following the rules, the game space can exist without being violated.

Artifacts: Objects that hold information about the game. A ball that should be kicked, a pawn (or even a player!) that can be moved, a card that can be played, a progress bar that tracks the health of a character. These are all examples of artifacts.

Goal: A moment that defines the end of the game. Some games are timed, others end when a certain amount of points is accumulated.

In *Rules of Play*, one of the core books on game design, Katie Salen Tekinbas and Eric Zimmerman even have a whole chapter in which they compare eight different definitions and come up with their own:

"A game is a **system** in which **players** engage in an **artificial conflict**, defined by **rules**, that **results** in a **quantifiable outcome**."

Naturally, they almost immediately challenge the definition by providing examples of games that do not strictly fit into it, only to conclude:

"Sometimes the answer to the question of whether or not a game is a game rests in the eye of the beholder. Any definition of a phenomena as complex as games is going to encounter instances where the application of the definition is somewhat fuzzy."

What is game based learning?

Game based learning for us is an approach in learning design when the educator incorporates games in the curricula they create with the intention to engage students in the learning process, spark curiosity towards a theme, start a discussion in a group, wrap content in a more interactive format or provide an embodied experience that prolongs the learning effect. In a shorter manner, **game-based learning is the intentional use of games or game elements in the educational process.**

Games can be used as a way to introduce a new topic, discover one in depth or even assess the acquired learning. Thus, we don't introduce games as a standalone panacea for learning, but as a powerful tool to enhance engagement in combination with the whole pedagogical instrumentarium.

Game-based learning is intimately intertwined with *gamification:* the process of applying game elements to other areas of activity. Indeed, what occurs in a classroom has more in common with a game than one would expect.

Let's take a closer look at the definition proposed in *Rules of Play*: "A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome."

Imagine students as players. Look at the artificiality: schools as we know them are socially constructed (a space that the players enter, if you wish). Is there a conflict happening at school during the learning process? Are there levels of cooperation and competition naturally occurring? Do you see the rules that set certain limitations on the players? And what is the final goal? Could each school year constitute a level? Could the whole high school constitute a game?

Schools and the learning processes create an environment which naturally invites us to gamify it. One of the simple examples that are becoming more and more popular are badges: a kind of award distributed to the students after completing a course, acquiring a new competence or performing in a certain way. *This* would be gamification. However, it is not what we refer to as game-based learning.

In game-based learning as we understand it, we use the game itself - not just game elements - as an activity that will provide the learners an opportunity to gain new knowledge, skill or even an attitude. In this handbook you will find a set of games that were created specifically with this intent.

Board games

In this manual, we understand **board games** as tabletop games in general. This means such games do not need to have a physical board on which the players roll dice or move their pawns. Some of the games included in this handbook are card games without a board being present on the table.

The timeframe of each game depends on specificities, however, when it comes to educational board games, usually shorter is better – going well over 40 minutes can become a nuisance. Usually, these games can be played between 2-6 players, which allows us to run several games simultaneously.

Most of the time, there is a game master, somebody to introduce the game, explain the rules and, if needed, guide the players through the process. In some cases, it is enough for the game master to open the world, introduce the rules and then just observe from a distance without interfering – unless specifically needed.

There are various elements which can be used in board games – boards, pawns, elements of luck connected with drawing cards or dice rolling. Strategy plays an important role and choosing the right strategy can be very well connected to the learning goal of the educational board game.

How to facilitate board games: TIPS

A **game master** is a person who takes up the task to facilitate the game. We see game masters as the ones responsible for opening up the new world for the players, leading through the experience and closing the world without leaving anyone stuck in the game, while bridging the lived experience with the real world and the lessons learnt.

When facilitating board games, a lot will depend whether you have multiple games running in parallel or your whole attention is on one game.

Board games can handle facilitator interventions easier than escape or live action games, as our attention switches easily between the game world (table) and the real world (surroundings) so interaction between the facilitator and players during the first few turns or rounds is not a problem.

Set up the game in advance and play through it physically

Check the material list and make sure to have all of the materials gathered in one spot hours before the game. You won't even believe how often last minute printer issues happen or how often very simple materials are not available in the shop at the exact time when you need them the most. So spare your nerves and prepare your props in advance.

Have the rules printed per playing table

If you are playing with more groups simultaneously, make sure that you have one copy of the rules printed for each group. Always make sure you have more rules than tables printed just in case.

Brief the players on the game rules at once

If multiple games will be played in parallel, make sure to present the rules to the whole group. We would also recommend to write a simplified version of the rules on a flipchart where basic actions and turn order are visualized.

Be available to assist

Be present to clarify questions of individual players or the whole table. Make sure you understand the rules yourself to react quickly to any potential confusion over the rules.

Observe but don't intervene

Unless you see there is a situation which requires intervention (e.g. the rules being misinterpreted to a level which breaks the game), do not intervene. Do not give hints to the players. Of course, this does not apply to the situations where you are explicitly asked to assist.

Provide a reflection exercise

Debriefing is a crucial part of an educational game experience, so never underestimate it. There are high chances that one of the groups will finish earlier than others. Be ready to provide them with a set of questions to start discussing at the table while others are still playing. After everyone is finished, lead the debriefing. Gather common thoughts and make sure to connect the game with the real world and provide a follow-up possibility in the form of a handout, link to a documentary or a lecture perhaps or anything else that you will find relevant.

Step-by-step creation process

Board Games

As Jesse Schell said in *The Art of Game Design: a book of lenses*: "...You could no sooner become a singer, pilot, or basketball player by reading a book than you could become a game designer. There is only one path to becoming a game designer, and that is the path of designing, and more to the point, designing games that people really like. That means that simply jotting down your game idea isn't enough. You must build the game, play it yourself, and let others play it...".

In this section of the "Gamifying Education" handbooks we introduce the logic we use to create a specific type of educational game but this is no magic recipe of creating a great game.

When creating an educational game, think of the dynamic and emotional state that you want to place the players in. What do you want them to experience, which emotions to have and what feelings to generate throughout the playing process. As any educational tool, a game creation process has to start with a portion of research to create a game that will be applicable to the learning needs and attractive to the target group.

So how can you create an educational board game, you might be wondering?

Here is a brief step-by-step suggestion:

1. Identify your target group

When designing any educational activity, we should start from looking at the potential target group and their learning needs. We take an opportunity to look at what they already know about the game topic and what they should realize and know about the topic. What the curriculum or the training program suggests the learners should understand in regards to the topic of the game developed.

2. Set preliminary learning outcomes

Setting preliminary learning outcomes is crucial in the design process. We want to analyse what relevant knowledge should the players acquire through the game, which skills they should have a possibility to practice and which attitudes or behaviors we can challenge or desire to adjust.

3. Brainstorm the desired dynamic state and game flow

Think about the concepts and frameworks which underline the game. Is the game competitive, cooperative or should contain elements of both? What are the risks and what role should strategy play? Will the game create a feeling of adversity among the players, or do you aim for a feel-good atmosphere? Should the game contain strong social elements such as negotiations?

4. Identify limitations

Before creating the gameplay it is important to set the limitations according to the resources available. What should be the gameplay length and the game session length, what is the ideal number of players, are there limitations stemming from the nature of your target group (age, skill level) and what materials are available or required for the game to be played.

5. Brainstorm mechanics, components and the relations between them

Start thinking about possible mechanics of the game. What are the possible resources, how will you approach scoring, moving, and interaction with game elements? What are the components? Will you use pawns, cards, tokens, is there a board? Visualize the relations between these components to see what can happen.

6. Identify the gameplay and win/loss conditions

Define who starts the game, what is the order of turns and rounds and possible actions. How many actions can be made by a player in one turn (action economy) is also an important aspect to consider. And do players play only on their turn or are they allowed to somehow interact during the turn of another person? Also, think about the goal – whether the game will end after a certain number of rounds, when a certain resource is depleted, when somebody reaches a certain amount of points or any other win/loss condition that fits your concept.

7. Test the raw system

What we often see is developers immediately starting to design complicated visual materials without properly testing. Do not think about the aesthetics yet. Just use a bunch of papers, stones, a crude board etc. First, Gather a few colleagues or friends and have them play the game with them. Observe. See what needs to be adjusted. Adjust and then test again.

8. Cross check with the learning outcomes

Your game is almost ready. At this point, you can critically look back, and see what needs to be adjusted to fit the learning outcomes. You can design the debriefing (after-game discussion) or any other learning-extraction method (after-game movie, self-reflection exercise, fact sheet, etc.) that makes a logical conclusion to the game.

9. Create aesthetics

Move on from the board scribbled on a piece of paper and roughly cut cards with simple markings on them towards something more aesthetically pleasing. Think about aesthetics which represent the feeling of the game, its story and the topic. What colors and shapes should be used? Are there pawns, progress bars, tokens? And – importantly – are the materials going to be printer-friendly and easy to cut out, if needed?

10. Define rules

At this points, you have an idea what the rules should be like. The initial testing probably uncovered a few situations which you did not think about originally.

11. Test and Iterate towards the MVP

Testing the game with the target group will allow you to identify any bugs in the game system and see what the weak points are. After each test it is important to gather feedback from the players and adjust some of the elements on the go.

Once you feel like the game is ready, write down the rules, tips and tricks into an outline, design the final materials and *voilà!* you have your minimum viable product.

Game scenarios

Who Hacked You?

Learning Outcomes:

1. To raise awareness about personal data security and safe use of the online environment.
2. To motivate young people to safely use the Internet.

In this game, players are contacted by their bank account managers, who tell them that they fell victim to an internet scam. Now, in order to get their money back, they need to find out who out of seven possible hackers is responsible and what was the scam they used.

By attacking other players, defending themselves from attacks and using special cards, they will be able to reveal pieces of hidden information about the attackers.

Which player will be the first to find out WHO hacked them and HOW?

Who Hacked You? focuses on providing a common ground for discussing and exploring digital security.

Group Size: 4-6 players
Player Age: 14+
Game Time (with debriefing): 45 minutes

Game outline and printable materials

Why would you recommend playing *Who Hacked You*?

"This game offers a nice introduction to the topic. With it you can get information about the most common internet scams, dangerous behaviors, but also good practices and ways to protect yourselves."

Michaela Weingartová
Czech Republic

"I would recommend playing *Who Hacked You* to open up discussions about internet safety and how to stay safe online."

Philomène Perroches
Estonia

"*Who Hacked You* is an easy game to play where you can learn a lot about how to be safe in the online environment."

Gabriela Cozma
Romania

"I would recommend playing *Who Hacked You* because it was a very easy to understand and engaging game that allowed us to dive into the subject of data security. I was able to find out what I should do differently to protect myself!"

Kaitlin Safka
Estonia

FRAUD

Learning Outcomes:
1. To experience non-transparency.
2. To raise awareness about processes leading to corruption.
3. To introduce the topic of good governance.

Group Size: 3-5 + a facilitator
Player Age: 16+
Game Time (with debriefing): 60-80 min

In this game, players take up the role of elected governmental deputies. Their task is to win by a combination of several factors: earning money, keeping their trust high and implementing projects.

However, the game provides plenty of space for behind the curtain negotiations, shady deals and corrupt behaviors. On top of that, being honest during the whole game also provides certain benefits...
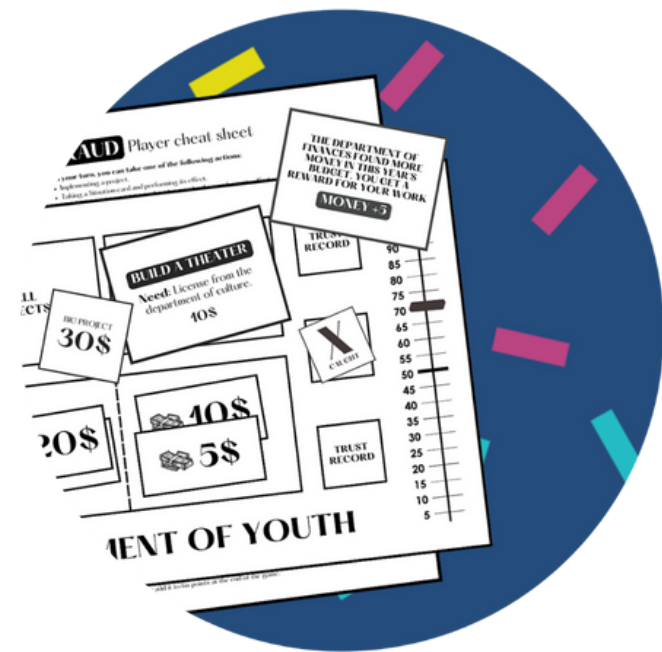
What approach will you follow?

FRAUD creates a unique atmosphere of distrust and invites players to explore their own behavior and reactions in such situations.

Game outline and printable materials

Why would you recommend playing *FRAUD*?

"It is interesting to see how people react and do things when they want to steal money. Also, it is interesting to see how you deal with some actions or emotions."

Alena Marju Astapova
Estonia

"*FRAUD* is such a good game! A lot of fun, role-play and strategy that allows you to understand the mechanism of corruption."

Pavla Heyduková
Czech Republic

"*FRAUD* is an interactive game where you will get to understand how systems work and how easy is it to steal when the whole system is corrupted."

Alex Barot
Czech Republic

"I would recommend playing *FRAUD* because it was a very interesting and fun way of opening up a conversation about governments, power, and morality."

Kaitlin Safka
Estonia

Guess Who in Reality?

Learning Outcomes:
1. To reflect on possible challenging situations that groups at risk of discrimination face.
2. To develop empathy towards various groups of people in the society.

In this game you take up the role of a concrete person and try to answer questions from their perspective while others try to guess who you are.

Will they guess WHO in reality faces these challenges?

Guess Who in Reality? is a thought-provoking card game with multiple playing modes that will trigger meaningful conversations about stereotypes, social inclusion and ouw own hidden prejudices.

The game explores topics connected to privilege, discrimination and builds up empathy towards people from diverse backgrounds.

Group Size: 2-4 players
Player Age: 14+
Game Time (with debriefing): 30-45 min

Game outline and printable materials

Why would you recommend playing *Guess Who in Reality?*

"I absolutely loved *Guess Who in Reality*, and I would recommend it for basically anyone. I think it is a great game to understand how other people might feel about some situations, to overcome prejudice and to learn to adapt to others' particularities. By answering questions from someone else's point of view I got to challenge some of my ideas and put myself in a position I might otherwise never be in."

Philomène Perroches
Estonia

"The game takes imagination, and perception to a high level and makes you realize that you do have certain stereotypes."

Daniel Iustin
Romania

"I really enjoyed this game! You try to understand human realities all around the world living in their specific life situations and you compete based on your own perceptions on that."

Pavla Heyduková
Czech Republic

"Playing *Guess Who in Reality* will make you think of different prejudices you may have and at the same time think about the society you live in and the way it treats minorities and people with disabilities."

Michaela Weingartová
Czech Republic

Speak it Up!

Learning Outcomes:
1. To practice public speaking with simulated extra pressure.
2. To become aware of important elements of public speaking.

Group Size: 3-5 players
Player Age: 15+
Game Time (with debriefing): 40-60 min

In **Speak it Up!** players need to quickly improvise and adapt to unforeseen situations and topics for discussion, building up their public speaking skills.

The games circles around improvised short speeches with funky tasks which players need to present to others and receive feedback in the form of game tokens.

Throughout the game, players have the chance to make winning easier for them, give an extra challenge to other players or battle other players for valuable points.

Who will be the first to collect three golden microphones?

Game outline and printable materials

Why would you recommend playing *Speak it Up!*?

"*Speak It Up!* helps you to have a much better oratory and puts your imagination to the test."

Daniel Iustin
Romania

"The game helps you face your emotions, because everybody has to speak in public, and emotions are a big influence on us. The same as pressure."

Diana Rusu
Romania

"It helps you work on your fear of public speaking and also you can have a fun through different types of challenges."

Alena Marju Astapova
Estonia

"*Speak It Up!* was a nice game, and during the tests we understood that it would be better if players wouldn't need to be only funny in order to win."

Gabriela Cozma
Romania

Terra

Learning Outcomes:
1. To raise awareness about correct recycling and learn how to recycle tricky items.
2. To motivate young people to recycle and promote recycling in their households.

Our planet is the most valuable thing that we have and we should take care of it, right? But how much do we know on how to properly manage the waste we generate in our daily life?

Terra invites young players to test their knowledge about waste separation and recycling and explores the different levels of harm that each type of waste creates towards the environment.

The game offers a certain amount of replayability and can therefore be easily adjusted in order to test newly gained knowledge of the learners days or weeks after the initial game.

Group Size: 2-4 players
Player Age: 8-14 years old
Game Time (with debriefing): 35-40 min

Game outline and printable materials

Why would you recommend playing *Terra*?

"A lot of fun and a really easy way to learn about recycling in a fast and practical way. Highly recommended!"

Michaela Weingartová
Czech Republic

"The game is easy, fun, and you learn important facts about sustainability very fast and in an understandable way. You get the information directly, you don't have to think about it."

Miruna Cândea
Romania

"I would recommend playing *Terra* because it is easy to understand, fun to play for actually any age, and communicates a message about recycling well and in an interesting way."

Kaitlin Safka
Estonia

"I would recommend playing *Terra* to learn about recycling and understand the importance of it and the environmental impact our every day actions have. "

Philomène Perroches
Estonia

Testimonials
Games as a learning tool

Why are games powerful learning tools?

"Board games are a fun yet efficient way to get a message across. They allow to deliver strong and sometimes harsh messages and 'lessons' in a safer and easier way. Being put in a situation is an effective way to learn from consequences of some actions without actually facing them in real life."

Philomène Perroches
Estonia

"Because in games people are free to be creative and explore a lot of different ways to solve some problems."

Miruna Cândea
Romania

Why are games powerful learning tools?

"Because everybody likes to play games (even they pretend to be 'too old' for it). Learning by playing is the best thing in life."

Diana Rusu
Romania

"Because with games you learn without noticing. It is fun, you learn by experience so the process is faster and deeper."

Michaela Weingartová
Czech Republic

Why should more games be played in the education field?

"Games should be implemented in more classrooms as a tool for education because they encourage participation and an engaging environment, which is infinitely important when trying to communicate an idea to a group of people."

Kaitlin Safka
Estonia

"Because a lot of kids have difficulties working for long periods of time with traditional learning tools. Board games offer them another path."

Javier Lago
Spain

Why should more games be played in the education field?

"Games are often seen as 'childish' tools, while they are a key part of learning. They should absolutely be included in the education, to motivate kids to learn, to speak about specific topics and to bring another light on education."

Philomène Perroches
Estonia

"Because people are learning a lot of skills without feeling like they work for it but by having fun. So there don't feel like they wasted so much energy."

Miruna Cândea
Romania

Acknowledgments

This manual is the result of the work done by coordinators, trainers and participants of various international training courses and local teams over the course of "Gamifying Education". This is the space to recognise the contribution of our respective communities and associated partners for making it possible. We would like to acknowledge the following projects and coordinating organisations:

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- *Guess Who in Reality?:* Mar López, Sara Šink, María Puga.

- *Speak it up:* Rudolfs Pauders, Augustina Ryliškytė, Gabija Mikalauskaitė.

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Never stop playing!

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