



Erasmus+ **injuve**



GAME ON

DEVELOPING EDUCATIONAL BOARD GAMES
FOR YOUNG ENTREPRENEURS

the manual





Game On: Developing Educational Board Games for Young Entrepreneurs

THE MANUAL

2019

This manual was produced as an Intellectual Outcome (IO1) of the Strategic Partnership project “**Game On: Developing Educational Board Games for Young Entrepreneurs**”.

The project was implemented by Ticket2Europe (Spain) in collaboration with Shokkin Group International (Estonia), Awesome People (Sweden) and Solidarity Mission (Greece) with the support of the Spanish National Agency INJUVE.

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**PEOPLE RARELY
SUCCEEDED UNLESS
THEY HAVE FUN
IN WHAT THEY
ARE DOING.**”

Dale Carnegie



INTRODUCTION

THE PROJECT

"**Game On: Developing Educational Board Games for Young Entrepreneurs**" aimed to develop innovative board game-based methods that promote entrepreneurship education and develop entrepreneurial skills of young people through co-creating, testing and spreading new educational board games in the local communities of four countries.

The project, a **KA2 Strategic Partnership for Youth Innovation** under the Erasmus+ programme, lasted from February 2019 until July 2020 and involved a partnership between four organizations from Estonia, Greece, Spain and Sweden.

The main activities of the program were **four Transnational Meetings** in each one of the participating countries (with the purpose of monitoring and co-organizing the steps of the project) and a **Training Course** implemented in Estonia in March 2020 with the purpose of training educators on how to use the innovative methods and board games in their field of work. The project produced two main **Intellectual Outputs**, the first one being this **board game development manual (IO1)** and the second one being **four educational board games (IO2)** on the topic of entrepreneurship education aimed at youth from various backgrounds.

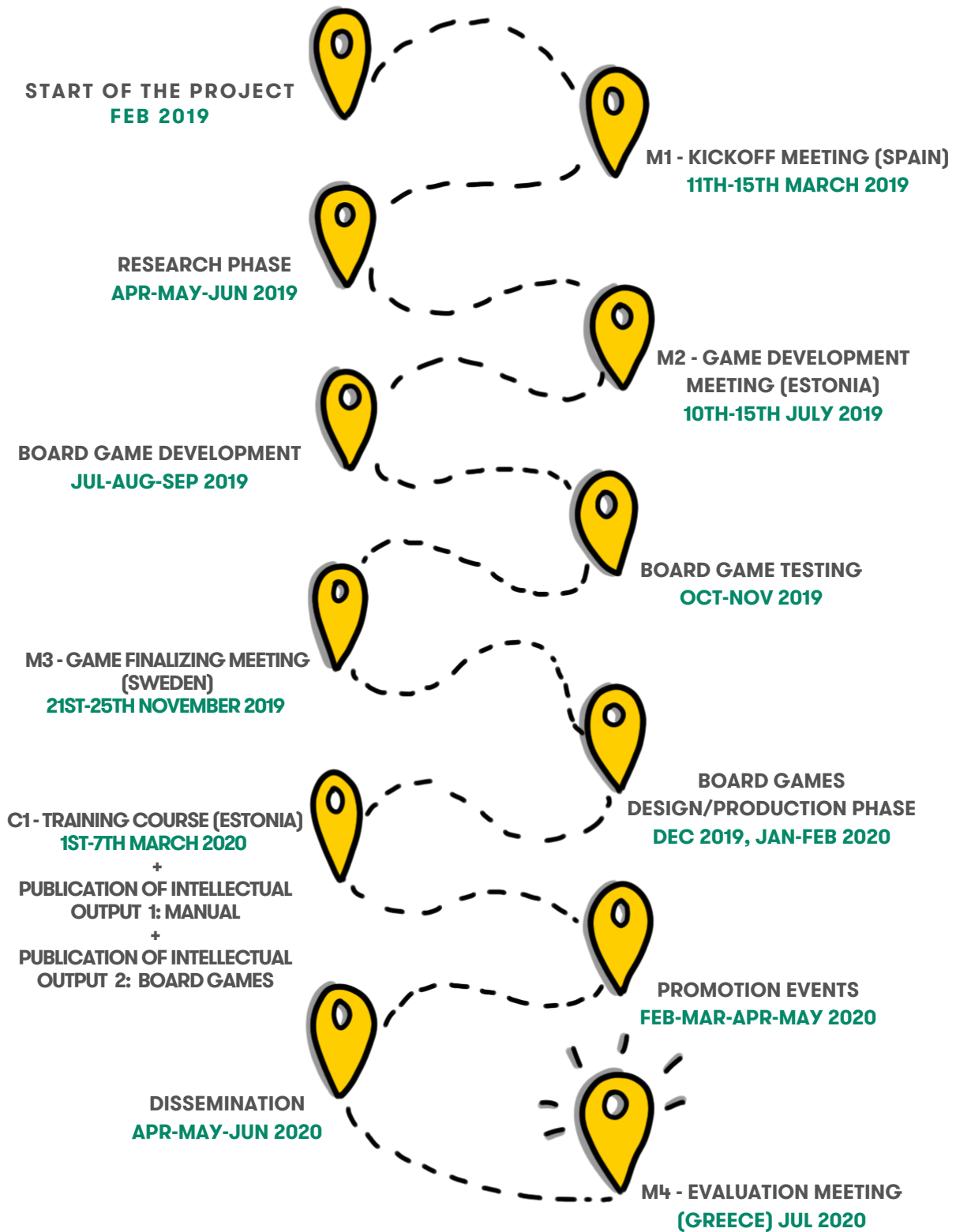
The project's objectives were:

- To explore entrepreneurship and the use of board game mechanics applicable to entrepreneurship education with young people;
- To design, test and promote four educational board games developing entrepreneurial competencies of young people;
- To promote game-based learning and the use of board games among educators through training them in using innovative methodology;
- To strengthen cooperation between youth organizations and educational institutions for joint development of entrepreneurship education;
- To increase operational capacity of partner organizations in delivering quality entrepreneurship education services to young people and educators;
- To develop young people's entrepreneurial competences by the means of using educational board games.

"Game On: Developing Educational Board Games for Young Entrepreneurs" was supported by the Spanish National Agency ANE and Instituto de la Juventud (INJUVE).



PROJECT TIMELINE



FUNDING BODIES



Erasmus+ is the EU's programme to support education, training, youth and sport in Europe. Its budget of €14.7 billion will provide opportunities for over 4 million Europeans to study, train gain experience, and volunteers abroad.

Set to last until 2020, Erasmus+ doesn't just have opportunities for students. Merging seven prior programmes, it has opportunities for a wide variety of individuals and organisations.

Detailed information on these opportunities, including eligibility criteria, is available in the Erasmus+ Programme Guide. Erasmus+ has opportunities for people of all ages, helping them develop and share knowledge and experience at institutions and organisations in different countries. Erasmus+ has opportunities for a wide range of organisations, including universities, education and training providers, think-tanks, research organisations, and private businesses.

More information: https://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+; sharing success stories and best practices.

More information: <http://erasmusplus.injuve.es/>



ABOUT THE PUBLICATION

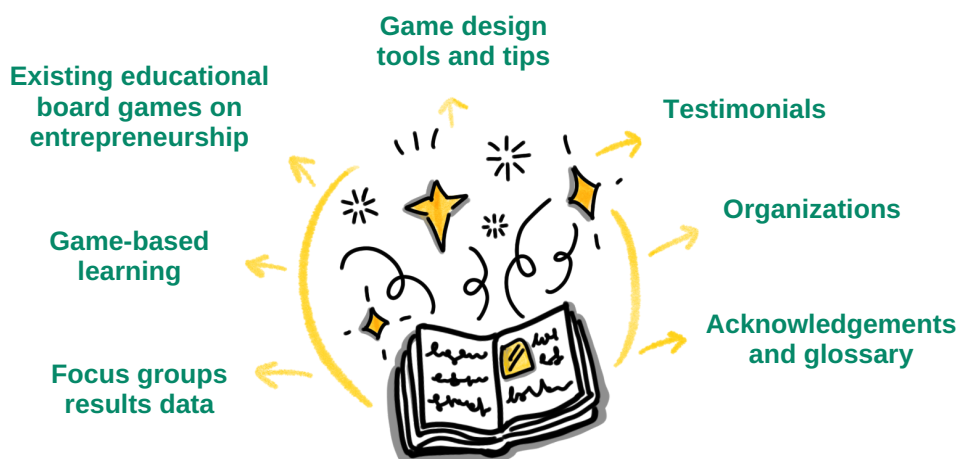
“**Game On: The Manual**” is one of the main intellectual outputs developed during the long-term project of the same name as an educational board game development resource. It holds theoretical and practical information for educators, youth workers, youth organizations and other stakeholders of the education and youth work fields who would like to develop educational board games in their work.

The topic is innovative, as there are no open educational resources that give practical information on educational board games, their development logic, tools for creation and gathers examples of games that can be adapted, developed or used.

Inside this manual you will have the chance to:

- **Learn** about available educational games related to the topic of entrepreneurship which exist in each participating country;
- **Understand** the current presence and use of educational board games, based on the research that each partner implemented in their country and local reality;
- **Explore** game design methods, tools and frameworks that you can use in your work field in order to develop educational board games on various topics;
- **Get inspired** by the experience and perspectives of the team involved in the project.

The manual is divided into seven chapters organized logically from the contextualization of our working topics to practical resources and information about our organizations:



We hope that this manual will be a useful resource for educators and youth workers who want to enhance their work and impact by integrating the use of game-based learning through educational board games. Enjoy it!





FOCUS GROUPS RESULTS DATA

Over a period of two months, the partner organizations involved in the project carried out a series of focus groups with specific target groups on two different topics: on one side, the perception of entrepreneurship and the presence of entrepreneurship education in the educational/youth work fields and, on the other, the perception and applicability of educational board games in everyday life.

1.1 | FOCUS GROUPS RELATED WITH ENTREPRENEURSHIP

The answers on *what is entrepreneurship* are diverse, although most of the answers relate to businesses, enterprises, making a profit. The idea of identifying a problem, creating a solution and going from idea to action is also mentioned, showing that the concept of entrepreneurship does not only concern businesses, but can also be understood in a broader way, as in personal entrepreneurship, social entrepreneurship, etc. Participants also mentioned being flexible, the process of self-improvement, hard work, change-making, initiative and perseverance.

This gives also a deeper understanding of entrepreneurship characteristics, which shows the broader understanding of the concept. However, the general view of entrepreneurship can be summarized by the quote *“We do not have a clear view of an entrepreneur's profile. It could be someone who starts and develops their idea as a business”*.

Participants of several focus groups perceived entrepreneurship as not popular in their cities or a subject of limited interest. However dominant number of participants could name examples of local businesses, enterprises from small family-owned businesses to big corporations that operate in their cities, which shows there actually is some knowledge about entrepreneurial activities in their city. Focus group participants in Tallinn for example, stated that small and medium size enterprises are dominating and half of the workforce is doing some sort of business activity. Participants from different countries brought up that they feel that entrepreneurship is not encouraged among young people and some also mentioned that they see challenges of starting your own business related to taxes, law, bureaucracy and lack of starting funds.



In all countries, participants agreed on the fact that they have not heard so much about entrepreneurship in school. The ones that had, had this experience in upper secondary school or university. In both Sweden and Estonia entrepreneurship is integrated in the curriculum and in upper secondary school they have the opportunity to join the Junior achievement (UF in Swedish) which is a program where the students during one year in high school get to start their own business. In Greece and Spain entrepreneurship is not integrated in the curriculum and they don't have the Junior Achievement program. In these countries, some participants expressed that they did not receive any proper information about entrepreneurship and others had only touched the subject in geography class when talking about corporations' effect on the environment.

In university, more participants witnessed they had been working more with the subject, drafting a business plan, presentations on entrepreneurs, terminology, essays etc. The approach on the subject in university is more theoretical than practical, though, and directed to those who have chosen courses where entrepreneurship is included.

In all countries participants agreed that entrepreneurship is important in the 21st century. They mentioned it is important to know different skills that are connected to entrepreneurship. Some brought up that it needs to be done in a different way, focusing more on sustainability (not only economic sustainability but also ecological and social impact.) In Spain participants mentioned that the reason entrepreneurship is not important is that there are so many obstacles to due to globalization and the influence of big enterprises and high taxes that it makes people lose interest in it.

In all countries participants wanted to learn more about entrepreneurship although participants in Spain emphasize the difficulties of having learning experience from enterprises and think the skills should be taught in schools or universities rather than in companies since they can't see that companies want you to learn about entrepreneurship, they want you to work for them.

There are many things that participants want to learn when it comes to entrepreneurship, they want to know all the steps when it comes to starting a business, also know how to fail and how to deal with failure but also how to succeed, negotiate, researching skills, or investment. Participants had many ideas on how they would like to learn about entrepreneurship. Several people wanted to hear stories from entrepreneurs, do job-shadowing, internships, study visits etc. Many people also brought up gamified learning with role play, interactive games, board games for different skills, etc.

What we can derive from the answers is that there is a need of learning more about entrepreneurship in schools and this should be done already in primary school. There is a need of having more practical and gamified learning.



1.1 | FOCUS GROUPS RELATED WITH GAMES

In general, when asked **why they like to play games**, most of the answers in all countries were related to the fun and social factor of games. Young people refer to the creativity and imagination that games can trigger together with the development of certain skills applicable in their daily life and the existence of a concrete goal to be achieved. Games provide players with excitement and a friendly atmosphere in which they can establish new bonds, they gain a sense of accomplishment and the opportunity to disconnect from their daily life, relax and immerse themselves in a different world while they socialize with family or friends.

Focus groups results also showed many common points when it comes to identifying **what makes a game good (how games should be)**. Here we can divide all answers in different categories:

- *Gameplay and flow*: good games should have engaging and interesting storylines, with various levels of progress/difficulty, and be based on players' choice which influence the outcome of the game (various endings). Games should be dynamic, creative and surprising for the players as the action de-rolls (unveiling factor).
- *Rules and replayability*: games should have clear rules, which are easy to understand and make it easy to understand how to play, but still games should be challenging enough in the way they are played. Games should not be repetitive and be replayable (with different processes and results every time). Other highlights mentioned include the need for interaction with peers, getting awards for achievements, still focusing in the human interaction.
- *Aesthetics and format*: participants of all countries agreed that games should have an appealing design, with attracting colors and visualizations that catch their eye. They should also be easy to transport, not too heavy or big.
- *Amount of players*: participants of all countries also agreed that games should be playable with at least four people, while being scalable to be played with the whole class (in the context of school/university).



Youngsters from all countries also agree that games **lose their attractiveness (how games should not be)** when they have difficult rules which take too long to read and understand, when it is easy to predict the end or when there is a clearly dominant strategy that makes you win all the time (luck factor must exist). More negative characteristics include sameness (always the same situations, just different rules or characteristics), having too many different pieces, being too competitive or being played by only one or two players (importance of interaction and exchange with peers).

During the focus groups, players were also asked for the **presence of games in the school/university environment**. Here the results from different countries are also homogeneous, with the participants expressing the lack of games played in middle and higher education in comparison with early school cycles (primary school).

When present, most games played in schools are connected with language learning (Kahoot, Hangman, Scrabble) or data memorization. Other gamified sessions in school involve only physical games, not any form of board games.

Participants from all countries agreed that they would love to have more games in the formal education environment, stating that they miss integrating games in their learning and, in the case of high school students, that they have the feeling that teachers give them a lot of information and data to just memorize not very useful apart from the fact of completing an exam.

Participants think it is easier to understand lessons by playing a game, as the learning process becomes more engaging and appealing. Games can be a really nice way of learning burdensome knowledge (for example: the muscles that you have in the body) making the task less tedious. Some of the participants also claimed that sometimes they looked for electronic games on the Internet related with the content they are learning at school to point out how much they lack gamified methods in the classroom.

"When present, most games played in schools are connected with language learning (Kahoot, Hangman, Scrabble) or data memorization. Other gamified sessions in school involve only physical games, not any form of board games."





GAME-BASED LEARNING

In this chapter you will be introduced to the concept of game-based learning, its applicability to the educational field, explore the different game and educational game elements and go deeper in the classification of game types and board game styles.

2.1 | WHY TO USE GAME-BASED LEARNING?

The definition of game-based learning is simply *learning through games*. Since playing is one of the most natural ways for learning, we see the power of using games in education. Educational games can be used to:

- Repackage academic content into an appealing form;
- Promote critical and strategic thinking through playing;
- Engage students not otherwise engaged with the topic;
- Support both struggling and talented students allowing space for exchange.

Games force players to play the rules of the game's universe (or they are designed to let the players create their own rules). This requires students to understand complex ideas (resource management, political tactics, diplomacy or communication, for instance). Unlike a traditional lesson or activity, in game-based learning, players have to learn the rules and then respond to a constantly changing world.

Games of any kind (whether serious games like *Fate of the World*, simulations like *The Universe Sandbox* or popular games like *The Last of Us* or *Fallout 3*) encourage practice, competition, self-direction, scaffolding, collaboration, trial-and-error persistence, patience, strategic thinking, self-efficacy (for some), and a variety of other important competencies.

Source: The Difference Between Gamification And Game-Based Learning (2019)
Retrieved from <https://www.teachthought.com/learning/difference-gamification-game-based-learning/>



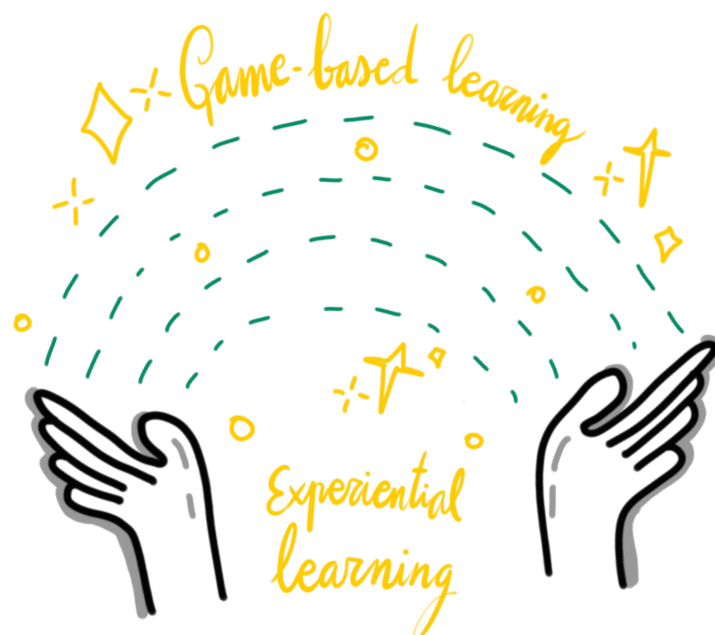
Educational value of games depend a lot on its implementation and/or facilitation, similar to experiential learning approaches that look at learning that occurs from specific experiences or events. Game-based learning and experiential learning go hand in hand. For example, one of the strategies used in experiential education is debriefing or reflecting on the experience. In other words, learning from direct experience is not left to chance. The educator becomes proactive in debriefing or processing the experiences to increase the chances that learning occurs. This is in line with John Dewey's ideas, 'We do not learn from experience, we learn from reflecting on experience.'

Source: Di Stefano, G., Gino, F., Pisano, G., & Staats, B. (2014) Learning By Thinking: How Reflection Improves Performance. Harvard Business School.

Key concepts of experiential learning include:

- Learning from direct experience can be more effective if coupled with reflection, that is, the intentional attempt to synthesize, abstract, and articulate the key lessons taught by experience.
- Reflecting on what has been learned makes experience more productive.
- Reflection builds one's confidence in the ability to achieve a goal (i.e., self-efficacy), which in turn translates into higher rates of learning.

Same as in game-based learning, we look at every game as an experience that players went through and use the chance to discuss the experience, reflect on actions and look at what it may entail in the long run.



2.2 | WHAT MAKES A GAME?

Before developing a game, we should first understand what it actually is. Jesse Schell, a game designer and author of *The Art of Game Design: a Book of Lenses* (Elsevier/Morgan Kaufmann, 2008) defines a game as “A problem-solving activity, approached with a playful attitude”.

This is one of the definitions that we like the most, as it suggests the structure of a game, the set of meaningful choices that should be taken, the importance of a challenge and the playful attitude bringing safety of a game environment. To distinguish a game from a mere act of playing, we see that games should have the following four elements:



GOAL

The goal here is not winning, per se, but it relates more to a situation where players use their skills to achieve a particular end point. In badminton, that end point arrives when the shuttle has landed on the court of the opponent, while the end point in soccer is when the ball goes into the goal.

Consequently, the skill required of the badminton player is to strike the shuttle over a net to a point where the opponent cannot return it, while soccer players must kick the ball with their feet or strike it with their heads away from the defenders and past the goalkeeper.



RULES

The second necessary condition is that a game must have rules. These rules provide both descriptive and defining frameworks for how the goal is to be achieved. The descriptive framework describes the setup of the game and its equipment, while the defining framework stipulates what means of play is required and permitted.

In volleyball, for example, the descriptive framework refers to the measurement of the court, the net and its height, and the type of ball that is used. The defining framework of volleyball is that the ball is not allowed to touch the ground and that you are allowed three hits to send the ball over the net.





RESTRICTIONS

Games will also include rules about what is not allowed in the course of play. Nearly all games include rules that favor less efficient over more efficient ways to achieve the goal. Indeed, sometimes the most logical and easiest solution is not available. Take soccer, for example. Most of us would agree it would be easier to throw the ball into the goal than to kick it. However, if this were the case, soccer would cease to be soccer and would become handball. Limits are put in games in order to make them fun and challenging. Whereas in work and daily life we try to avoid all unnecessary obstacles, in games we do exactly the opposite.



ACCEPTANCE

The fourth necessary condition to legitimize a game is the acceptance of the constitutive rules. Unless all players are operating from the same set of rules and agree to these, the game cannot exist. Although fair play is defined as conduct that adheres to the rules, it is still preceded by the acceptance of these rules in spirit so as to make the game possible.



2.3 | WHAT MAKES AN EDUCATIONAL GAME?

Educational games are designed to help people learn about certain topics, expand concepts, reinforce development or assist them in learning a skill as they play. They use motivational qualities of games for relevant learning purposes, meaning *knowledge acquisition, skill acquisition or training and/or attitude or behavior change*:



KNOWLEDGE ACQUISITION THROUGH GAMES

Games where participants need to read through information, recall specific words, facts or information provide space to acquire knowledge in a thematic setting where they can compete with each other or against the time or record or even the teacher.

A game connected to geography can easily let players identify capitals of countries and place them correct on the map alongside learning specific facts about the cities or countries.



SKILL ACQUISITION/TRAINING THROUGH GAMES

Games where participants need to negotiate, create a strategy, make choices or have certain freedom of action and flexibility can help players develop specific soft skills or acquire them in the social context of a game.

A short game simulating a job interview can train a player to answer questions with confidence, be ready with examples and be better at answering the interviewer's questions.



ATTITUDE/BEHAVIOR CHANGE THROUGH GAMES

A game engages the players into an environment away from the reality of the room where the game is played. It allows them to experience various emotions and feelings over a course of a game and has potential to open up serious topics and allow participants to reflect on their choices, behaviors and prejudgements.

A simulation game of unequal treatment based on some physical characteristic can be a powerful opener for discussing discrimination, its reasons and consequences as well as reflecting on own prejudices that might lead to discriminatory behavior.

Educational games are enhanced when incorporated into a specific context that is relevant for the players. Games can be used as a starting point to a topic where participants first struggle: they play a game and then are introduced to a theoretical knowledge of how to approach the topic or to turn theory into action.



2.4 | SETTING UP LEARNING

In order to develop an educational game, it is important to put down learning outcomes that will be relevant to the players and the topic of the game. Setting learning goals can be supported by various pedagogical frameworks, and one that we often relate to is Bloom's taxonomy, which allows us to lay down specific levels that we want to achieve and serve as a starting point for developing a game mechanic.

1. The first level of Bloom's Taxonomy is to REMEMBER

Example activities at this level: memorize a poem, recall state capitals, remember math formulas.

2. The second level of Bloom's Taxonomy is to UNDERSTAND

Example activities at this: organize the animal kingdom based on a given framework, illustrate the difference between a rectangle and square, summarize the plot of a simple story.

3. The third level of Bloom's Taxonomy is to APPLY

Example activities at this: use a formula to solve a problem, select a design to meet a purpose, reconstruct the passage of a new law through a given government/system.

4. The fourth level of Bloom's Taxonomy is to ANALYZE

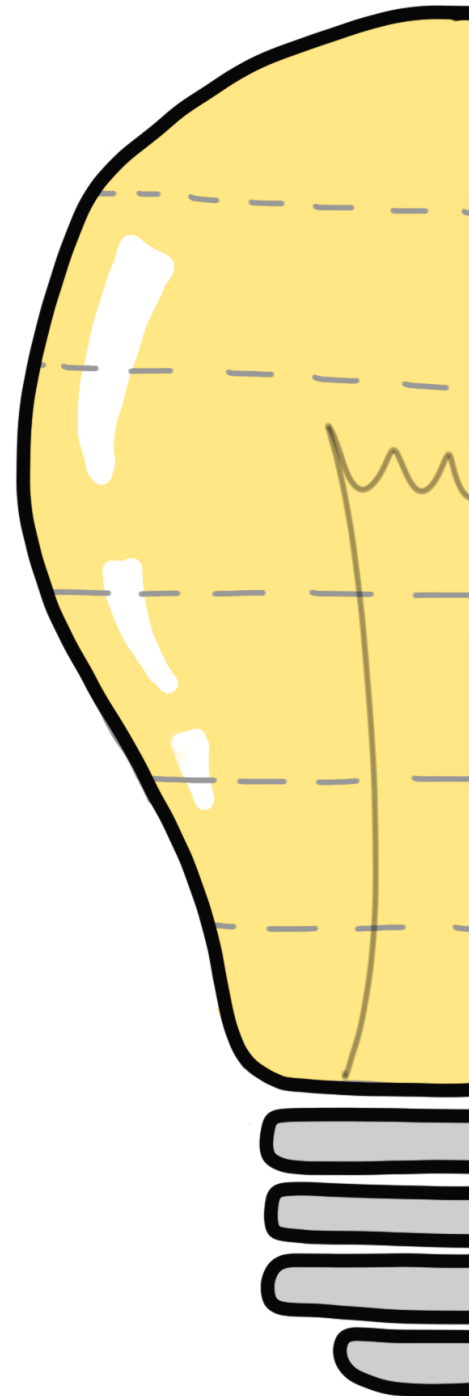
Example activities at this level: identify the 'parts of' democracy, explain how the steps of the scientific process work together, identify why a machine isn't working.

5. The fifth level of Bloom's Taxonomy is to EVALUATE

Example activities at this level: make a judgment regarding an ethical dilemma, interpret the significance of a given law of physics, illustrate the relative value of a technological innovation in a specific setting.

6. The sixth and final level of Bloom's taxonomy is to CREATE

Example activities at this level: design a new solution to an 'old' problem that honors/acknowledges the previous failures, delete the least useful arguments in a persuasive essay, write a poem based on a given theme and tone.



Source: Heick, T. What Is Bloom's Taxonomy? A Definition For Teachers (2020)

Retrieved from <https://www.teachthought.com/learning/what-is-blooms-taxonomy-a-definition-for-teachers/>



2.5 | ALL GAMES ARE FUN IN THEIR OWN WAY

When talking about educational game design, it is sometimes hard to feel where is the pure fun that a game should produce. When we talk about the fun factor of educational games, we don't talk about the pure fun with laughter and smiles, but about different kinds of fun. Marc LeBlanc (*Game Design: 8 Kinds of Fun*, 2013) identifies eight types of fun that games can create:

SENSATION | Game as sense-pleasure

Evoking of emotions in the player. Sensation is created through manipulation of sight, sound and pace of the game. I cannot stress how important pace is in a game, especially horror games. Most horror games builds sensation very well.

FANTASY | Game as make-believe

It's easy to argue that all games have some sort of fantasy. Players often seek "power" in a game which gives them what they can't get from real life.

NARRATIVE | Game as unfolding story

Having a narrative gives the player a sense of purpose. Not all games have or need a narrative. The narrative can also be thought of as the "goals" of the game. Sandbox games, even with their endless possibilities, have a user created narrative. That is, the user tells the story through their actions. Interactive story books, point and click games are examples of games based on narrative.

CHALLENGE | Game as obstacle course

Puzzle games are a good example. Overcoming obstacles can be rewarding in itself but just to be safe reward the player! Positive reinforcement lets the player know that he/she is doing the right thing.

FELLOWSHIP | Game as social framework

Playing with friends is always better than playing alone. Party games and MMO games are great at this. Fellowship or multi-player games add an extra layer of interaction for the players. Solo games often simulate the experience of fellowship by using friendly AI/bots.

DISCOVERY | Game as uncharted territory

Discovery not in just the game itself but what you learn about yourself. Adventure games are good examples but any game that makes the player learn more about themselves can be thought of as discovery.

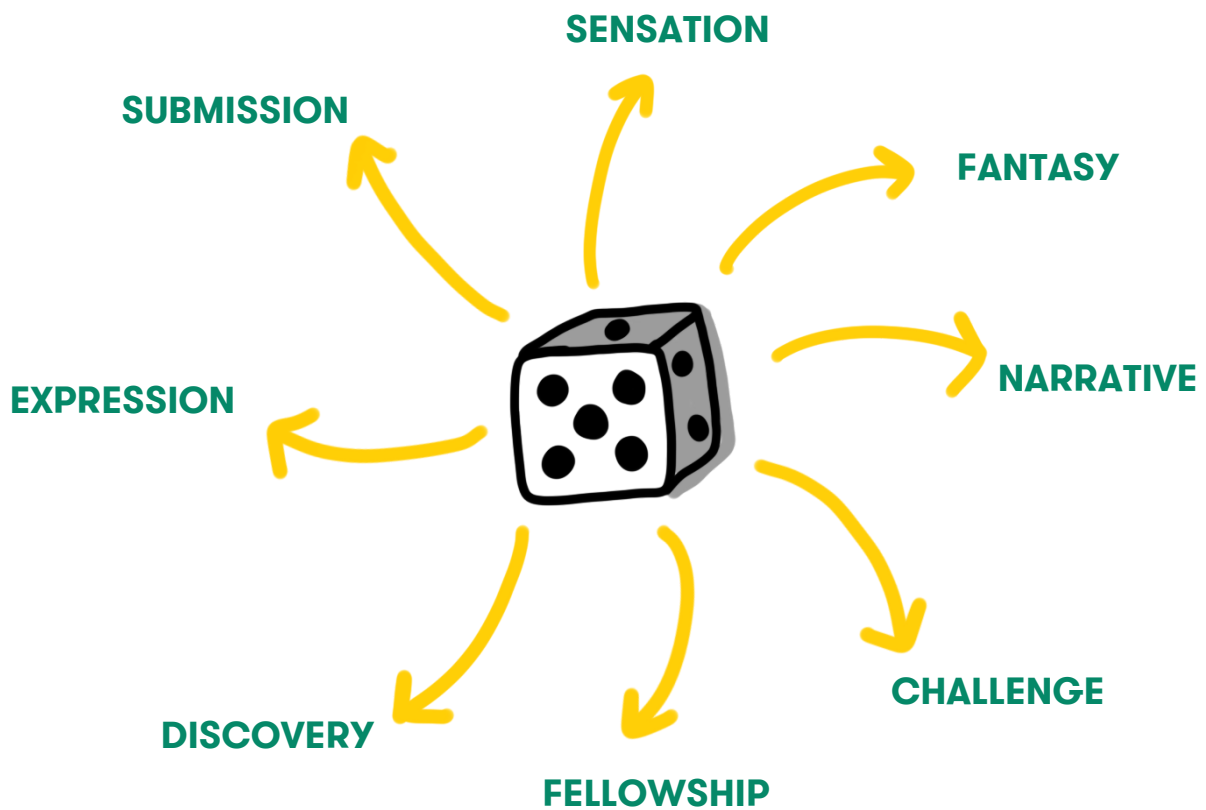


EXPRESSION | Game as a sandbox

Expression comes from the rules of the game and its dynamics. Sandbox games such as Minecraft are all about expression but every game has it. Ever tried to break the game or hack it? Self-expression is a very important part of human nature.

SUBMISSION | Game as mindless pastime

This relates more to "grinding" or "farming". Most games have some form of this. Submission can also be thought of as the opposite of challenge. If a game is challenging all the time players may be turned off. Complaining that the game is too hard or cognitive overload is a good sign that the game doesn't have enough submission for the player.



2.6 | WHAT GAME TYPES ARE OUT THERE?

There is no formal satisfactory classification of games or educational games that we have ever encountered, and with so many variables, it is incredibly difficult to come up with one. However, we could divide games looking at their most common type and technical execution. We looked at what types of games are often transformed into educational games and came up with the following matrix:

Most common game type:

- **Simulation:** games that normally simulate a real event or a realistic situation, where players act as themselves;
- **Roleplay:** games that normally create a story where players take up a new identity;
- **Puzzle:** games that normally challenge players to gain specific information to find out a right answer;
- **Adventure:** games that normally use the created game world for exploration and interaction among players.

Most common game execution:

- **Tabletop games:** games that are normally played on a table or other flat surface, such as board games, card games, dice games;
- **Large-Scale Games:** games that are normally played with a group and involve physical movement, discovery, interaction with one another in different spaces;
- **Video Games:** games that are played by electronically manipulating images produced by a computer program on a display.
- **Conversation Games:** games that normally do not involve lots of movement and are based on verbal interaction among players.
- **Escape Games:** games that involve a team of players cooperatively discovering clues, solving puzzles and accomplishing tasks in order to progress and accomplish a specific goal.

	Simulation	Roleplay	Puzzle	Adventure
Tabletop games	1066: Year of the Comet	Dungeons & Dragons	Azul	Talisman
Large-scale games	Model European Union	Cross the border	The Villagers	City Quests
Video games	Theme Park Tycoon	World of Warcraft	Tetris	Minecraft
Conversation games	Job Interview	Bunker	Dark Stories	
Escape games	Sinking Ship	Baker Street		



2.7 | BOARD GAME STYLES

When developing a tabletop game with an educational purpose, you are free to choose from the immense amount of styles and types of such games. We have collected 11 various types that you can take a look at and get inspired from:

ABSTRACT STRATEGY BOARD GAMES

– Chess, Abalone, Checkers, Backgammon, Quarto

- Straightforward, Player vs. Player.
- Rely on skill over luck.
- No theme.

COOPERATIVE BOARD GAMES

– Pandemic, Arkham Horror, Forbidden Island

- Players work together against the game itself.
- Players win or lose together.
- Typically, higher difficulty objectives make up for player collaboration.

MULTIPLAYER ELIMINATION GAMES

– Risk, Diplomacy, King of Tokyo

- Players are typically eliminated before a game ends.

EUROGAMES

– Catan, Carcassonne, Ticket to Ride

- Usually includes indirect player interaction.
- Focus on economic goals over military expansion.
- Encourages skill over randomized (luck) elements.
- Players rarely get eliminated.

HIDDEN TRAITOR GAMES

– Avalon, Mafia, Werewolf

- One or more players are on a separate team and attempt to undermine the group.
- Require players to question the loyalty and motivations of others.
- Incorporate lying, betrayal, and broken alliances.
- Are usually fast-paced, quick gaming sessions, with high replayability.



WORKER PLACEMENT BOARD GAMES

– **Tzolk'in: The Mayan Calendar, Stone Age, Agricola**

- Rely heavily on methodical strategy, rather than luck.
- Players vie for limited resources.
- Require organization and planning to be successful.
- Usually, an individual player mat is incorporated into game components.

RPGS (ROLE PLAYING GAMES)

– **Dungeons & Dragons, Gloomhaven, Pathfinder**

- Heavily thematic in nature.
- Rely on leveling mechanics, where a player gains levels and improves their character over time.
- Often use randomized mechanics (such as dice) to act as A.I.

LEGACY BOARD GAMES

– **Pandemic Legacy, Risk Legacy, Werewolf Legacy**

- Persistent playthroughs, previous games will affect future games.
- Typically, once the scenario is completed, the game ends.

WAR GAMES & WAR GAMING

– **Memoir 44, 1775 – Rebellion, Warmachine**

- Typically, large map strategy games.
- Rely on strategy, but use luck to simulate battles.

TECHNOLOGY-ENHANCED GAMES

– **Mansions of Madness, XCOM, Dropmix**

- Incorporate an electronic element into the game.
- Typically, smartphone apps are used to enhance play or give directions.
- A relatively new mechanic in the industry.

EDUCATIONAL GAMES

– **Cashflow, Startup, Job Interview Gone Wrong, Commonspoly**

- Games are developed with a specific learning outcome in mind.
- Can use a variety of mechanics and a wide range of complexity.
- Often set to be facilitated by an external person.
- Require analysis and discussion after the game ends.

Inspired by: Truong, B., Exploring the Different Types of Board Games. Retrieved from <https://gamecows.com/types-of-board-games/>





DESK RESEARCH RESULTS

EXISTING EDUCATIONAL BOARD GAMES ON ENTREPRENEURSHIP

3.1 | ESTONIA

Designed by Shokkin Group

- **Hip-Hop Academy (Organizational Development)**

An educational board game that takes you to a journey of managing a youth organization that is working with young people through the hip-hop culture. In this game you unite as a newly elected board to tackle issues that appear during the year. You have to keep your programs running, member count growing, finances in place and the core team happy. Can you get re-elected for the next year?

- **Job Interview Gone Wrong (Job Interview Readiness)**

An educational card game that simulates a job interview with a twist. You choose the job of your dreams and get ready to pass an interview, but the interviewer also gives you some bizarre challenges to fulfill while answering questions. Can you keep it cool and earn enough points to get hired?

Known in the community

- **Cashflow | <http://cashflow.ee/>**

A classic board game by Robert Kiosaki that introduced the logic of investing. Players learn how to invest into businesses and real estate. The game allows to dive into the modern world of business, developed financial literacy and teaches to think like a rich person.

- **New Professions Atlas (Атлас Новых Профессий) | <http://box.atlas100.ru>**

The board game is a part of a career guidance kit that introduces modern professions and allows young people to learn about trends in professions and get to know competencies needed to develop oneself in a specific professional area.



Found online

- **Бизнес-Life**

Board game for future bankers, mathematicians and entrepreneurs. The game can be played by children with their parents or in a group of friends and it develops logical thinking, ability to count and act strategically.

- **Level Up: Human Upgrade System (Level Up: система прокачки человека) | <https://www.levelupnow.ru/>**

A gamified version of task management that an individual can use for personal development and goal tracking.

- **Настольная игра "LibertEx**

The game was created by financial managers based on their own life stories, and it shows the way from a low-paid job to managing huge financial operations.

- **Market (Рынок)**

A market simulator that allows you to develop a large enterprise going through all the necessary business processes: bank loans, taxes, buying raw materials, managing human resources and selling your shares. The game is special due to a large amount of possible economic situations.

- **Startup (Стартап)**

The game simulates creation of your own startup company in the IT sector. You have to fulfill several business ideas using opportunities and overcoming unfortunate events.

- **Ettevõtluse DaVinci**

An interactive board game that allows to brainstorm ideas and look at things from a different angle. The game takes players from problem identification to marketing plan development, being based on a journal that players fill out along different business idea development steps.

CONCLUSION

There are a few board games that are entrepreneurship-themed and educate about various aspects of entrepreneurship. Predominantly, they are competitive games that concentrate on the topics of investment and financial management. More modern games look at the startup world and various ways of becoming a modern entrepreneur. There is a few board games available that gamify business idea development stages.

The current research didn't show any games that would tackle specific soft skills needed for entrepreneurs, the topic of social entrepreneurship or free-lancing.



3.2 | GREECE

- **The Persian Wars**

One of the many educational board games connected to history that also allows the players to learn strategy, how to communicate successfully for building alliances and cooperate in a team. The Persian Empire has been one of the largest in world history. through the "Persian Wars" table, players have the opportunity to rewrite the glorious story, experiencing the Persian's great campaigns, on a dashboard with a historical map that depicts Greece and Asia Minor of that period.

- **Ναυτεμπόριο (Naftemporio)**

A simulation of merchant shipping. It takes place in Aegean and Cretan Sea, Greece. This is an old game that provides with the players the opportunity to learn about merchant market and trade, boost their communication and negotiation skills, and overall management of their cargo and merchant business.

- **Learning Tube | <http://www.learningtube.gr/index.php/en/>**

A game for all ages and for people who want to develop, learn, interact, gain new experiences and be active members of a modern society. Through this game players can challenge not only their knowledge, but also their creativity, team-work, their critical thinking and learn how to compete creatively, important aspects also in an entrepreneur.

- **EntrinnO | <http://entrinno.org/>**

A digital game for entrepreneurship, "EntrinnO" is aimed at young (18-35 year old) potential entrepreneurs who want to develop their skills around business operations and acquire basic knowledge to "build" their own business.

CONCLUSION

In Greece, board games which are directly connected to entrepreneurship, with some few exceptions, don't exist. The majority of Greek educational games that we have discovered out of the research focus on the development of some entry level skills that in today's world are considered outdated and certainly not an asset. Main focus is given in teaching history and mythology, rather than entrepreneurial skills. Another worth mentioning fact about Greece is that the educational system doesn't support the usage of the board gaming methodology as an educational tool.

The only games that are played are physical games and not board games, either at school or at university. There is no culture to strengthen the society's perception on how to use board games as a teaching method and as a result a learning tool. Our research didn't show any games that would boost the entrepreneurial mindset or that would educate on the topic of social entrepreneurship.



3.3 | SWEDEN

- **Ice Cream Company: Business administration managers**

Business economics for managers who are not economists and must be able to reason business economics and master results and balance sheets. They should be able to interpret key ratios etc. in order to be able to assert their areas of responsibility in reasoning with the CEO and the economists.

- **Ice Cream Factory: Business economy for employees**

Business economy for employees. Everyone plays a role when everyone sees how they in their daily work affect the company's finances and results. Business economics in the daily activities, pricing marketing, planning and monitoring of results.

- **Think LEAN**

LEAN for knowledge companies and service activities are to maximize value flows and minimize waste all areas of the business. The core in this process is working time. How employees use their working hours and how they prioritize their work and develop work flow. In the game, you learn the methods through your own decisions and analysis of the effects in the competition for best results. The game gives dedication and nerve in one activity-based learning.

- **Store game**

The game gives the overall picture of the business-economic relationships. The participants form management teams that compete against each other to do the best business. Business economics in the most tangible way. They themselves can calculate how business events and decisions are reflected in a performance report. Basic relationships become crystal clear, for example, how much more you have to sell in volume to compensate for a discount.

- **Time Game**

The time game is a method for raising productivity while reducing stress. It means that the employees themselves work out their work situation, find time regulators and what they can do about them. The work process and the collaboration in the group are developed and streamlined.



- **Glasskiosken**

The purpose of the Glasskiosk is to provide the student with an insight into the terms and conditions of entrepreneurs and to learn basic knowledge of how entrepreneurship works. The student also gets the chance to create an idea of central market economy concepts such as supply and demand. This is done by the pupil simulating owning a glass kiosk and managing the sales during a summer.

CONCLUSION

In the case of Sweden, there are a few board games that are entrepreneurship-themed and educate about various aspects of entrepreneurship but mainly focus on building or managing a company. There is a game that focuses on the environment and how different activities have for impact on it that can help a startup to have an environmental approach in there startup. There are also games about time management. Similarly to the results from other countries, our research didn't show any games that would tackle specific soft skills needed for young entrepreneurs that can be applicable in a wide range of life situations.



3.4 | SPAIN

- **Commonspoly** | www.commonspoly.cc/

Commonspoly is a free licensed board game that looks for players to cooperate to win a common enemy, The Speculator. In this game there is an ongoing battle between the Speculator and the civil society. This game reflects in a playful way the possibilities and limitations of the commons as a critical discourse towards relevant changes in our societies. This board game is described by their creators as an ideal device to introduce commons theories to the civil society in a pedagogical way.

- **Biznelis l'èxit emprenedor (Biznelis how to be a successful entrepreneur)** | <http://www.kidnelis.com/producto/biznelis/>

Biznelis l'èxit emprenedor is a board game based on the topic of entrepreneurship for high school students, and it is one of the few games produced in Spain on this topic. The objective of this game is teaching basic concepts related to how to make a small business. The game is related with social entrepreneurship values, about how to develop a business idea focused on social responsibility and personal growth rather than making a great profit.

CONCLUSION

We can conclude that Spain is not very familiar with innovative educational board games that offer something beyond the mere entertaining factor. It was really difficult to find good examples of educational board games. After conducting this research, the Spanish team also realized that there is also a misconception about what is an educational board game and what is not. There are a lot of examples of games that, by analyzing them in depth, we can conclude that they are not educational games even though they are sometimes treated as they were.

Is not difficult to find articles written in Spanish on the Internet related with mainstream board games such as Monopoly or Risk treating them as an educational games. We also want to consider that after doing focus groups in different schools, students had a lot of difficulties to give us examples of educational games and a lot of times they did not know what makes the difference between a game for entertainment purposes and an educational one.



3.5 | FINAL CONCLUSION ON DESK RESEARCH

As a result of the desk research carried out in the national environment of each one of the participating organizations, we can conclude that there is a notable lack of resources in the form of educational board games on the topic of entrepreneurship.

In the case of Spain and Greece, we can observe the presence of educational board games on topics such as history, geography or basic educational curricula aimed at young audiences (children 6-16). However, there are no visible examples of educational board games targeted at an older target group, in no other fields or topics.

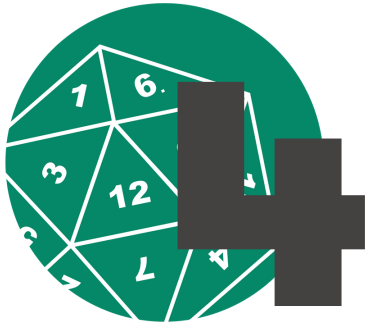
Despite the fact of some of the country markets (such as in Sweden and Estonia) offering board games which gamify business idea development stages, there are no concrete board games which focus on the so-called entrepreneurial skills or other aspects of entrepreneurship, such as social entrepreneurship or free-lancing.

When developing this project ideas, we establish as a priority need to come up with innovative and effective tools to educate young people about entrepreneurship and entrepreneurial skills needed in the job market. This was based on the high level of youth unemployment, young people being unprepared to enter the job market, low image of entrepreneurship, as well as lack of soft skills and critical thinking development in many formal educational systems across Europe.

After carrying out the research, this need was confirmed further, also with a special focus of developing resources that can be applied and use in the educational system and youth work environment. In the frame of this project, entrepreneurship is understood as a combination of competences that foster important values for the nowadays market, which can also be introduced, trained and reflected upon through the use of educational board games.

With this objective in mind, the following chapters of this manual will offer the necessary frameworks and tools for game design that can be used by educators and youth workers anywhere they are in order to develop meaningful, educational board games.





GAME DESIGN TOOLS AND TIPS

In the last few years there has been a significant increase in the amount of game research and resources for those who would like to design games for both entertainment and educational purposes. In this section of the manual we would like to share specific methods and tools for game development.

4.1 | GAMIFIED DESIGN THINKING

Design Thinking as a fairly innovative concept is changing the ways how we design services, products, public spaces and learning environments. That is why gamified design thinking also enters the fields of game-based learning and gamification with proposed steps to design a game:

Step 1: Define

The first step is to understand the actual challenge, dig deep into the learning needs and desires. This is the step where we should question, question more and then re-question to frame and re-frame the learning needs.

Step 2: Empathize

Since design thinking is a lot about putting the end user in the center of the process, in the second step you are expected to look around and consider the types of users you will have, the people for whom you are developing the game. Here you can also empathize with other stakeholders and look at their needs. Think how they would like to receive the learning, what elements should be placed in the game or gamified process.

Step 3: Ideate

It is all about creativity and creation of ideas. Here you should propose solutions, create gameplay ideas, develop your game elements. After you have a good amount of ideas, it is time to analyze them and take the best into the next step.



Step 4: Experiment

In the fourth step, you should take the best ideas and create prototypes until you have something you think is worthy to move forward with.

Step 5: Test

Once you have your prototypes ready, it is time to test them with the target audience and with the stakeholders. Move between the testing and experimentation phases until you are ready to release a beta version of your product. During the ideation to testing phases it is important to consider desirability, feasibility and viability of the concepts you create.

For desirability ask yourself whether that is what the "client" or "end user" wants. Does it hit all the points they need? For feasibility, look at available resources and check whether it can be done in reality. For viability, ask whether the given constraints still allow this idea to move forward and be potentially sustainable and usable in the long-term.



4.2 | MDA FRAMEWORK

"MDA is a formal approach to understanding games: one which attempts to bridge the gap between game design and development, game criticism and technical game research."

The MDA framework helps to deconstruct, analyze and develop game concepts. This framework helps to conceptualize behavior of game systems and therefore develop techniques to predict game behaviors and tune game elements for modulating a desired learning environment. The framework has been interpreted many times and is often used in digital game design.

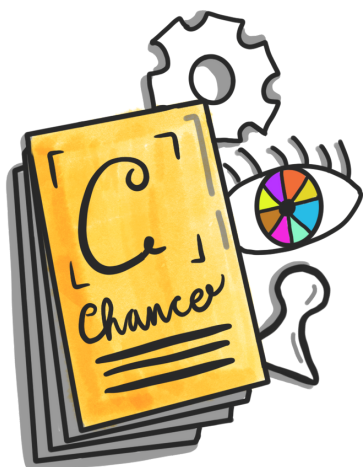
The player gets the game and starts to play it. The play phase from the perspective of the player can be broken into three simple phases:



From the developer's perspective this leads to three counterparts:



The MDA framework establishes such design elements of a game as:



MECHANICS

Game components at the level of data representation and algorithms

AESTHETICS

Desirable emotional responses evoked in the player while interacting with the game system.

DYNAMICS

Run-time behavior of the mechanics on player inputs and outputs over time.



MECHANICS

Game components at the level of data representation and algorithms

Mechanics are connected to the external aspects of a game and often are controlled by rule limitations and physical elements of the game. Mechanics allow game designers to create the desired environment and game play using elements like: progress bars, leader boards, badges, roles, cards, dice, maps, rules, timers, resources, character descriptions and sudden events. Mechanics are the tools that help players to achieve their goals and play the game. Let's see a few examples of game mechanics:

- **Challenges**

Most games have meaningful (to the players) objectives for players to achieve.

- **Chance**

Involvement of luck from a random mechanism such as dice roll.

- **Competition**

Getting people to compete against one another.

- **Cooperation**

Getting people to work together.

- **Feedback**

Allowing players to see how they are doing in real time, encouraging them to go further.

- **Resource Acquisition**

Gives players an opportunity to obtain items in which some of them are required in order to progress in the game.

- **Rewards**

Some benefits that go together with achievements in the game.

- **Transactions**

Buying, selling or trading with other human players or automated players.

- **Turns**

Part of the game structure.

- **Win States**

The state that defines winning the game.



DYNAMICS

Run-time behavior of the mechanics on player inputs and outputs over time.

Dynamics are the internal aspects of a game and represent the game system. Dynamics are set by the designers who plan and balance such elements as: challenge level, winning versus losing, risk, chance balance, interaction, retention, learning, cooperation, competition, achievement, gratification and space for creativity. Dynamics help designers to plant learning into their games and create the “underworld” of the game to keep the players engaged. Let’s see a few examples of created dynamics:

- **Constraints**

Games create meaningful choices and interesting problems by limiting players’ freedom.

- **Emotions**

Emotions can make the experience more rich and joyful such as the sense of accomplishment that encourages players to play more.

- **Narrative**

Provides a feeling of whole by putting together pieces of the gamified system, rather than simply achieving points or badges that are totally unrelated and limits the effectiveness of gamification.

- **Progression**

The feeling of having the opportunity for players to improve and progress, such as levels and points.

- **Relationships**

People interacting with friends, teammates, opponents, etc.

AESTHETICS

Desirable emotional responses evoked in the player while interacting with the game system.

Aesthetics allow making the game appealing for players via such elements as scenarios, themes, visuals, physical objects, graphics and character names but not only. Aesthetics is about the satisfying combination of style, functions, consistency and its relationship between the three. Aesthetics make games appealing and pleasant to play.

Source: Hunicke, R., LeBlanc, M., Zubek, R., MDA: A Formal Approach to Game Design and Game Research (2004). Retrieved from <https://users.cs.northwestern.edu/~hunicke/MDA.pdf>



4.3 | GAME MECHANICS EXPLAINED

A gameplay mechanism (or often *mechanic*) is a metaphorical term referring to a functional aspect of a game. In *Candyland*, for instance, there is one central mechanism that drives the game: you draw a card, then move to the next space whose color matches that card: this could be considered a type of *roll-and-move mechanism*.

As with a physical machine comprising many mechanisms, a game with multiple mechanisms is more difficult to fully analyze. As a result, repeated plays of such a game will tend to satisfy an adult much more than repeated plays of a game with a single mechanism. On the other hand, a game with few mechanisms will be easier for someone new to games (e.g. young children) to understand. If a game has more mechanisms than a player can deal with, it most likely will result in great frustration and disinterest for that prospective player.

Often, games can be produced with few, but well-meshed mechanisms. Such games tend to be easy to teach, easy to play, but not easy to solve. Every game system can be broken into a set of mechanisms. If we take a look at *Pandemic*, for instance, it is comprised of:

- Action Points: four actions that a player can take;
- Set Collection: collecting five cities of same color to cure a disease;
- Variable Player Powers: each character has a special power that can be used;
- Hand Management: adjusting your hand by discarding cards/using them for a purpose;
- Trading Cooperation: exchanging cards with other players.

Examples of singular game mechanisms that you can mix and match:

Area control (*Game of Thrones*)

Tile Setting (*Carcassonne*)

Set building (*Ticket to Ride*)

Hand Management (*Pandemic*)

Worker Placement (*Tzolk'in*)

Push Your Luck (*Celestia*)

Dice Throwing (*King of Tokyo*)

Card Drafting (*Citadels*)

Action Programming (*Colt Express*)

Trading (*Catan*)

Traitor (*Avalon*)

Roll & Write (*Welcome To...*)

Rondel (*Imperial*)

Area Movement (*Dead of Winter*)

Point to point movement (*Pandemic*)

Area movement (*Blood Rage*)

Hexagon Grid (*Scythe*)

Voting (*Werewolf*)

Auction: Sealed Bid (*Modern Art*)

Bribery (*Sheriff of Nottingham*)

Take That (*Bang*)

Simultaneous Action Selection (*7 Wonders*)

Role Playing (*Coup*)

Rock Paper Scissors (*Civilization*)

Pick Up & Deliver (*Merchants & Maradeurs*)

Variable player powers (*Arkham Horror*)

Partnerships (*The Resistance*)

Modular board (*Catan*)



4.4 | EDU GAME DEVELOPMENT CANVAS

There are many canvas models available for business, project ideas or digital games. We adapted one for educational board game development. One of the best aspects of canvases is that you have the whole picture in front of you and the possibility to change any of the elements at any given time in order to increase consistency, adapt to the reality or tune the challenge level. A canvas is a great starting point for creating first game concepts that are then elaborated in a detailed game outline with additional resources.

There is no correct way of using the canvas. However, it is advisable to start from defining the target group and desired learning outcomes based on your “define” and “empathize” steps of the gamified design thinking process.

After you have finalized these elements, you can continue filling out the canvas. Once the canvas is filled out, make sure to check for consistency by making sure debriefing questions that can be asked for this gameplay correspond to the desired learning outcomes.

Desired Learning Outcomes: 1 2 3	Game Title:	What statement does your game deliver? Ultimate mission:	
	Topic Addressed:		
	Theme:		
	Target Group:		
	Group Size:		
	Narrator/Facilitator:		
Play Time:			
Mechanics:		Dynamics:	Aesthetics:
Game Rules:	Step-by-Step Gameplay:		Victory/Loss/Ending Factors:
Materials & Game pieces:	Closing/Analysis:	Educational Link (<i>what theory is used to conclude the game</i>):	










[Download the printable version of the canvas](#)



4.5 | DESIGNING GAME RULES

In any sort of game, and specially in board games (when a facilitator or game master is not necessarily present), clear and highly descriptive rules become a decisive element. When preparing game rules, make sure you include step-by-step explanations on the following categories:

-  **CONTENTS**
What materials does the game contain?
-  **STARTING SETUP**
How to arrange the materials to be able to start the game?
-  **GAMEPLAY**
What are the basic elements of gameplay?
-  **ACTIONS**
What types of actions can/must the players take during their turn?
-  **ENDGAME**
When does the game end?
-  **SPECIAL ELEMENTS**
Are there any special elements that require explanation?
Special cards? Possibility to win/lose?
-  **EXAMPLE**
How does a typical game turn work?

4.6 | DESIGNING THE FACILITATOR'S TOOLKIT

Educational board games often require a bit of extra preparation before hand. In the case of board games released in a print to play version, this might involve printing and cutting materials, as well as looking for extra physical elements that are not included in the digital version (pins, die, pens, etc).

A facilitator's toolkit is an extra resource accompanying the educational game which provides additional information regarding the context of use of the game, preparation steps, debriefing questions, explanation of specific terms and additional resources to complement the learning extraction process.



[Download the printable version](#)



4.7 | EDUGAME DEVELOPMENT

Experience in Game On and research of game design and gamified thinking approaches led us to develop our own step-by-step instruction for creating an educational game. This is a work in progress and we recommend following the first two steps (target group and learning outcomes) and then letting your creativity flow allowing yourself to jump from one step to another.

Step 0: Choosing a topic

The pre-step to game design is of course choosing the topic you would like to create a game about. This is very much dictated with your expertise area and topics you work with. One evident thing is that the more you know about the topic, the deeper your game can turn out. Knowing a topic allows you to design a metaphorical system and use not the most obvious cases. If you feel there is not enough knowledge on a topic that you are working on, first do some research and explore the issue from various sides. This will allow you to pack greater content.

Step 1: Identifying your target group(s)

Before creating educational games, we should look at the potential players, as they will define a lot of the content of the game. Educational game design starts with looking at what your potential target group knows about the topic, what are their skills in the topic of the game. What theme could they be more interested to explore. Their level of knowledge will identify additional support measures that you might design in the future (e.g. play an accounting game after a lesson on basic accounting). Gamified thinking has the player/learner in the center of the design process, so it is logical to start from it.

Step 2: Setting preliminary learning outcomes

Creators, whether or not they mean to, often build around messages. Take that vague vision and spell it out explicitly. By describing the game you want on the most basic level, you can begin to build around that. Mechanics, rules, and so on are all just a means to explore that idea.

You can call it goals, learning outcomes, thoughts or wisdom. In an educational game, the learning comes first in the design process. Learning outcomes are the starting point from which to build up a game. They will give you the first initial direction of what this game can be about and what shape it can take. Looking at what the target group knows about the topic and what are the learning needs (expressed by the group, identified in the curriculum or observed) will create space for deciding on 1-3 learning outcomes or wisdoms you would like to reach after playing the game. For setting preliminary learning outcomes we often use Bloom's taxonomy, as it allows us to see potential mechanics of the game.



For example if the learning outcomes involve players to remember something from the game, then it means that the most important content should be represented in written, repeated and verbalized by the players. If the learning outcomes contain “evaluation” then players would most likely have to make decisions based on the information they receive in the game and reason to reach agreements on common or individual steps. We invite edugame developers to brainstorm several learning outcomes, their wording and then choose the ones that inspire you the most.

Step 3: Coming up with mechanics and desired dynamics

The best advice we can give about getting competent in game mechanics is to play games, play many games and play different games. The more you play, the more techniques are stored in your memory and the easier it is to connect a specific learning outcome with a mechanic idea. In educational game design aimed at attitude and behavioral change, we often envision the emotions and feelings we want our players to experience. It often sparks what game components, mechanisms or rules could create such experience. We sometimes jump into dynamics that we want to create and look at the mechanics that will allow this. There is no right or wrong when creating the base skeleton of the game, so feel free to experiment and find a personal approach or even a few. We invite game designers to play with a few ideas of mechanics before settling on one. This will allow enriching any initial idea you had.

Step 4: Testing raw game systems

Back and forth from the game development canvas to a simple test is inevitable when creating a game. As soon as you have some game components and mechanics, test it on yourselves or colleagues straight away. This will save you from wasting time on perfecting a mechanic that just doesn’t work. Once you have a raw mechanic (skeleton) look at the learning outcomes that you have set before and, if you think the skeleton allows to reach them, it is time to test and see. If it works, then continue further, if it doesn’t, go back to the game development canvas.

Step 5: Planning the learning extraction

Educational games that deliver an experience should have either an incorporated reflection/debriefing mechanism inside the game or have a facilitator ready to lead the learning extraction process. The more emotional the game is, the stronger the debriefing process should be. Here are some ideas to consider: you might create reflection questions for the players to ask themselves or each other; you can create a debriefing card with questions participants should discuss together; you can put a personal reflection exercise after the game with guided questions; you can also create a set of questions for the facilitator to start a discussion with bringing different game groups together after a parallel play.



No matter what is your choice of learning extraction, it is vital to have questions moving beyond the game. Looking at personal or societal levels allows players to think about their potential actions in future situations. This part really distinguishes an educational game from a casual game. When planning the learning extraction cross-check with the learning outcomes you have set in the beginning and the actions players perform during the game.

Step 6: Creating the aesthetics

Once you are satisfied with the skeleton, it is a good time to start building flesh on the game with more elaborated characters, stories, artifacts or whatever suits the game. The aesthetic part of a game will invite players to be more motivated to play or be engaged during the process. It is important to keep the consistency between the topic, learning outcomes and the theme you choose. Be thoughtful of the character descriptions, names, visuals that you use as all of this communicates the message of your game to the players.

Step 7: Testing your prototype and iteration

Committing to a proper testing phase means you believe in the game and would like to perfect it. Best tests are ran with your target group as they will give you the most important insight on what is working and what they would appreciate to be adjusted or changed. It is advised after every test to come back to your prototype adjusting the parts that need the biggest adjustment and then move to another test. Iterating between tests and development is what makes a game end up being consistent and satisfying to play. While it is important to listen to your testing audience, don't change your game straight away after one comment, but search for more perspectives and don't take harsh feedback close to heart but be thankful for the opportunity to develop your product further.

Step 8: Designing a print-to-play version

When developing a game, we try to make it as print-friendly as possible. Easily printable games allow us to set up parallel game sessions in less than an hour. You don't have to carry a lot of materials to training courses or long programs, you can easily share the game with fellow colleagues and if something went missing, it takes just a few minutes to have the components again.



4.8 | EIGHT COMMON MISTAKES WHEN DEVELOPING AN EDUCATIONAL GAME



1. Deciding on a form before deciding the target group and the learning outcomes

Often, someone will focus on creating a board game, or card game, or Escape/Breakout game, without first asking oneself who the audience is and what the learning goals are. Sometimes, the learning goals will lead you to a completely different type of game. However, we should be reminded of the importance of being flexible because "an idea might develop which does not meet the [initial learning] objective but is so valuable that it is worth changing the objectives to fit the idea." Taking a topic which you are not confident and not making research.



2. Spending too much time on perfecting the prototype

Prototypes are supposed to be simple, quick and dirty representations of what we want to achieve to help us test its main features in practice and improve upon them perfect drafts of our final product. The more time and effort you spend creating a prototype, the more likely you are to become attached to it and unwilling to change it. And, that defeats the purpose of prototyping.



3. Adding randomness in all the wrong places

When playing some games, sometimes you need to give players more agency, more decision-making power. Yes, you can use chance to create some restrictions and some surprises, but they need to fit the ethos of the game and be realistic within the narrative of the game.





4. Using game dynamics that break the ethos of the topic/game

It can be the case that you encounter a game that was meant to encourage volunteering, but which was competitive (complete opposite of the spirit of volunteering) and emphasized physical hand movement speed (completely unrelated to learning about volunteering). In the end, players learned nothing about volunteering whatsoever.



5. Taking the game far from reality

It is fine to make a game set in a galaxy far faraway or somewhere in the past, but it is important that we can still relate the problems and challenges of those worlds into our 21st century lives on planet Earth. Players get upset when there is little logical connection between their actions and decisions and the consequences that happen in the game. Check your game for inconsistencies and patch up all the logical flaws. The last thing you want to hear is: "I liked the game BUT in reality this could never happen".



6. Not play testing enough

The more you play test, the more likely you are to find opportunities for improvement, it is as simple as that. After the first few internal tests you will run, you will probably change 20-30% of the rules and some components. Every other test you will run will give insights into how different people play and where they can find a flaw or not understand some rules or gameplay elements. Testing and iteration is extremely important, so playtest at least 8-10 times if you want to make an autonomous board game.





7. Testing with the wrong audience

With educational games, there are two audiences you need to play test with: the potential learners (to see if they actually learn from the game) and the experts on the educational material (to learn from them how the game could improve to meet those educational outcomes).



8. Underestimating debriefing

Debriefing is where the magic happens. The process of debriefing and facilitating a group discussion after a game experience is the key moment that allows you to extract the learning from a game and put it in the context of the real world. It is the game masters' duty to lead players through the other experiential learning stages of reflection, conceptualization and possible future application, behavioral or attitude change. Plan your debriefing questions in advance and check how it matches the learning goals and whether the game play allows you to logically ask these questions.

Source: Bali, M., 9 Mistakes to Avoid When Designing Educational Games (2016), Retrieved from www.clalliance.org/blog/9-mistakes-avoid-designing-educational-games/ and Vassiljev, P., Game-based Learning: Challenges of creating own educational games.





5 TESTIMONIALS

5.1 | TESTIMONIALS

COORDINATORS

During the board game development phase, we collected some insights from the coordinators from each partner country in the project. Below you can read all about their experience and the board game they are developing.

Pablo Larrubia Sande, coordinator from Ticket2Europe, shares:

"The board game we are developing it's a narrative/storytelling game with which to discover self skills and working profiles related with the players' aptitudes. The development process has been extra challenging. It is supposed to be a driving into multi/options game, so it was very difficult at first to proper balance the numerous results to make something functional and coherent. But, as is a narrative game, it is also inspiring and exciting to create all the stories and all the profiles. The first tests that we made were also very good: short, funny, and with a learning outcome about ourselves that we didn't expect.

Why educational board games for entrepreneurship? Well, because it is an approach for young people that think that entrepreneurship is an unreachable option for their futures. With a game, they will feel this field closer to them, and maybe a path to follow. For the educators and youth workers, when you play an educational board game with a concrete target group, it is very important for it to be also a tool between the game itself and the learning outcome. The educator must help and guide all along the process of learning, by providing information, answering questions, and also by asking the proper questions to the players."



Cathy (Aikaterini) Manousaki, coordinator from Solidarity Mission, shares:

"We are developing a board game that reflects the needs of our target group about start-up development. After exploring the many different aspects and educational directions we could go regarding the topic, we have chosen to create a cooperative game, where players learn how to cooperate together as a team to beat the game itself.

A success of a start-up is based very much on whom you have on board with you in your team and how you work together to grow and expand your impact and profit. Another educational aspect of the game is that players have the opportunity to play within the different roles of a start-up and identify how not to fail, while coming up with strategies and having fun.

Our board game development process is exciting and challenging at the same time. We have been developing the ideas together with the future players, thus it has taken us longer to finalize them, including testing times. One of the challenges has also been to choose a concrete focus in our topic and direction in order to make a game which is fun and educational.

What many of us do not realize often is that any type of board game we play is actually a learning opportunity where we can discover more about ourselves and increase our knowledge, skills and attitudes, and therefore, our competencies. Board games are a fascinating playground to learn strategy and leadership, which for aspiring entrepreneurs are highlighted skills. For us as youth workers, such educational board games are a valuable asset in our pocket to use as a tool to support and increase our participants competencies in the topics."



Pavel Vassiljev, coordinator from Shokkin Group International, shares:

"The main board game we are developing concentrates on introducing players to managerial decisions that are made in a business as well as basic accounting and forecasting. An additional educational aspect of the game is the social impact, since in the game players can invest and learn about the 24 most common practices businesses can use to contribute to the society.

The game has been developed based on the insights we received from the focus groups in Estonia and sometimes it was a challenge to keep the focus on the target groups and the topic. It is important to match the player skills or knowledge with the game requirements in order to make it not too simple or over complicated. After each test we made some changes to make the game more user-friendly. What started as a small decision-making game now acts as a good tester after a basic course on entrepreneurship.

Why educational board games for entrepreneurship? To be a successful entrepreneur, you need to have a strategic vision, be able to make tactical decisions and keep on the lookout for opportunities. That is exactly what many board games require to win. For me it makes total sense how entrepreneurial thinking correlates with the process experienced while playing a strategy-based board game. Thus, exploring the use of board games for entrepreneurship education seems natural and a very interesting path to open up for educators and youth workers."



Karin Wouda, coordinator from Awesome People, shares:

"We are developing a board game called "Roads 2 Entrepreneurship" which tackles the basic understanding of entrepreneurship and what is important when you are an entrepreneur. The game consists of five mini games, each one focusing on one road to entrepreneurship (Network, Knowledge, Mentorship, Experience and Planning). It is possible to play each minigame separately, but together they form the big game. The games are a mix of more strategic games and creativity games.

The board game development process so far has been very exciting. It has been an inspiring work to come up with the ideas for the game and challenges have been to make it easy for our target group but still educational. We have changed and adapted the game based on the tests we ran with young people but the original idea of the game has always been there and the feedback we have received is that they really like the game. "This was so fun, I could play it at home with my family".

There is a need for innovative educational strategies to learn about but also improve entrepreneurial skills and mindset. Educational board games for entrepreneurship is one way to reach out to young people where the gamification mechanism can involve people from underrepresented groups since it is done in a more fun and practical way but still educational.

Be brave and try out new things when it comes to youth work! Educational board games can be one way for you to involve and empower more and new individuals."





PARTNER ORGANIZATIONS



Website: www.ticket2europe.eu

Facebook: Ticket2Europe

Instagram: @ticket2europe

Ticket2Europe is an organization created by young people for young people. Founded in early 2016 in Pontevedra, a small city in North-west Spain, our mission is to open up new paths and development possibilities for young people by empowering and supporting them on their search for future opportunities. Our target group are youngsters aged 18-30 who are unemployed, in NEET situation or who come from regions with geographical obstacles and our activities and projects are always focused on areas related to European values and topics such as human rights, social inclusion, peace building, social minorities, youth employability and entrepreneurship.

Game developers/coordinators: Ignacio Márquez | ignacio.marquez@ticket2europe.eu and Pablo Larrubia | pablo.larrubia@ticket2europe.eu.


**Shokkin
Group**
International

Website: www.shokkin.org

Facebook: Shokkin Group International

Instagram: @shokkinint

Shokkin Group International is a network of youth organizations in Europe working together to contribute to social and civic development of young people through local and international educational activities. Shokkin Group International was established in 2015 and is composed of youth organizations, individual youth workers and educators as members of the organization. SGI's mission is to improve the quality of youth work in Europe by providing an exchange platform for tools and expertise, and foster reliable partnerships among youth organizations in order to achieve a positive social impact.

Game developers/coordinators: Pavel Vassiljev | pavel@shokkin.org and Olalla Gonzalez | olalla@shokkin.org.



AWESOME PEOPLE



Website: www.awesomepeople.org

Facebook: **Awesome People**

Instagram: **@awesomepeoplese**

Awesome People was founded in 2013 in Örebro, Sweden. Awesome People is an organization working with the mission to "make people be and feel awesome". We do this by implementing projects and different activities where we implement our corner stones: "Be brilliant, Be Brave, Be Different, Be Yourself - Be Awesome". We believe that we can create a generation of people who take their own initiative to create a better world for themselves, for others and for the planet. Our main expertise are coaching, entrepreneurship, integration, gender equality and non formal learning. We work mainly with young people 16-20 years old and we work both at local, regional, national and international level.

Game developers/coordinators: Karin Wouda | karin@awesomepeople.se and Fredrik Wouda | fredrik@awesomepeople.se.



Website: www.solidaritymission.org

Facebook: **Solidarity Mission**

Instagram: **@solidaritymission**

Solidarity Mission is a non profit training organisation focusing on social economy, social entrepreneurship and sustainable development officially established in January 2016, in Athens. However, our team act as an informal group of volunteer coaches, trainers and mentors since January 2013, having helped social entrepreneurs and NGO's members to grow their social impact. Our Mission is to contribute to the development of social and solidarity economy, both locally and globally. Our Vision is to create a global network of social entrepreneurship centers for those who aim to make the world a better place. We plan, develop and implement innovative training programmes, coaching, and mentoring, aimed at increasing knowledge, cultivating skills, as well as participants' personal development.

Game developer/coordinator: Cathy (Aikaterini) Manousaki | training@solidaritymission.org





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From Estonia, special recognition goes to Tallinn Linnamäe Russian Lyceum, where focus groups were implemented, Tallinn Central Youth Center (Kesklinna Noortekeskus) for their interest and involvement during the project, as well as active members of the organization and participants of "Shokkin Kamp", "Shokkin Leadership Training" and "MARKERS" who participated in the first testing events of both games.

The team,



GAME ON
DEVELOPING EDUCATIONAL BOARD GAMES
FOR YOUNG ENTREPRENEURS





GLOSSARY

Board Game

A board game is a game that involves pieces moved or placed on a pre-marked surface or "board", according to a set of rules. Games can be based on pure strategy, chance or a mixture of the two, and have a goal that a player aims to achieve.

Card Game

Any game using playing cards as the primary device with which the game is played, be they traditional or game-specific.

Debriefing

Debriefing is an important step in game-based learning environments, often being described as a "facilitated or guided reflection in the cycle of experiential learning" consisting of a) experience; b) observation; c) conceptualization and d) application.

Entrepreneurship

The capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit. The most obvious example of entrepreneurship is the starting of new businesses.

Entrepreneurial competencies

The Personal Entrepreneurial Competencies (PECs) refer to the key characteristics that a successful entrepreneurs should have in order to be successful: 1) Opportunity Seeking, 2) Persistence, 3) Commitment to Work Contract, 4) Risk-taking, 5) Demand for Efficiency and Quality, 6) Goal Setting, 7) Information Seeking, 8) Systematic Planning and Monitoring, 9) Persuasion and Networking, 10) Self-Confidence.

Educational board game

A type of board game designed with educational purposes (specific learning outcomes) to help people learn about certain subjects, expand concepts, reinforce development, understand a historical event or culture, or assist them in learning a skill as they play.



Experiential learning

The process of learning through concrete experience, more specifically defined as "learning through reflection on experience". Experiential learning is, quite simply, learning by actually doing. In a more elaborated way, experiential learning is developing personal understanding, knowledge, skills and attitudes through the analysis of, and reflection on, an activity".

Facilitation

The act of helping other people to deal with a process, session or reach an agreement or solution without getting directly involved in the process, discussion, etc.

Game

An activity that has a goal, challenge(s) and rules that guide the achievement of a goal. According to Schell (2008) a game is "a problem-solving activity, approached with a playful attitude".

Game-based learning (GBL)

Game-based learning refers to the borrowing of certain gaming principles and applying them to real-life settings to engage users (Trybus, 2015). It can be described, simply, as "learning through games".

Game dynamics

Run-time behavior of the mechanics on player inputs and outputs over time.
(Detailed explanation in 4.2 MDA framework).

Game rules

General standards, guidelines or governing principles of how the game is played and how players should behave in a given situation or endeavor.

Gameplay

The way the game is played, including the rules, the plot, the objectives and how to conquer them, as well as a player's overall experience.

Game elements

The set of factors which distinguish a game from a mere act of playing. In order to be considered as such, games such have the following four elements: goals, rules, restrictions and acceptance.



Learning outcomes

Statements that describe the knowledge or skills learners should acquire by the end of a particular assignment, class, course, or program, and help learners understand why that knowledge and those skills will be useful to them. They focus on the context and potential applications of knowledge and skills, help students connect learning in various contexts, and help guide assessment and evaluation.

Reflection

A metacognitive strategy to help learners as individuals or organizations reflect upon experiences, actions and decisions taken. Reflection involves an active exploration of experiences to gain new or greater understanding.

Tabletop Game

Any game that is played on a table top. Tabletop games include board games, card games, dice games, collectible card games, war games and role-playing games.

Target group

A group of individuals with identical characteristics who are the objective of a specific educational needs.





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