gamED

Guidelines for co-creation of gamified content in formal and non-formal contexts and principles for gamified learning processes in youth work

CONTENTS

INTRODUCTION

About the project:

gamED (Gamification for Developing Essential Competencies in Youth Work) is a 24 months strategic partnership project developed by Romanian Angel Appeal Foundation in partnership with 5 partners from 3 European countries: World University Services of the Mediterranean and Blue Room Innovation from Spain, Instituto Politecnico de Setubal and Produções Fixe from Portugal and Universitatea „Vasile Alecsandri" Bacău from Romania (Gamification for Developing Essential Competencies in Youth Work (gamED) – Learning Hub (raa.ro).

The 6 partners propose a complex multi-layered intervention through a project that aims to develop the capacity of professionals working with youth in non-formal and formal education contexts in order to improve the quality of programs for developing key competencies that lead to a successful life and, at the same time, instilling in youth core values of fairness, social justice, non-discrimination, involvement in the community. All of these by gaining essential competencies in gamification and game design that will support them in developing and delivering innovative curricula.

A full package of using gamification and game-based learning is available and ready to be used with and/or for 14-24 y.o. the youth of different socio-economical backgrounds and other specificities, in a wide range of contexts:

- Gamified Learning Contents on Key Competencies (GLC) – with 10 relevant key competencies gamified.

- gamED Board Game – an educational journey based on the same 10 key competencies.

- Guidelines on how to co-create gamified contents together with participants in nonformal and formal contexts – a tool encouraging youth workers to involve their beneficiaries when planning learning processes for them and teaching them how to use gamification in competencies' development programs.

- 3 E-learning modules (tutorials) of Gamification of learning processes and Boardgame use in youth work at the community level: in NGOs and other community contexts / in schools and highschools / in universities.

About this manual:

Guidelines for co-creation of gamified content in formal and non-formal contexts and principles for gamified learning processes in youth work as an out-put of the project is the result of the research work undertaken by the project team.

Structurally, this handbook consists of two main parts: a theoretical approach to co-creation of gamified content with participants in formal and non-formal contexts, and a practical, illustrative approach to gamification of the learning process in youth work.

The structure of each sub-chapter has been designed to include an introductory, theoretical framework for the concept addressed, an application-based section with examples of how to use the respective concept/s in relation to building learning content and designing learning processes in youth work, and a final section with tasks.

In terms of content, the manual addresses and illustrates a number of aspects related to the use of gamification in youth work to build essential competencies: the benefits of using co-creation and gamification in the learning process; how to apply co-creation in gamified learning; the benefits of human-centred design as a problem-solving approach based on empathy; the principles of gamification of the learning process, how to select and build games in the learning process based on the learning objectives.

The manual is of interest to youth educators and young learners, as well as teachers and trainers working with different age groups of learners.

PART I. GUIDELINES FOR CO-CREATING GAMIFIED CONTENT WITH PARTICIPANTS IN FORMAL AND NON-FORMAL CONTEXTS

1.1. Theoretical framework of co-creation in the learning process

Theoretical background

Co-creation is a frontier concept with multiple ramifications and interdisciplinary applications that has not yet been sufficiently explored (Kaminskienė et al., 2020) and, from a general perspective, can be located at the level of paradigm (Ramaswamy&Ozcan, 2014). As a *paradigm*, co-creation implies a radical rethinking of the way the production of new values is designed - realized - evaluated, moving from the individual to the group dynamic approach, from the classical to the interactive, collaborative and experiential, from the monodisciplinary to the inter- and transdisciplinary, from the horizontal or vertical to the combined. From this point of view, it can be used in any field of activity, from business to culture, from education to politics or administration. As a *process*, co-creation defines a way of collaboration among people from different backgrounds to create a product or service for their common benefit (Kaminskienė et al, 2020). Cook-Sather et al. (2014) provide a summary of the term co-creation, which implies a collaborative activity, a two-way process in which all participants have the opportunity to contribute equally, though not necessarily in the same way, to the accomplishment of the task.

Co-creation in the *learning process* presents itself as a type of co-creation with applicability in the educational field that has been systematically addressed in the literature since the 2000s, especially through the studies of Bovill et al. It is closely related to and materialises the perspective of *beneficiary-centeredness of learning*. It expresses the reality that the partners involved in this activity (young people, faculty, management, administrators) collaborate with each other to jointly engage in "co-creation in the curriculum" and "co-creation of the curriculum" (Bovill et al, 2016, p. 9).

It manifests itself "as a new pedagogical idea that emphasises learner empowerment" (Bovill, 2020b). Studies conducted over the past 5 years (Bovill, 2020b; Bovill et al., 2016) argue that we can place the co-creation process in the realm between student engagement and partnership, suggesting meaningful collaboration between young people and teachers in which the former become more active and work with teachers to build understanding of content and use of resources. In practice, the relationship between young people and teachers deepens, with the educational process understood as a joint endeavour with young people rather than for them (Bovill, 2020b; Cook-Sather et al. 2014). Co-creation in learning is an example of how 21st century pedagogy is increasingly moving toward an *open pedagogy* (Bates, 2019), in which the learner assumes much more than a position of beneficiary or consumer of learning, becoming both the partner of the teacher and the creator of his or her own becoming (Bates, 2019; Kaminskienė et al, 2020).

The attributes of co-creation in learning (Katz, 2021; Kaminskienė et al, 2020; Bovill, 2020b, Bovill et al., 2016) are fully in line with the 8 attributes of open pedagogy (see Figure 1, Hegarty, 2015, apud Bates, 2019):

1) Collaborative process (Katz, 2021; Könings et al., 2021) – all those involved in learning work and create together, regardless of their position (teacher, student), age, or level of preparation (less prepared young people, very prepared young people). There are three processes that guide and support the effort: Communication, Negotiation, and Research. As a rule, it is more often found in the form of co-creation in the curriculum, at the level of pedagogical practices, and it aims at a higher form of participation, engagement and activism on the part of the young people;

2) *Collaborative output* – the result of the process is not the product of anyone in particular, but of everyone (young people, teacher-researchers, in mixed (young people, teachers, researchers) or mono-teams (student teams, teacher teams, researcher teams). In mixed teams, the outcome is usually at the level of curriculum co-creation, while in mono-teams (of teachers or researchers) the outcome can usually be curriculum co-creation.

These combinations do not preclude mixed teams (young people, teachers, researchers, staff, or teachers, researchers) from also being productive in co-creating curriculum, especially with older young people or in academic settings. The result can be new curriculum, new knowledge, models, demonstrations, methods, presentations, projects, and actions;

3) *Transformative interaction and teacher position* - From a relational perspective, the teacher can occupy one of three positions: 1. sage on the stage; 2. guide in the learning process; 3. mediator in the middle. While the teacher has traditionally taken the position of sage on the stage, the perspective of co-creation changes this position. The difficulty is to move from focusing on the teacher to focusing on the learner, where the centre is equidistant from the two partners and they become co-creators of the learning process at the end of the activity;

4) *Learner's agency* – the learner's position, rights and responsibilities in the learning process change fundamentally. In a summary provided by Kaminskienė&all (2020) these are: agent of change; active partner; producer and co-creator of one's own learning process; evaluator of one's own learning experiences; participant in decision-making process; co-researcher; pedagogical co-designer;

5) New space for learning – this is called the Third space, where those involved in learning meet, bringing different experiences and areas of knowledge. It can be a physical, virtual or imaginary space, in which none of the participants has priority in knowledge, which stimulates their involvement in the process and which ensures, through the use of heuristic conversation, the co-creation of new knowledge. In co-creation, the learning environment is transformed, enriched by their life experiences (Katz, 2021);

6) *Self-authorship – is defined* as "an orientation in the construction and evaluation of knowledge that is based on a balance between an understanding of the contextual nature of knowledge and interpersonal goals, beliefs, and values" (Baxter, 1999, p.32). This is especially important in co-creating curriculum when, in the partnership between young people, teachers, and academic staff, each participant respects the other's

contribution and learns from each other. The effects of this way of working include cognitive, interpersonal, and intrapersonal development, critical thinking, and the ability to apply theory to practice;

7) Learning community and partnership in learning – the focus shifts from the learner to the learners, they form a community that learns together (Bovill, 2020b). Outcomes of shared learning include: increased student engagement; development of student empathy toward teachers; young people feel respected; they perceive learning as more authentic and relevant; sense of belonging to the learning community is significantly impacted;

8) Metacognitive practices – co-creation of learning contributes to awareness of both the learning content and the learning process. Basically, learners monitor and analyse their work and results together with others, which means that "co-creation in education very often involves collaborative metacognitive practises" (Kaminskienė&all, 2020, p. 343);

9) *Value co-creation* – co-creation expands knowledge by encouraging participants (teachers and young people) to evaluate prior knowledge and experiences together in a new light. It has positive effects on shared responsibility, increases respect and trust, personal satisfaction and development, stimulates leadership development, communication and teamwork.

Some conclusions
- Co-creation in the learning process does NOT diminish/exclude the teacher expertise, but requires superior learning facilitation and negotiation skills;

- Co-creation in the learning process is NOT easy to organise and carry out, it encounters many routines, biases and classical approaches to teaching;

- Co-creation in the learning process brings many positive effects, but it is not a universal remedy, a miracle solution to the challenges of today's education.

INFO BOX

1. Co-creation in learning is not possible without a relational pedagogy (Bovill, 2020a);

2. Learners want this participation and collaboration and believe that the co-creation approach to learning is valuable because: they can learn better by explaining knowledge to other peers; they become more involved in learning; they gain more confidence when they see that other peers have similar learning difficulties and find that they can overcome them together; teachers are much better able to see how young people learn and what specific problems they have; young people feel stimulated and empowered in creating the curriculum or aspects of the curriculum; young people have a better understanding of the instructional approach and goals set by teachers; the process is fun and can be enjoyable (Bovill, 2020a);

3. Interactive learning is not synonymous with co-creation in learning (Bovill, 2020b), although in all co-creation learning, learners are interactive;

4. Benefits of co-creation in learning include: Improving the psychosocial learning environment; Stimulating student motivation; Stimulating metacognition components; Improving teaching and learning; Improving the quality of educational design (Koenings et al, 2021).

Figure 1. Attributes of open pedagogy
(Hegarty, 2015, apud Bates, 2019)

Source:
dd401711bb277d554ed1132dfbf1552e.png
(536×393) (pinimg.com)

Application/example:

1. A whole group of young people may be invited to co-create the curriculum of a course chosen by students. The teacher provides them with the subject and generic competencies to be trained according to the topic sheet, and the young people, together with the teacher, co-create the content, the teaching strategies, and the aspects of the assessment process;

2. Bovill (2020b) illustrates one way to co-create the assessment process. Young people present their completed projects. Each student self-assesses his or her presentation, and the instructor in turn assesses each presentation. A preliminary grade was assigned for content, and for project presentation, each student received reflective comments from both classmates and the teacher. The teacher then had a one-on-one discussion with each student. The presentation was discussed, and the reflective notes served as feedback and as the basis for agreeing on the final grade, which was based on the collective peer evaluation.

Keep in mind!
1. Interest in co-creation in learning has increased significantly since 2000;

2. Co-creation in learning means that young people and teachers can and will collaborate by co-creating curricula or elements of curricula, creating elements of curriculum, and/or other pedagogical approaches (Bovill, 2020a);

3. Co-creation in learning expresses the idea that emphasises learner empowerment at a higher level than traditional pedagogical perspectives (Bovill, 2020b).

Reflection (tasks)
1. Justify the importance of co-creation in learning for the process of human personality development;

2. Work out an example of co-creation in learning in your field of activity.

1.2. How can we apply co-creation in youth work?

Theoretical background
Co-creation is inherently a very appropriate and necessary approach to work with youth and adults, both in terms of their psychological characteristics (a certain level of self-awareness, identification of motivation, the ability to set goals and find ways to achieve them) and the complexity of the products that can result: from simpler (ideation - solutions, stories (Vettrano&all, 2017), posters) to higher level (a curriculum, a project design (2019), a theatre performance (Vettrainno&all, 2017), a guide, a book); from products (performance, book, solution, a partnership (Belechew&Taft, 2021) to processes (collaboration (Belechew&Taft, 2021); metacognition (Kaminskienè&all, 2020). There are analyses (Mistry, 2017) that show that very often young people are not included in the consultations that take place in the organisations where they are members and/or involved (and this happens from the schools where they learn to the companies where they work). It is forgotten, overlooked or not known how important their feedback is, how many valuable, fresh, necessary, realistic and visionary elements they can bring when they are participants in the process. There is a lot of talk about this need, but without concerted action and true collaboration, it is quite difficult to move things in this direction (Ervin, 2021).

Achieving co-creation in youth work means paying attention to ensuring and valuing the attributes of co-creation in the learning process at a higher level (Katz, 2021; Kaminskienė et al, 2020; Bovill, 2020b; Bovill et al…., 2016), which are fully consistent with the 8 attributes of open pedagogy (Hegarty, 2015, apud Bates, 2019; Baxter, 1999): collaborative process; collaborative output; transformative interaction and the position of the teacher/mentor/trainer/youth worker; learner agency; new space for learning; self-authorship; learning community and partnership in learning; metacognitive practises (knowledge and understanding of your own thinking); shared value creation (in the sense that they were summarised and analysed in subsection 1.1). They all need to be known, generated, practised, and lived symbiotically and with conviction.

If the participants in co-creation do not feel that what they are doing represents them, that it expresses their own aspirations and meets their own needs, that they are THEM, in a particular and representative way, then they will not engage and the process will not succeed. Paradoxically, "ownership is key" (2014), even though the product belongs to everyone and everything. Or maybe that is exactly the reason!

Although co-creation can be done in both formal and non-formal settings, it can be done systematically and with greater impact as a non-formal activity, whether the young people we are talking about are still in formal education or have left it. In both cases, co-creation adds value to the appropriation of the formal setting, the variety and diversity of valued or lived experiences, the support of progression, and the broader participation of young people (2015) in processes such as decision-making and negotiation (Dzigurski, S. (ed.), 2017).

Designing and implementing co-creation in youth work requires an organised pathway based on moving through interrelated phases. The descriptions of some of the recently consulted projects that have focused specifically on co-creation highlight different phases that are named and organised relatively similarly from case to case, though with some specific elements with some specific elements (Ervin, 2021 - 5 phases; GoNano project, 2020 - 6 phases; Li, 2019 - 7 phases).

Apart from the differences between them, the crucial aspect of the process remains that it is a creative process that essentially follows the general, psychologically familiar phases: Documentation, Incubation, Illumination,

Product Realisation, Review. Since it is co-creation, all the listed phases involve partners (even though product realisation basically becomes more important as a process and through the product).

Naturally, co-creation implies that the participants bring different backgrounds, experiences and perspectives and are equal in their inequality (they all have something to offer) (from different points of view, as at least those mentioned above, to which can be added: the culture they come from, the family they belong to, the education they have received and the way it has contributed to their development). The challenge is to build a "common understanding" among the participants (GoNano Project, 2020, p. 5), following rules such as: everyone is allowed to speak, everyone must express themselves; participants must listen actively; they must treat each other with respect, as equals; explore all ideas, no matter how crazy they may be, and not exclude them; value different approaches above all.

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I. According to the GoNano project (2020), there are 6 steps for applying co-creation in youth work:

1. *Define your goal* - Describe the problem you want to solve. What is your motivation and what do you expect to get out of it?;

2. Identify the stakeholders - Identify your stakeholders, their motivation and shared goal(s) that drives collaboration between them;

3. *Start planning* - Design your strategic and practical canvas;

4. *Organize your co-creation event* - Get familiar with the co-creation steps: exploration, ideation, prototyping, and reflection;

5. *Evaluate and reflect on the process* - Prepare an evaluation moment for yourself and for your participants;

6. Share the resury important to understand co-creation as an "iterative process" (p.4) in which we can move back and forth between these phases several times (e.g. the first discussion with the participants can lead to a rethinking of the goal, the dissemination of the results can lead to the start of a new co-creation process.lts - Make a communication, dissemination and exploitation plan.
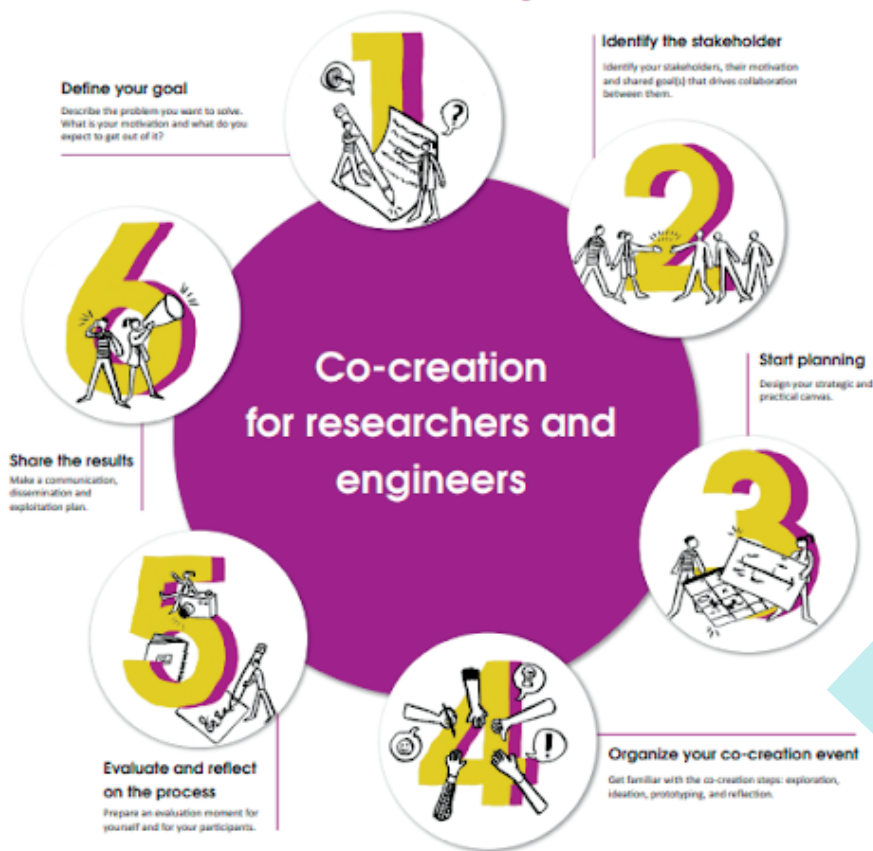
Image 1 source: A1-poster-Co-Creation-
Toolkit_LESS.pdf (gonano-project.eu)

II. According to Li (2019), there are 7 steps for applying co-creation in youth work:

- Stage 1: Idea Generation

- Stage 2: Field Study

- Stage 3: Refine Designs & Prepare Materials

- Stage 4: Prototyping

- Stage 5: Building

- Stage 6: Done!

- Stage 7: Share!

Image 2 source: Youth Adult Co-creation: Let's build
our dream youth centre! - MakerBay Foundation

Application/example

A team of 6 young people, 3 youth workers, 2 parents and a representative of an organisation is asked/invited to create the online design of an art programme for the youth organisation participation in an international gender competition. The representative of the organisation provides them with the rules of the competition, the deadline for submitting the project and the necessary infrastructure (room, materials, computer) and remains involved in the whole process of creating the programme together.

Keep in mind!

Key tips in successfully involving young people in co-creation (2019; Faye, 2017):

1. *Define the thematic focus precisely*, so that the effort is good from the set;

2. *Allow enough time* – to get to know the young people and involve them in the task, to act together; only after a year of experimentation can we expect to see the results of such practises;

3. Make sure the young person is *in the right place* to want to participate in co-creation. One activity is not for all young people!;

4. *Incentivise people to participate and reward their expertise* – encourage participation, promote engagement, and emphasise creating solutions;

5. *Encourage young people to be more creative*, whether in the arts or in science. Creative workshops are a great way to do this;

6. *Ensure multi - level stakeholder engagement* – the more and the better the number and quality of partners involved in the co-creation process (government agencies, government actors, youth organisations, and members of the broader community), the more likely it is that a better outcome will be achieved;

7. *Exploration and innovation labs* have proven productive from Europe (Kuhn&all, 2021) to Vietnam and Uganda (2019);

8. *Be persistent*, do not give up even if everyone wants to or some do not engage. Stand by them, offer support, build trust. Solutions emerge when you do not expect them at all, from the most unexpected approaches, the greater will be the joy of success!

9. *Stay accountable to the young people*, constantly explain what works and what does not, encourage any progress.

Reflection (tasks)

1. Justify the importance of co-creation at a young age. Give reasons for its necessity and usefulness;

2. Describe aspects of life in a society where co-creation could have an impact in activities with young people (e.g. economic life, work; political life, decision-making; social life, NGO projects; migrants, social integration);

3. Illustrate such a process;

4. Find an example of co-creation in activities with young people involved in design of an plan for a set of sports activities.

1.3. How can we apply co-creation in gamified learning

Theoretical background

Gamified learning adds certain game features to an existing (non-game) learning environment, mainly involving the reward system and narrative structure, to make it more motivating.

At the level of creation according to Bloom's revised classification, learners' activities are usually denoted by verbs such as adapt, animate, collaborate, assemble, plan, design, develop, invent, direct, create, recreate, negotiate, role-play, simulate, solve, and co-create. So when we design our own game, we need to incorporate learning and play mechanisms at different levels of Bloom's revised classification in a balanced way and make sure that the learning and play mechanisms at the creation level are motivating and not too demanding.

When we consider learning through games, it is important to incorporate activities that lead to the achievement of learning goals into the mechanics of the game we are creating.

Even though the term co-creation process was first used in marketing strategies to promote engagement, recently the term has been extended to other areas of activity, such as learning in the educational system (M. A. Merhabi, P. Petridis, R. Khusainova, 2021).

In a 2008 article, Vargo and Lusch (Vargo, S.L. and Lusch, R.F. ,2008) focus on the "co-creation of value" which, in contrast to the traditional service model, means that institutions do not "deliver" value to someone, but actively participate in a shared process in which customers also play an active role, in part through direct interaction.

In a study by Catherine Bovill (Bovill C, 2020), "building positive relationships between staff and young people and between young people and young people" According to Deterding et al. (S. Deterding, D. Dixon, R. Khaled, & L. Nacke, 2011), *the process of gamified learning here involves the use of game elements in a non-game context.* In relation to the field of higher education, Dacre, N., Gkogkidis, V., and Jenkins, P. (Dacre, N., Gkogkidis, V., Jenkins, P., 2018) emphasize that gamification offers the possibility of replacing the traditional asynchronous form of engagement with methods that develop a high level of synchronous interactivity and partnership between instructors and learners. In the case study presented, young people mentioned as a conclusion in their own words, "I felt like we were working on something that will help future young people, and at the same time we were learning how to improve it." The aforementioned study suggests that the use of game-based elements has the potential to increase engagement and promote participatory interaction. The idea of introducing co-creation in the context of higher education has been explored by Díaz-Méndez and Gummesson (2012), who suggest a positive impact on student engagement.

Was mentioned among other benefits of the co-creation process. As mentioned in this study, the role of young people in the co-creation process in learning could be different:

- The *representative young people*, namely a small group of young people selected to represent a larger group of young people;

- The *consultant young people*, often selected by staff and usually rewarded for working on projects;

The *co-research and pedagogical co-designer young people,* who are more involved in the educational process.

It is also emphasized that "positive relationships are not only a key element of co-creation, but also an outcome of co-creation" (Bovill C, 2020).

By game elements, we mean the features and mechanics of the games.

Nowadays, most good players know and have a good understanding of how a game works at the level of mechanics because of the available game technology. They usually know a good game when they play it, and can often determine exactly what constitutes a quality gaming experience. Therefore, the role of the co-creative player is very important in game development today (Caramba J.S, 2019). In a case study by Caramba on the game League of Legends, the sample was divided into two groups: High Involvement players and Low Involvement players who keep active contact with the developers of the game through the official game forums and social media - according to the interviews, Low Involvement players do not have any influence on the co-creation process and the development of the game. On the contrary, the high involvement group of players have the most contact with the developers and therefore participate more in the process of co-creation of the game. Apart from these two groups, the Superfans group (high involvement) influences the community of players through the way they play, the champions they choose, and their opinions about them.

There are many players who simply enjoy playing games but are not involved in the process of developing and creating games.

We can apply **co-creation** to gamified learning by involving players in the development and design of **game mechanics**. In this direction, they contribute to the improvement of the game by making suggestions, creating content, shooting videos, etc. The process of co-creation allows to develop their own strategies, which is one of the main features of active learning. Creation and learning and related game mechanisms to support creation occurred in almost all games. **Collaboration and co-creation** were the most common learning mechanisms in the selected games. In such co-created games, learners had to develop new solutions by creating code that solves a given problem situation; designing or creating a solution for a given problem situation.

They created their own characters; they wrote and told different stories in response to the problem situations; they designed different strategies to play and build their own civilizations; they also built relationships with each other while playing in a group; they played different roles that required them to synthesize and combine different information into a new whole; they planned and performed different activities, such as a performance show. Thus, collaboration, cooperation, and role-playing were the most frequently used game mechanisms to support learning mechanisms at the creativity level (*Methodology for the selection of game mechanics suitable for creativity development*, http://game-ed.eu/services/).

Rieber et al. (1998) and Zapušek & Rugelj (2014) argue that learning through game development can be more effective than traditional methods.

As noted in the literature review, authors such as Muñiz and Schau (2007) believe that co-creation is activated by (1) self-satisfaction, (2) social recognition, and (3) personal gratification.

From the current perspective that the teacher is not the only authority in communicating information, young people become more involved in research and their own learning.

The need for co-creation in modern society becomes more apparent as learning becomes more student-centered and aspirational. From this perspective, young people can begin to co-create values in the learning process.

The important role of the teacher is to provide joy in learning, joy in discovering and studying phenomena, and fun in actively developing new skills. From this point of view, learning and teaching can be described as co-creation of value in which both young people and teachers play an important role in the learning process. Young people can help create a learning environment that motivates them to learn.

Soliciting feedback, research, testing, suggestions, and opinions from customers is the best way to achieve a more accurate result in terms of what the target audience wants, thus creating greater loyalty to the learning process. Although the concept of co-creation is a new challenge, there are institutions and companies that use and benefit from this type of methodology in learning.

As innovative methods, co-creation, gamification, or the symbiosis of both are already being used by organizations as a mechanism for engagement, motivation, and internal loyalty.

A published 2016 paper by two Clemson University researchers (M. Qian, K. R. Clark, 2020) found many studies that demonstrate the impact of games on 21st century skills. Among the many games analyzed, the most successful games were those in which young people participated as co-creators in the decisions of the game. The researchers called them "design-based games," emphasizing that they could have a range of roles. Some young people were asked to create their own games using "block-based coding tools," while others were asked to write an interactive story about their learning at the end of the lesson. After a "design-based game," young people either learned more or showed better improvement in skills like critical thinking when they created something during or after the game.

INFO BOX

1. To help teachers or instructors implement a co-created gamification approach to learning, it is critical to ensure collaboration with young people in creating value.

2. Positive student-teacher relationships are at the heart of co-created learning and teaching." (C. Bovill)
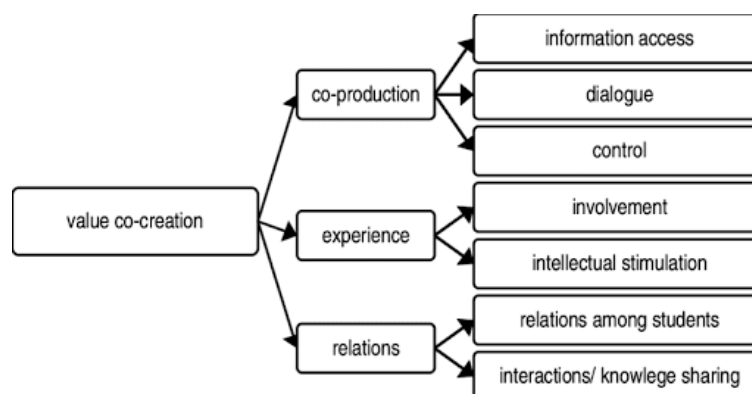
CO-CREATION VALUE STYLES IN HIGHER EDUCATION AND THEIR CONSEQUENCES. The Case of Poland, 2018, Katarzyna Dziewanowska

Application/example

1. Games consist of MECHANICS, which define how the game works and in whose development young people can participate. Feedback on this process as part of co-creation in the learning process can increase student motivation in a learning activity.

2. As part of the Erasmus+ project "GameIT: Gamestorming for Innovative Teaching", a board game was developed to promote creative thinking, communication, intercultural awareness and cooperative skills. The board game "Planet Hexagon" was developed for various educational purposes: to introduce participants to each other, to stimulate communication, to develop critical thinking and creativity, and to improve communication in English.

A competitive/cooperative game (you can read more about it and download all game materials from the project website, http://game-it.net/boardgame.html) in which four players/teams compete against each other, but members of a team cooperate with each other. The game is designed for 2-5 teams with 2-6 young people and can be used in class.

Source: http://game-it.net/boardgame.html

Each player accumulates points by establishing a new community by acquiring fields, forests, and water, constructing houses and public buildings, and building farms and factories. Hex tiles symbolize different types of land. Communities are built by adding different hexes. The team with the highest score wins. The object of the game is to build a colony from different tiles that represent specific types of terrain and structures.

In developing the final form of the game, young people from the 4 countries that participated in the project (Poland, Slovenia, Norway and Romania) were involved in the following activities: testing, briefing, post-game discussion, and reflection on accompanying activities. Some of these activities took place during an intensive study program within the project.

Keep in mind!

"Game mechanics are rule-based systems that facilitate and encourage users to explore and learn the properties of their possibility space through the use of feedback mechanisms" (COOK, 2015)

Reflection (tasks)

"Our real problem is - what is the goal of education? Are we educating children who are only capable of learning what is already known? Or should we try to develop creative and innovative minds capable of discovery from preschool age and throughout life?" (J. Piaget)

1.4. Human-centered design principles

Theoretical background

Human-centred design is a problem-solving approach based on empathy, more specifically the philosophy that creating useful products, services, environments, organizations, and modes of interaction demands learning from and understanding the people for whom the solution is being designed (Sklar & Madsen, 2010). Briefly, human-centered design is innovation inspired by people.

The transition to the human-centred design has come across as naturally imitating the economic shift from industrial manufacturing to knowledge work where design is viewed as a way to solve problems that transgresses the issue of product aesthetics; thus, design has come to be appended to processes, services, computer-mediated interactions, communication and collaboration. Human-centred design methods may also be applied in areas such as educational practice, research, and communication systems that foster communities of practice.

Human-centred design is often synonymously used for design thinking (Brown, 2008). The distinction between these two concepts may be highlighted by looking at the relationship between them: whereas design thinking may be viewed as a characteristic of the thinker, human-centred design may be considered a set of principles and processes used to solve a problem in such a way that the user's needs are taken into account (Roschuni, Goodman, & Agogino, 2013). Another view on the matter considers user interactions as learning opportunities based on which design may develop (Stoker & John, 2009).

Several human research disciplines – marketing, psychology, anthropology – have inspired designers on how to collect user information; however, the objectivism of the research methods in such disciplines have failed to grasp the feelings, imagination and subjective experiences of users, hence empathic design has been proposed as a way to comprehend human subjective experience and make the best use of it through innovation and creativity. 7

Empathic methods incorporate:
- Shared language (spoken, written text, body language or visuals),
- Collaboration (including users in the research rather than doing it to them),
- Ethnography (observing and recording interactions and artifacts of users in real life situation)
- Empathic modelling (experiencing with your own body the physical situations of others).

By such methods, "practitioners are able to apply and integrate the insights and awareness of users with functional design rather than simply responding to a user's perceived needs" (Thomas & McDonagh, 2013).

The core members of a human-centred design team are practitioners (researchers and designers) and users or customers (beneficiaries or stakeholders of the outcome of the work, e.g. young people, learners).

Human-centred design consists of three dimensions:
- Mindsets, necessary for being able to engage with the work;
- Phases, providing conceptual guidance to frame the process;
- Methods.

These dimensions define the basic principles of human-centred design (Ruettinger, 2015, pp. 6-8):

(1) Mindsets – the acceptance of particular practices:

- Empathy: a key mindset required to understand different people, scenarios and places; it helps to engage the people you're designing for into the design process, leave preconceived ideas behind, and keep work grounded in user reality;

- Optimism: holding the belief that an answer is not yet known but there is a way out there towards that answer keeps the design process going;

- Iteration: it implies feedback, namely an opportunity to keep the users engaged in the design process and also revisiting initial ideas and striving to improve them;

- Creative confidence: the confidence in the ability to act on one's ideas combined with the belief that everyone is creative in how they understand the world, trusting intuition and following new ideas.

- Making: being able to first convey an idea and then to turn it into a solution; the making mindset is required to prototype, which needs to be done throughout the process;

- Embracing ambiguity: accepting that not all the factors involved in a problem can be known at once, being open to the idea that there will always be more ideas; there is no need to fixate on any one of them; ambiguity fosters innovation because it enables a working space open to possibilities;

- Learning from failure: achieving the right solution the first time is rare, so the ability to learn from failure is essential to human-centred design; openness to taking risks is essential to innovation and creative, authentic outcomes.

(2) Phases – the overlapping, complementary and non-linear aspects of the process that are already commonplace in the practices of any established organisation (Brown, 2008; Brown & Wyatt, 2010; IDEO.org, 2015):

- Inspiration: the research phase aimed at learning about the user/learner; it implies organisation and planning, and defining the design challenge, identifying the individuals and groups that will be a part of the research (beneficiaries and stakeholders, and the people who will be a part of the design team); this phase provides the framework for data collection from primary and secondary sources, particularly the people who will be impacted by the solution;

- Ideation: team members share and analyse the data gathered during the inspiration phase, participate in collective brainstorming and synthesis activities to develop ideas for prototypes ready for testing;

- Implementation: prototypes are tested and feedback is collected; assumptions, including the solution, may be revised during this phase; launching the final solution requires a plan for ongoing evaluation and monitoring.

(3) Methods – various methods are used throughout all the three phases; we shall here present several examples of methods for all the three phases (Ructtinger, 2015, pp. 9-18):

- frame the design challenge: the team agrees on what the problem to solve is by writing a 1-page summary of the problem and answering a series of questions such as: what is the design question, what is the ultimate impact that the team is trying to achieve, possible solutions and challenges that may come across while solving the problem, revising the original question;

- create a project plan;

- secondary research: a literature review;

- identify the right team: project people and beneficiaries, users of the final outcome;

- interviews: to collect information about the users' needs;

- analogous inspiration: „consideration of possibilities that are not available in the setting that you are designing for but are plausible and accepted in other settings";

- how might we: making the problem solving opportunity explicit;

- brainstorms;

- mash-ups: asking participants or team members to come up with ideas in unusual contexts;

- storyboard: to convey a progressive understanding of the problem, as well as serve as a prototype to describe emerging solutions;

- prototyping: making the solution;

- reflect and redo: „a set of methods to use throughout to continue to receive feedback from the people you are using for, integrating the feedback and iterate";

- monitor and evaluate: evaluate the efficacy and monitor progress of the solution in operation, even when the solution is "final" to ensure that the solution is responding to customer needs.

INFO BOX

Human-centered design (HCD) is a creative approach to understanding people and creating innovative solutions based on people's real needs.

HCD focuses on questions, insights, and activities of people for whom the product or service is intended, instead of designer's personal creative process, material or technology.

HCD – as different from other problem-solving approaches – is based on the methods which communicate, interact, empathize and stimulate the people involved.

HCD focuses on real human perspective. (Giacomin 2014; IDEO 2015)

Application/example

In education, human-centred design could help to solve problems in policy making, classrooms, teacher professional development and education research.

To apply the methods characteristic of human-centred design approach in teaching and conducting research, the team needs such tools as: pens, pencils, paper, post-its, butcher paper, whiteboards, posters, and different coloured media to reflect different categories and significance. The team members are provided with the same tools to enable each of them to contribute. Post-its have the advantage that they can be moved around the board depending on the aim of the activity, e.g. to highlight certain ideas by placing them in the centre. There may also be used digital artefacts, such as video recordings, audio recordings, photos, word documents, webpages and interactive devices such as tablets.

All methods that may be described as having the following characteristics may be used in human-centred design sessions:

- they are project-based;
- they require long-term planning and investment;
- they are resource-intensive;
- they involve the design of a solution that will impact other processes and workflows;
- they are communication-intensive;
- they impact a number of stakeholders with a diversity of views and responsibilities;
- they are complex or challenging;
- they are multidisciplinary.

Keep in mind!

Focusing on people and highlighting the emotional value, a design process is human-centered not technology or product centered. (Kolko 2014, 16-23; Kolko 2014, 74-76; Mootee 2013, 29-32)

Reflection (tasks)

1. Describe a human-centred approach related to the subject/domain you are teaching.

2. Highlight the advantages of using the human-centred approach in education.

1.5. The key benefits of human-centred design

Human-centred design has come across as an approach to education that can help learners build 21st century skills and competences that may empower them to overcome unprecedented employment challenges by fostering social innovation.

If we will think of some benefits of using human centred design in educational activities, we can find things like:

1. Human-centered design in educational activities for children or youngsters provide a better understanding of challenges and opportunities in their life context;

2. Facilitate an aspirational and an appreciative process in order to co-create a vision for a better and empathetic future of being together;

3. Human-centred design allows and deepens the perspective of discovering the needs and problems of young people and from there it provides the possibility to develop personalised responses;

4. It is a co-creation process in which feedback is taken, integrated and used to improve or even radically change previously identified solutions;

5. Allows not only innovation but innovation that is easily accepted by the beneficiaries of innovation and even futuristic in character;

6. It is an approach that allows us to keep up with the times by the rapid nature of the approaches to collecting needs and finding innovative solutions, thus becoming a methodology that is adapted to the specific context of today's world which is characterized by rapid changes that require a rapid response (Beg, Van Looy & All, 2014);

7. The whole process is based on trust and mutual learning and thus the end product of human-centered design approaches is considered to be user-driven and not just user friendly;

8. Builds a particular set of mindsets and acceptance of particular practices (empathy, optimism, creative confidence, building solutions, exploiting ambiguity, learning from failure, iteration as a sum of thinking outside the box, feedback, testing, reflecting) that fosters innovation by breaking existing limitations and/or dogma (Rodriguez et al., 2021; Ructtinger, 2015);

9. By resorting to design-mode questions such as "What is this idea good for?", "What does it do and fail to do?", "Does it have a future?", "How could it be improved?", as opposed to belief-mode questions such as "What does this statement mean?", "Is it true?", "What is the evidence?", "What are the arguments for and against?" (Bereiter and Scardamalia, 2008), human-centred design educational activities help build multidisciplinary approaches, "risk-taking, suspension of premature judgment, tolerance of ambiguity and an appreciation of ideas from broad perspectives" (Oviatt, 2013).

One example of a good tool used in human-centred design process is the use of empathy map in user approach (Tamarack, 2018: 6). Empathy is the ability to understand other people's lives and solve problems based on their perspective. The Empathy Map is a method that helps us take into account the perspectives of those whom our project impacts. Empathy maps can be filled in individually or as a team, and can help us understand the experiences of those for whom we want to design a solution for a problem. The time required for an empathy map is 30 minutes and applying it involves putting oneself in the other's shoes and thinking about how they experience the project. Answering a series of questions such as What are they seeing?, What are they saying?, What are they doing?, etc. helps with identifying useful details such as what the person wants or needs and obstacles to achieving those things. Then, each obstacle is addressed to find ways to overcome it.

The empathy map through which we may identify the problems of the beneficiary of our project may be followed by the How might we….? method through which we may formulate the problem more specifically and brainstorm solutions. The time required for this method is 15 minutes: 5 minutes to brainstorm ideas to solve the problem; 5 minutes to review the ideas and select one „big idea"; 5 minutes to start solving the problem by resorting to the „big idea" (Tamarack, 2018: pp. 8-9).

PART II. PRINCIPLES OF GAMIFYING LEARNING PROCESSES IN YOUTH WORK

2.1. Play, Game, gamification

Theoretical background

The *need for playful* manifestation is a generally human one (Boghian&all, 2019), manifesting itself not only massively at young ages, but consistently at all ages, even if in different forms, weights and with different purposes (and this despite the serious nature of work, social, professional and personal life) (Forman).

"Play is everywhere" (Tanis, 2012).

Despite this evidence, it sometimes seems that adults have forgotten both to play and how to play (apud Tanis, 2012), thus losing some of their freshness, health and creativity. Understood as a lever for complex growth and development, satisfying the need for play can intervene in youth work producing at least 3 *significant categories of benefits*, namely in the areas of relationships, job and mood. Some of the most relevant are:

- play can add joy to life;
- it relieves stress, "the opposite of play is not work, it's depression" (Brown, 2014) and improves stress management;
- play supercharges learning, allowing for creativity, critical thinking and fostering innovation;
- it connects you to others and the world around you;
- it builds a higher level sense of engagement (Brown, 2014), making work more productive and enjoyable;
- play is strongly involved in human development;
- it contributes to self-awareness and increased self-confidence;
- it is essential for health (Brown, 2022; Miles, 2020; Wong, 2020; Besio, 2018; The Benefits of Play for Adults; Forman; Sullivan; Brown, 2014; Tanis, 2012).

All these points reconfirm the idea that "play is more than just fun" (Brown, 2015; Brown, 2014) and its impact can be magical for adults as well as children.

The ubiquity of play, its massive impact on the human personality, the explosion of its current valorisation in every age group and in an increasing variety support the idea that we can refer to a new field, ludic epistemology (namely, theory of knowledge, especially with regard to its methods, validity and scope, and the distinction between justified belief and opinion, and what it means to encode knowledge in the form of a game, and how we might conceive coming to know as a process of playing) (Cojocariu, Boghian, 2014).

The analysis of the main related terms in the approach to the forms of ludic manifestation leads us to the following: play, game and gamification.

1. Play – Gray (2017, 2013) provides a thorough systematization of conceptual approaches to game, starting from Huizinga (1955), Vygotsky (1978), Kenneth Rubin and his colleagues (1983) and others.

Based on this comparative conceptual analysis, he offers a set of 5 characteristics of human play:

1. it is self-selected and self-directed;

2. it is intrinsically motivated;

3. it is guided by rules, but these leave room for creativity;

4. it is imaginative;

5. it takes place in an active, dynamic, non-stressful mood.

Besio (2018) presents Garvey's (1990) approach to defining play: "play is a set of voluntary, intrinsically motivated activities associated with leisure pleasure and enjoyment" (p. 4). This definition includes several characteristics (Besio, 2018): sense of freedom; pleasure; commitment, focus, seriousness; intrinsic motivation; need to do; role of creativity, imagination; importance of rules; social aspect. Regardless of whether we are talking about children, adolescents or adults, these elements are fundamental and general and can be found in any form of play.

To characterize play as completely and accurately as possible, Brown (2022) identifies 7 defining aspects of play:

1. *Purposelessness* - exercise for the sake of exercise and not necessarily to achieve something as a result;

2. *Voluntary nature* - it has no element of obligation, in fact, the introduction of obligation results in the loss of the aspect of play;

3. *Inherent attraction!* - it is intrinsically attractive because it is fun, it makes us feel good, it relieves boredom;

4. *Freedom from time* - its exercise causes the loss of the feeling that time is passing, it expresses a kind of escape from all other constraints;

5. *Diminished self-consciousness* - we detach ourselves from every thought, every worry, it does not matter what others think of us, we immerse ourselves completely in the activity (Maslow called it Peak Experience, Csikszentmihalyi called it Flow);

6. *Improvisational potential* - the ability to adapt flow, to create, to imagine, to discover another facet of things;

7. *Continuation of desire* - the practice of play does not cancel the need, but increases it each time.

In a longitudinal analysis, Treasure (2018, pp. 6-7) systematizes a number of relevant definitions of play, beginning with Froebel (1887) and ending with Uren & Stagnitti (2014), based on which he lists 9 qualities of any play activity: 1. Active - physical, mental, or both; 2. Meaningful; 3. Symbolic; 4. Voluntary or self-selected; 5. Enjoyable; 6. Process-oriented; 7. Intrinsically motivated; 8. Adventurous and risky; 9. Self-directed.

The accumulation of all these perspectives confirms the idea that "play is an irreplaceable lesson for life and a constant source of exhilaration" (Besio, 2018, p.12) and leads us in adult education to the moment when we can bring play into work, but also into learning, leaving aside the preconceptions according to which it is rejected (Brown, 2022). There is a wide variety of games, including attempts to create a taxonomy of them.

According to Treasure (2018, p.15), these include: Construction play, Rough-and-tumble play, Large-motor play, Dramatic play, Exploration play, Role play, Language/communication play, Socio-dramatic play, Social play, Small-motor play, Symbolic play, Mastery play, Recapitulative play, Digital/technology play.

2. The word/noun game - has as possible etymological roots the following approaches: Middle English game, gamen "delight, amusement, play, contest, pursuit of animals in sport", going back to Old English gamen, gomen "amusement, jest, pastime", going back to Germanic *gamano- (whence, Old Saxon & Old High German gaman "amusement", Old Norse gaman "sport, amusement"), of uncertain origin (Merriam-Webster.com Dictionary). An analysis of these perspectives shows that the meaning of the word game is more or less related to that of the word play; they are co-substantial, which raises terminological and/or action difficulties. Its earliest use as a noun is dated to the 12th century, with the meaning of an activity performed for diversion or pleasure (idem), being relatively synonymous with the word play. However, in the literature, its meaning is expanded by associating it with the presence or absence of certain purposes, as well as with the category of those purposes (Cojocariu&Boghian, 2014). Depending on the purpose and the way the game is constructed, it can (in principle) be an educational game (with a general educational function) or a didactic game (with a predominant learning function in a formal setting) (idem) (which does not exclude one or the other purpose, but only ensures the predominance of one of the purposes). The constructivist perspective on play reinforces the active role of all participants and their effective participation in achieving the educational goals at a higher level (identifying and analyzing contexts, formulating problems, finding solutions, verifying them, valorizing the results) (Boghian&all, 2019) in an enjoyable, stimulating, collaborative/competitive environment. In the context of applying didactic play with young people in (formal/non-formal) co-creation activities, the self-discovering and collaborative dimension implicitly enhances and reinforces the value of the outcomes, but also the formative impact on the actors. Among the defining aspects of the didactic game are: it has clearly specified goals; it implies a specific (didactic) task; it has clear rules; it has its own course that individualizes it compared to other games; it has a superior formative impact (Mâță&Cojocariu, 2011).

Games can be classified according to the following criteria (Cojocariu&Boghian, 2014):

content (e.g., sensory Acorns – 5 sensory games ideas to stimulate children's senses; mathematical 16 Fun Math Games for Adults – StudiousGuy; musical 8 Crazy Musical Party Games For Adults | Together Kit);

goal (e.g., warm-up 23 Icebreaker Games And Activities For Teenagers - momjunction.com; building skills and abilities 5 Fun Leadership Games for Skill Development | Indeed.com, stimulating creativity Five Games for Creativity - thedesigngym.com);

the psychological component involved/engaged predominantly (e.g., sensory, attention Huge List of Activities for Outdoor Sensory Fun - thechaosandtheclutter.com);

memory (e.g., 5 Great Memory Games for Adults - theclare.com);

thinking (e.g., 9 Best Brain Training Websites and Games - verywellmind.com; creation Team Building Activities to Spread Fun and Positivity at Work - proofhub.com; socio-emotional 25 Social Emotional Learning Activities & How They Promote Student Well-Being | Prodigy Education - prodigygame.com);

form of expression (e.g., words, Word Games - Daily Word Search, Crossword, Puzzle Games!; drawing, Drawing Games - Play Now for Free at CrazyGames!; non-verbal 49 Communication Activities, Exercises, and Games - positivepsychology.com);

symbols (e.g., Activity 3: Symbol Game and Drawing | Signs of Our Faith | Tapestry of Faith | UUA.org);

rules (e.g., traditional rules Rules for Traditional Games | How to Play Games - mastersofgames.com; spontaneous rules 14 Road Trip Games Adults Will Actually Enjoy - buzzfeed.com (*Idem*);

historical criterion (e.g., Traditional Games from around the World - whatdowedoallday.com);

digital (e.g., Digital Games for Peace - unesco.org).

The most interesting thing about the new developments in the field of game theory is that they highlight the fact that, although play is a completely different kind of human activity than learning and work, the trend in today's society is to include play more and more in learning and work precisely because it is understood in terms of its strengths and the positive effects it can produce.

3. Gamification – is the integration of game elements like point systems, leader boards, badges, or other elements related to games into "conventional" learning activities in order to increase engagement and motivation" (Centre for Teaching Excellence, Gamification and Game-Based Learning). It is a combined approach to (formal/non-formal) education and training, where game elements are added to the classic elements of the course to increase the attractiveness, engagement, interaction, mutual knowledge, creativity and, above all, the quality of the results. Gamification brings a greater emphasis on play in the activities carried out, with all the positive aspects mentioned. Adults are more and more inclined to rediscover their inner child and to introduce gamification into everyday life (Jackman, 2020), including everyday work, with the aim of improving interpersonal skills and relationships in the workplace, developing solutions to professional problems or defusing conflicts. This "gamification" experience provides opportunities for collaborative learning and participatory communication (Jackman, 2020). In the workplace, gamification is changing the way organisations are managed, leading to an increase in long-term engagement and improved employee loyalty (Brown, 2019). According to Brown (2019), gamification learning strategy implementation includes 8 features: badges, scoring system, rewards, gamification levels, progress bars, leader boards, templates, customization. In activities for young people, gamification is successful both because of their age and because of the obvious benefits.

Gamification is certainly not an easy process, either face-to-face or online. Some of the challenges/barriers that can arise are:

1. over-gamification - it is most difficult for developers and decision makers to ensure the optimal balance of game elements and avoid excess (precisely because it is hoped that they will bring pleasure, engagement, and motivation);

2. making rewards the purpose of gamification (over-rewarding), i.e., using gamification just for the sake of rewards; 3. over-rewarding can have a negative impact on intrinsic motivation (Scheiner&all, 2017). Recent studies (Sabornido&all, 2022) systematise the following key challenges and barriers to integrating gamification into the student learning experience: not all young people are fully engaged; tasks were not completed; performance was compromised; engagement issues occurred.

INFO BOX

1. Play and games are different (Walther, 2003) but not that different;

2. Game is a relatively higher form of play, which emphasizes the role of the rules, the game leader, but especially the goals (which are much more precise, clearly focused on a tangible, immediate or medium-term result);

3. There are a variety of criteria for the classification of games. Of these, except games used for educational purposes, the following are noteworthy: 1. board games: pure strategy games and/or dice games; 2. card games/playing cards; 3. video games - people interact with a user interface to produce visual feedback on a video device (Keesee, 2012, apud Boghian &all, 2019);

- 3.1. the most popular board games - The 10 Most Popular Board Games and How They Made Gaming Better (brandonthegamedev.com)
- 3.2. card games - CardGames.io - Play all your favorite classic card games.
- 3.3. video games - The 14 most exciting video games of summer 2022 - Polygon

4. The structure of the game is more formalised and the motivation to practise is more complex and connected with clearly defined goals;

5. the structure of a didactic game includes: theme/topic; purpose; task (game instructions); rules; game elements (competition, reward, punishment, encouragement, applause); strategy (methods, means, forms of organisation); actual game; game complication (variants); game's value (Mâță&Cojocariu, 2011);

6. the practise of the game implies a combination of the synthesis of the game with other methods: exercise, example, explanation, demonstration, conversation, problematization (Cojocariu, 2008);

7. the whole subject analysed here is subordinated to a specific subfield of pedagogy, which can be called the *Pedagogy of Play* (Jackman, 2020);

Adult Games Night Stock Photos

Group Of Mature Adults Taking A Play Break In A Modern Office

Source: Fotografii de stoc, fotografii și imagini scutite de redevențe cu Adult Game Night - iStock (istockphoto.com)

Source: Group Of Mature Adults Taking A Play Break In A Modern Office To Get Ideas Flowing Stock Photo, Picture And Royalty Free Image. Image 20222809. (123rf.com)

Application/example

1. Look carefully at the game described below, We're not really strangers (card games). 25 Best Party Games for Adults in 2021 - PureWow. It's meant for 2-6 players and includes 150 question cards, a final card, 2 dig deeper cards and 2 pencils. There are three levels that players take on, starting with 'perceptions' then moving on to 'connection' and closing out with 'reflection.' Familiarize yourself with the game and identify 2-3 reasons why it could be included in a meeting of young people involved in a co-creation activity.

Keep in mind!

Arguments supporting the usefulness and value of gamification (Furdu&all, 2017, p.58):

- "produce a better learning experience;

- instant feedback;

- better learning environment;

- can catalyse behavioural change, especially if combined with the scientific principles of cyclical learning and ensuring retention;

- most learning needs can be fulfilled, resulting in a performance gain for organizations".

Reflection (tasks)

1. name 3 arguments that speak for the importance of gamification in the co-creation process;

2. work out an example of gamification on the level of a co-creation process in the field of learning/work for your field of activity.

2.2. Theoretical framework – the need for gamification in the learning process

Theoretical background

As modern education evolves from the traditional didactic teaching model to active, student-centered learning, and the teacher's role shifts to guiding and supporting young people and fostering a motivating learning environment, games have proven to be an extremely relevant educational tool due to their flexibility and adaptability to a wide range of subject areas, different age groups and time frames, and learning outcomes. Studies have highlighted the importance of games in promoting knowledge acquisition, increasing learner motivation at all ages, and fostering general and domain-specific skills and abilities (Bevčič et al, 2020; Bergersen & Sviggum, 2020; Boghian & al, 2020; Mâță et al, 2020; EPALE, 2020; Cîrtiță-Buzoianu et al, 2019; Boghian & al, 2019; Reiners & Woods (eds.), 2015; Cojocariu & Boghian, 2014; Copeland et al, 2013; Squire, 2011). We have already experienced it in one form or another, consciously or unconsciously; for example, the apps on our phones use gamification (notifications, rewards) to get us to keep using them. Gamification is part of our daily lives: supermarkets, gas stations, coffee shops have a well-established reward system to keep track of their customers and offer bonuses, gifts or discounts; teachers and educators who use stickers as rewards or have a small competition based on quizzes with points and rewards in class are actually using gamification in the teaching-learning evaluation process. Gamification is defined as "the application of typical elements of play to other areas of activity" (National Youth Council of Ireland, 2020: 18). Gamification does not mean turning activities into games, but rather using elements of a game to make activities more interesting and fun: roles, leaderboards, game cards, badges, avatars, rules, tasks, points, rewards, competition, deadlines, challenges, customization, difficulty levels.

There are a number of arguments in favor of using gamification in the learning process. These arguments highlight the skills and abilities that gamification develops when used in teaching-learning activities (Sawyer 2002; Anderson et al. 2009; Milczynski 2011; Young et al. 2012; Charlier et al. 2012; Connolly & Stansfield 2006; Connolly et al. 2012; Keesee 2012; Bellotti 2013; Erhel & Jamet 2013; Whitton 2012; Tsekleves et al. 2014; Rugelj 2015; Clark et al. 2015; Rugelj 2016; Cojocariu et al. 2017; Rugelj 2018; Vlachopoulos & Makri 2017; Ince 2018; Faiella & Ricciardi, 2015):

(1) Skills related to the thinking process: a. Creative thinking (approaching a question or problem from different angles); b. Analytical and reflective thinking (analyzing and making judgments about what is happening);

(2) Practical/organizational skills (planning work, organizing resources, dealing with crises and solving problems, getting work done, measuring progress, taking calculated risks);

(3) Self-related skills (focusing for extended periods of time and thinking critically about the purpose and goals of learning; acquiring, processing, and assimilating new knowledge and skills; and seeking guidance and support; self-management skills (being self-motivated, acting with confidence, directing and evaluating one's own learning, showing flexibility, taking initiative);

(4) Skills related to others: a. collaborating during the learning process; b. improving social skills and communication skills; c. interpersonal skills: empathy, consensus building, negotiation, diplomacy, conflict management - resolving conflicts, respecting others, being a team player; d. cultural awareness and expression skills .

Source: https://www.hurix.com/selecting-gamification-services/

<u>*INFO BOX*</u>

- Gamification and games are not the same: games are for fun and recreation, while "gamification refers to an instructional strategy designed to increase engagement, motivation, and participation." (Hurix, 2022; Auman, 2011);

- Gamification integrates game strategies (e.g., scoring, competitive features, game rules, etc.) into a learning content and/or method;

- When gamification is integrated into learning/training, it helps to facilitate learning and make it more immersive and interactive through active participation and observation (idem);

- Gamification is not only about learning through competition and challenges, but also about learners exhibiting certain behaviors (e.g. practicing certain skills) and staying connected (Bellotti et al, 2014, 2013);

- Gamification principles (roles, challenges, rewards, competition, levels) make learning enjoyable and leave learners wanting more;

- Gamification supports learning motivation, knowledge acquisition, and skill development by fostering a good relationship between teacher/trainer and young people (Garris, Ahlers & Driskell, 2002);

- Gamification helps build 21st century skills (Qian & Clark, 2016).

<u>*Application/example*</u>

You can easily gamify modern, interactive teaching and learning methods by adding roles, rules, points, time frames, rewards, and challenges. Some of these teaching and learning methods (Six Thinking Hats, Frisco, Cubing, Fishbowl) already include roles, tasks, and a time frame, as well as rewards such as "winner" stickers, fruit, or even plant seeds to encourage a healthy lifestyle.

For example, you can use the Six Thinking Hats method for an English learning activity; this method may be applied by youth workers at youth NGOs or at a school preparing young people for an upcoming international youth exchange.

Materials: worksheets with vocabulary related to the theme, role cards showing the different colors of hats, colored paper/cardboard/textile hats, leaderboard, rewards (stickers/plant seeds, e.g., basil, thyme/fruit, or the opportunity to choose the following discussion topic).

Theme: Childhood and adulthood

Stages:
- 1. the youth worker gives the instructions: he/she explains the meaning of each hat color, the materials used, the task and how the young people should work on the task, the time to work on the task, the approximate number of words each group should use when giving their answer;

- The task is to prepare and present a response to the following imaginary situation from the perspective of each role: "You have just swallowed a pill that will turn you into an adult overnight. Describe your reality. What is your reaction? What do you do?"

- The youth worker also presents and explains the rules and possible outcomes (how to get a reward at the end of the activity); the rules are: the participants should discuss only in English; each member of the group should make his own contribution to the final outcome; each member's contribution should be written in the blank space of the role card; each group's final answer should be between 150-200 words; the time to complete the task is 10 minutes; each group gets points for the following criteria: Communication in English; timely completion of the task; accuracy; contribution of each group member; adherence to the required word count; oral presentation of the final answer by a group member (failure to adhere to any of these rules will result in a point deduction);

- 2. the youth worker divides the participants into 6 groups and gives each group a hat/role card and a worksheet as the one below.

White Hat

I'm after the facts and just the facts! The facts are:

....

Focuses on facts and data

The neutral white hat provides information – it holds and provides information about the subject, makes connections (e.g.: These are the facts: …); it is neutral and presents an objective view of the facts discussed, signifying objective thinking; the student who wears the white hat gives information about the subject under discussion in a neutral tone and direct manner, and does not express opinions or interpretations.

The other role cards and worksheets are similar to the one above and they contain the following role descriptions and associated perspectives:

The managerial **blue hat** clarifies situations/things/events – it represents the leader who leads the activity; it is the hat responsible for controlling the discussion, drawing conclusions – it clarifies / chooses the right solution (e.g.: What is the next step? / Let's summarize …); it also represents the control of the thinking process, supervising, making sure that things evolve in the right direction; it signifies speculative thinking; the student who wears the blue hat should monitor the situation, point out the essentials, synthesize the debate.

The intuitive **red hat** expresses its feelings about … - it expresses its emotions, feelings, likes / dislikes in relation to the characters / events / facts under discussion; the red hat neither justifies nor seeks logical explanations for the respective feelings; it provides an emotional perspective on facts; it signifies thinking influenced by feelings; the student who wears the red hat points out the emotions, the feelings involved in the situation in question, by saying, for example: That's how I feel about … / My feeling is that … / I (don't) like that; the red hat also allows the wearer to explore the feelings of the other participants in the discussion, asking them to express their opinion "from the perspective of the red hat", that is, an emotional and affective approach.

The pessimistic <u>black hat</u> identifies mistakes – it is the critic, presents the possible risks, dangers and mistakes related to the proposed solutions, it expresses only negative judgments (e.g.: It is not good for … / We are at risk of …); it provides a bleak perspective, judging facts; the wearer of the black hat looks at things critically, highlighting disadvantages, weaknesses.

The creative <u>green hat</u> generates new ideas – it offers alternative solutions, innovative ideas, looks for alternatives (What we should do is …); it offers a productive perspective on the situation, signifying creative thinking; the student who wears the white hat should offer solutions, ideas and new points of view in relation to the topic under discussion.

The optimistic <u>yellow hat</u> believes that effort generates creative benefits – it signifies the creator, positive and constructive thinking; the student who wears the yellow hat optimistically explores possibilities, builds the finality (e.g. What are the benefits …? / What are the objectives …?); the yellow hat observes and highlights the benefits, values or advantages of the facts discussed, expressing hope, taking into consideration the strengths, the value of the information and of the given facts.

Source: https://www.hurix.com/selecting-gamification-services/

- 3. The groups discuss and prepare their ideas according to the color of their hats; the youth worker supervises the group work;

- 4. The leader of each group presents the result of his group: the view of the topic discussed according to the hat color assigned to the group;

- 5. The youth worker notes the results of each group and on this basis determines the rankings of each group, which he/she records on the ranking list: 1st place, 2nd place, 3rd place, 4th place, 5th place and 6th place. Each group is rewarded according to the score obtained and the position: for example, the group in 1st place receives more stickers, but each group is rewarded more or less in one way or another.

Version:

The hats may also be given to the participants who work on the task individually; also, the same participant may be asked to wear several hats, or even all six of them, in the process of analysing a topic. It is advisable to help participants with questions, clarifications of inaccurate sentences, clues for each role to support them in correctly understanding the meaning of each colour.

Keep in mind!

- Gamification should be simple, clear, and straightforward; it should create a reflective experience and be integrative;

- Gamification supports deep learning by increasing learner motivation;

- Gamification provides a safe space to share experiences and think creatively;

- Gamification allows learners to experience real-life situations and get a sense of what real-world contexts mean in terms of rights and responsibilities;

- Gamification helps build higher order thinking skills (building, analyzing, synthesizing, and applying knowledge).

Reflection (tasks)

1. Why is gamification important for motivating learners?

2. Is gamification relevant to lifelong learning? Give arguments.
Create your own example of gamification of a teaching method for a subject in your field.

Theoretical background

Gamification is widely used because it works, and it works because it increases both intrinsic and extrinsic motivation. Gamification builds intrinsic motivation by providing an activity that is fun: learners like it, so the learning effort is voluntary and the outcomes are more significant (Dzeng, Lin & Wang, 2014). Gamification also builds extrinsic motivation because it means working on a task to get a reward. Both intrinsic and extrinsic motivation are important in learning: while extrinsic motivation serves the pedagogical purpose of sparking learners' interest and curiosity in the new topic/idea, intrinsic motivation is a catalyst for long-term engagement. The use of gamification strategies should be according to the dynamics of the teaching/learning activity: for example, badges and stickers can be efficient to encourage participation, and leaderboards create a competitive dynamic (National Youth Council of Ireland, 2020: 19, Rugelj, 2018; Rugelj & al, 2018; Rugelj, 2015).

The first thing to consider when implementing gamification is the structure of a gamified learning experience; this should include the following elements (EYF, 2018: pp. 13-14):

- Action: the learner's activity is connected to the learning objectives; thus, a first step in gamifying a learning activity is to set the learning objectives and then select/design the activities for achieving them; the activities should motivate the learner;

- Challenge: a certain mission, quest, or challenge is assigned to the learner; this should be completed within a certain timeframe; this also implies a healthy dose of competition;

- Reward: the learner earns a reward or feedback of some sort for successfully completing the desired activity. From points, scoreboards, prizes to immediate event feedback loops, well designed games provide real-time feedback, making sure it is well deserved. There are, of course, many more concrete and practical (sub)elements that are used to create a gamified experience, as well as approaches to take, but this is a story for some other time.

2.3. Principles of gamifying learning processes in youth work

Theoretical background

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Other resources highlight the „recipe for meaningful gamification", namely (Reiners & Wood, 2015: 5):

- Play: This provides the opportunity to explore and fail within safe boundaries;

- Exposure: on the one hand, stories are created for learners and on the other hand, they are encouraged to create their own stories;

- Choice: Giving learners the opportunity to choose for themselves during the activity is an important stimulus for their intrinsic motivation, reinforces self-esteem and autonomy.

- Information: game design and game elements should be used to encourage and support learners to discover and acquire new information;

- Engagement: learners are encouraged to learn from each other;

- Reflection: helping learners connect to their interests and life experiences to promote learning and engagement.

There are other "prescriptions" for the principles of gamification of the learning process (National Youth Council of Ireland, 2022: 19):

- Encouraging curiosity as a means to increase learner motivation and engagement: Curiosity drives learners to find answers to a question, solve Csia problem/task, or figure out how to do something;

- Stimulating imagination through a story associated with an activity (e.g., humanity is threatened by an alien invasion).

- Tracking progress and providing feedback to show learners how far they have come in achieving a goal; "youth workers can track and visually represent accomplishments, which gives youth something to be proud of" (idem., p. 20) by using badges, stickers, and playing cards; to avoid making stickers seem childish or school-like, stickers can be adapted to learners' ages and areas of learning;

- Creating a sense of time pressure, urgency, and even panic to make the activity more enjoyable, encourage them to focus on the activity and meet the deadline; unlimited time to complete a task can cause distraction and boredom for some learners, whereas giving a limited time frame for the work to be done and using huge ticking timers creates urgency and promotes a sense of efficiency;

- Encouraging competition to make activities more enjoyable and social, thus motivating learners. However, competition should not be used regularly because not all learners are equally competitive in all situations (e.g., some find competition more appealing when working in a team, while others find competition more stimulating when working individually);

- Encourage discovery and adventure to increase learner motivation and engagement through game elements such as treasure hunts or field trips (e.g. Geocaching14, a great outdoor activity where learners use a global positioning system on their smartphones or other navigation techniques to hide and search for containers called 'geocaches' at specific coordinates; or a city game where learners follow a route through the city to discover clues) (Bieszczanin, 2020; Popescu, 2014).

- Enhance teamwork to balance skill levels, promote collaboration, and build teamwork skills; team-based competitions encourage learners to help each other: Each team should have time to build their identity as a team by establishing roles, a name for the team, and an identifying mark (badge, hat, armbands, etc.);

- Sharing knowledge, i.e., learners have the opportunity to share their knowledge and learn from others; many learners enjoy helping others learn;

- Problem solving in a group helps learners develop a range of skills depending on the task: artistic, general knowledge, athletic, logical, interpersonal, math, knitting, etc.

- Create challenges to motivate learners to apply their knowledge to achieve the goals, even if they have difficulty achieving their goals. Challenges should be neither too difficult nor too easy, as either extreme will cause engagement to wane due to a sense of defeat or boredom;

- *Create a sense of ownership* by allowing learners to customize certain elements of the activity: individual end product, trading cards, badges, rewards;

- *Designing an avatar*: learners can be given the opportunity to design their avatar and use it for one activity or a series of related activities;

- Learning through collecting and trading to encourage learner motivation, engagement, and acquisition of knowledge and skills: e.g., collecting and trading cities that have certain characteristics to learn about geography, economics, literature, art, politics, tourism, etc. However, rewards should be used in moderation, as extrinsic motivation can hinder voluntary learning if used excessively. In other words: If learners expect to receive a reward every time they learn something, they will refuse to learn without a reward;

- Engagement over time can be achieved through the use of leaderboards that show progress on a particular activity or over a period of time. Scorecards can be physical or digital: To avoid demotivation from being too low on the leaderboard for a learner or team, a division can be made through competition, or simply different goals (different tasks but similar difficulty levels) can be set for each team;

- Involvement in ongoing decision making, as being able to vote on what should be done in the group gives learners a sense of choice: Learners could vote on which activity to work on from a set of tasks; voting counters, cards, or flags can be used.

- As shown above, the principle of gamification of learning revolves around game elements that increase intrinsic and extrinsic motivation, and thus learner engagement, and help develop a variety of skills such as leadership, teamwork, working with deadlines, and improved self-awareness (self-efficacy and autonomy) (Prensky, 2001).

INFO BOX

1. "70% of the world's largest 2,000 companies have deployed at least one gamification application per year.

2. 77% of people are gamers (50% occasionally and 27% moderately to fairly frequently).

3. Learners remember only 10% of what they read and 20% of what they hear. When an oral presentation is accompanied by pictures, the number rises to 30%, and when they watch someone perform an action while explaining it, to 50%. But learners recall 90% "when they perform the task themselves, even if only as a simulation".

4. 80% of learners say they would be more productive if their university/institution or job were more game-like.

5. 60% of learners would be motivated by leaderboards and increased competition between young people.

6. 89% of learners would be more engaged if an e-learning application had a scoring system". (Gamification statistics, https://www.pathwaystrainingandelearning.ca/single-post/gamification-statistics)

Application/example

We here present a *role-playing game structure* that may be adapted for application at various disciplines from various fields at different age groups. The structure of the game has been developed by the Romanian team members from Vasile Alecsandri University of Bacău, Romania, within the Erasmus+ project *GameIT: Gamestorming for Innovative Teaching*, 2017-2020.

The game is called *The Labyrinth*. According to the story of the game, there are 2 teams, each team consisting of four characters for four different players: Hero, Advisor, Storyteller and Guardian. The Guardian is a stress factor, as he/she is a member of the competing team. The Hero and his/her team travel across a country (e.g., Romania). On their journey through the labyrinth they have to overcome a series of obstacles to move forward. Helping each other, they succeed in covering all the three levels of the game and exiting the labyrinth.

The goal of the players is to exit the labyrinth by travelling across the country within a fixed time limit. All the team members should join forces to help the Hero reach the country exit point. They have 45 minutes to overcome all obstacles. At the beginning of the game, each player draws a role/character card under the Gamemaster's supervision (the Gamemaster is the youth worker); then they form teams as follows:

- Team 1. Red Team: Red Hero + Red Advisor + Red Storyteller + Blue Guardian

- Team 2. Blue Team: Blue Hero + Blue Advisor + Blue Storyteller + Red Guardian

Before the game starts, each player presents his/her character by reading what is written on the role card. The roles on the cards comprise a brief description of the character and the actions that the respective player may perform, for example: the Hero is assertive, he/she initiates and maintains discussions and negotiations. He/she is passionate, altruistic, honest, and a peace lover. He/she loves and protects animals and nature. He/she is a traveler, an explorer, with good diplomatic skills. The Hero draws the Labyrinth map with Tasks. To solve each task, he/she does one of the following actions, according to what is available for each task: 1. Answers/performs the task all by himself/herself; 2. Asks for Resources from the Advisor; 3. Finds the answer by solving a puzzle from the Guardian; 4. Finds the answer on the map; 5. Searches for clues on the Internet to be able to perform the task.

The Labyrinth map is a series of various tasks that the Hero must solve to be allowed by the Guardian to move forward to the next level, for example: quiz-like questions; tasks that involve writing and telling a story; riddles; describing a food recipe; performing a fragment from a folk dance; performing a fragment from a song; finding clues on a map; finding the answer by means of helping clues; solving a puzzle.

There are 3 Levels in the Labyrinth, each level comprising 6 tasks, designed with growing difficulty. At the end of each Level, at the Exit point, the Story teller and his team have to make a story and tell it to the Guardian. After hearing the story, the Guardian allows them to exit the respective level and start the next level of the labyrinth. Before starting the next level, the players change roles by drawing different role cards under the Gamemaster's supervision, making sure that they have now drawn a different role. The Hero enters the Labyrinth with 1 LEU (Romanian currency) and, throughout the game, is allowed to buy only 1 answer. The Hero is rewarded by the Guardian with 1 LEU for each task that he/she solves all by himself/herself (namely, without any resources from the Advisor, puzzles, map or the Internet).

The Advisor holds the *Book of Resources* and provides the Hero with resources upon the Hero's request. The Advisor is not allowed to provide the Hero with the answer, but helps the Hero to solve/perform all the tasks. The Guardian holds the Treasure chest and the puzzles, and can sell only 1 answer to the Hero throughout the entire game.

The Guardian also holds some money to be able to reward the Hero. The Guardian also keeps track of the total amount of time for finishing the game by exiting all the 3 Levels of the labyrinth: 45 minutes. The use of information technology devices to find the answers to the tasks is allowed only for those tasks where this is mentioned. For the rest of the tasks, this is forbidden. The game ends when one of the teams exits the labyrinth first after having overcome all the obstacles from the 3 Levels. The game also ends when the 45-minute time limit for playing the game has expired, irrespective of whether the teams have completed all the 3 levels and exited the labyrinth. There are two versions of the game:

- Version 1: a game for 2-4 players, with no competitive team and no competition element; the game ends either when the 45-minute time limit is up, or when the players exit the labyrinth;

- Version 2: a game for 6-8 players, forming two teams that will be competing to exit the labyrinth first.

This role-playing game has the following learning goals:

Goal 1: young people increase their knowledge in a certain field (e.g., cultural knowledge);

Goal 2: young people practice and develop communication skills in English;

Goal 3: young people practice and develop soft skills: leadership skills: e.g., decision making, team communication, negotiation; management skills: e.g., time prioritization, interpersonal skills, communication, financial management;

Goal 4: young people practice and develop intercultural awareness related skills: perspective switching, observaion, empathy, decision making, taking practical and effective actions.

The tasks may be adapted and modified to suit the contents of various topics and learning goals (English, Science, Arts, Communication, Advertising, Environmental awareness, etc.).

Keep in mind!

1. Gamification is focused on intrinsic and extrinsic motivation of learners.

2. Gamification increases learner engagement by making the activity fun, challenging, and self-directed.

3. Gamification helps learners acquire new information, acquire a variety of skills, and develop positive attitudes toward learning and others.

4. Gamification supports peer-to-peer learning.

5. Gamification is efficient (e.g., Duolingo) (Ranchhod et al, 2014).

6. Gamification helps build community and a sense of community.

7. Gamification makes learners feel valued, recognised, and supported.

8. Depending on the context, gamification implies real prizes and rewards.

9. Gamification can be easily implemented by any trainer in any field if they are willing to combine game elements (rules, tasks, roles, points, competition, deadlines) with an already developed activity.

10. Gamification is objective and gives learners a sense of fairness.

11. Gamification helps learners achieve cognitive, affective, and behavioral learning outcomes.

Reflection (tasks)

1. Select the main principles of gamification of learning that you think will be most attractive to your young people; give arguments.

2. Think of a teaching/learning activity that you could easily design using gamification and describe the game elements you would include.

2.4. How do we build games in the learning process? (Tools, methods of gamification)

2.4.a. Where do we start?

To analyze or design games, we should consider these four different game elements: the narrative, the mechanics, the dynamics, and the aesthetics of the game.

The narrative is the story of the game. The story of the game attracts learners, connects them to the game activity, and motivates them. The story can be presented graphically or in words by the teacher or a team member. The mechanics of the game are represented by the rules of the game: Rolling dice, moving pieces on a board, paying assets, trading pieces, etc. The game mechanics must be logical: When designing a new game, it is safest to take inspiration from the mechanics of well-known existing games such as Monopoly or Activity.
Game dynamics refers to the action of the game: a race, a competition for assets, points, or avoiding penalties (going to jail or having to sit out a round). The action of the game requires strategic thinking, discussion, and negotiation as learners think and talk about the consequences of the choices they make during the game.

The aesthetics of the game are manifested in the emotional responses the game elicits in learners - excitement, relief, panic, etc. In terms of emotions, games should help build empathy, mutual respect, solidarity, etc. Simple games usually have manageable mechanics and dynamics, while in strategy games, such as Monopoly, new and more complex rules come into play as the game progresses (National Youth Council of Ireland, 2020; Bevčič et al, 2020; Rugelj & al, 2018).

The quiz games used in schools with points, prizes, and leaderboards that incentivize winning and build healthy competition are an early example of gamification in learning (International Training Centre, 2022: 5). Gamification is not synonymous with games. Gamification borrows tools and techniques from the field of games to make experiences that are not game-like, and thus encourage players/learners to engage in certain behaviors with the ultimate goal of developing and practicing the skills that underlie human desire: socialization, learning, mastery, achievement, and status.

Depending on the level of engagement and learning outcomes, gamification can be approached at three different levels (International Training Centre, 2022; Rugelj, 2018; Rugelj & al, 2018):

- one can target individual game mechanics or use a specific isolated gamification element sporadically during activities;

- at the next level, one can use gamified experiences by taking either a new or existing application and incorporating multiple game mechanics throughout the activity;

- at the next level up, there are the full-fledged learning games, which are in fact games designed to achieve a specific learning outcome.

The difference between games and gamification is that gamification is a non-game activity designed using game principles; real games teach players to successfully complete a specific activity, while gamification requires effort to solve more complex tasks; game-based learning is learning with and through games; gamification is learning through learning content organized according to game principles and rules (European Youth Foundation, 2018: 13).

2.4.b. Tools for gamifying the learning process

First of all, a conceptual distinction should be made to distinguish between tools for motivating learners, tools for designing a game or gamified teaching-learning activity, and the game as a learning tool (International Training Centre, 2022; European Youth Foundation, 2018; Reiners & Wood, 2015; Macklin & Sharp, 2016). The tools of game design are the principles that help us understand the parameters of game design, much like colour, shape, position, and lines establish the basic parameters of visual art. From the literature, the tools needed for gamification of teaching and learning activities are tools that motivate learners; furthermore, games, game elements, and computer-based tools are tools used to gamify teaching and learning and increase learner motivation, engagement, and participation.

Many gamification applications in learning, education, personal growth, and development aim to increase learners' intrinsic motivation through the use of extrinsic motivational tools such as virtual medals, gifts, avatars, and achievements (Reiners & Wood, 2015: 221)

Game-based learning platforms have been used for years in various sectors to teach skills such as social awareness, negotiation skills, cultural knowledge, and awareness: Food Force, Merchants, Our City. By leveraging available technology, such games have a greater impact than other media and allow for quick and easy game development and dissemination (International Training Centre, 2022: 7). There are already a number of digital applications that teachers and trainers can use to easily make their teaching-learning assessment activities fun: Kahoot, Quiz, Wordwall, Padlet, LearningApps, etc. Most of them are easy to learn and use during a youth activity or in the classroom, they are suitable for almost all age groups and learning subjects.

In our previous work, we elaborated a framework to help educators identify and select the best games and game elements to gamify teaching-learning activities depending on their learning objectives; educators may use the table below for suggestions on some of the types of games that may support the young people with whom they work in achieving particular learning outcomes; for example, if you want to support learners in building decision-making skills, along with teamwork, but also self-efficacy and self-assessment skills, then a good idea would be to have them engaged in role-play activities (Boghian, Popescu & Cîrtiță-Buzoianu, 2020: 189-190).

Examples for types of games/gamified activities	Pedagogical goals/learning outcomes		
	Cognitive outcomes	Behavioral outcomes	Affective outcomes
Icebreakers	comprehension	participation; communication/ binteractivit; collaboration/ coordination; reflection; feedback	engagement; enthusiasm; interest; satisfaction; recognition
Role-playing games, role-play (digital and classic) Computer games Board games, card games	decision-making; problem solving; comprehension; knowledge acquisition; conceptual change; transformative, situated and experiential learning; conceptual application, spatial cognition; content understanding; critical thinking; knowledge retention; metacognitive skills (self-awareness, self-assessment)	perceptual motor skills; participation; team work; project management; leadership skills; organizational skills; adaptability; ability to solve conflicts; transfer of learning; social skills, scaffolding, communication/inte ractivity, collaboration/coordi nation, reflection, feedback	engagement; enthusiasm; interest; satisfaction; challenge; motivation particularized as self-efficacy, effort; self-assessment; recognition; emotions; attitudes
Current affairs quiz	knowledge acquisition; conceptual change; transformative, situated and experiential learning; conceptual application, spatial cognition; content understanding; critical thinking; knowledge retention	perceptual motor skills; participation; team work; project management; leadership skills; organizational skills; adaptability; social skills	engagement; challenge; motivation; emotions; attitudes
Colonization timeline	problem solving	cooperation	challenge
Picture-to-story games	content understanding; critical thinking; knowledge retention; creativity	organizational skills; adaptability; reflection, feedback	engagement; satisfaction; challenge; motivation; recognition

In order to select the best applications, game elements and mechanisms for gamification of the learning process, we can refer to several models proposed and tested by researchers: these help us find the right way to gamify the learning process to ensure learner engagement and motivation without changing the learning outcomes and/or the level of task complexity.

One such gamification tool is the SAMR model, which was developed to help educators gamify their teaching-learning evaluation activities by incorporating technology, resulting in higher learner engagement, productivity, and retention. The SAMR model implies four lines of action that educators should pursue to gamify the teaching-learning process through the use of technology (International Training Centre, 2022: 9-10):

- Substitution: technology is a tool and does not functionally change the lesson; for example, the educator invites young people to use Google Earth or Google Maps to locate a place instead of an atlas; the question is: what is the benefit of using technology instead of traditional tools?

- Augmentation: technology acts as a tool substitute and functionally enhances instruction by increasing learner productivity and potential in some way. For example, the educator invites young people to use Google Earth to measure the distance between two locations on a map instead of using a caliper or estimating using a scale;

- Modification: technology allows tasks to be redesigned, which also changes the learning objectives; modification means that the activity is redesigned; for example, young people are given the task of researching locations on a map using Google Earth layers;

- Redefinition: technology allows educators to redefine a traditional assignment in ways that would not be possible without technology. For example, young people used Google Earth to create annotated tours of a place and share their final product with other young people.

The use of technology as a tool to gamify teaching-learning activities is not essential for effective gamification of teaching-learning activities. However, it is highly recommended to use technology-based tools in formal and non-formal education to support learners build digital and computational skills, which are key 21st century competencies. In addition to technology, there are a number of game elements that can be incorporated into task design. The educator can select one or more game elements to use depending on the learning objectives. For example, to ensure that the game elements work effectively, we should consider their impact on learners, the learning process, and learning outcomes (idem, pp. 14-15):

(1) storytelling: adding a story to a teaching-learning task motivates learners to complete real-world tasks to achieve a story-related goal; stories make learning more lifelike and memorable and promote learner engagement; stories help develop creative, divergent thinking; an "Escape Room" game pattern, for example, implies that learners urgently need to complete a series of tasks to prevent a disaster (e.g., a flood, being trapped in a room, etc.);

(2) roles: By taking on a role, learners are immersed in the story of that character; role-playing encourages various skills and abilities in learners: Creativity, empathy, resourcefulness, coordination, autonomy, time and task management, task sharing with members of the same team, out-of-the-box thinking, solidarity, etc.

(3) points/scores: Points are a form of feedback offered to learners as a reward for accomplishments or desired behaviours, or a way to track progress; points can be used to motivate learners and keep them focused on the task (point deduction for errors or failure to meet deadline), to quantify performance levels, to record progress;

(4) badges/certificates of achievement: badges and certificates of achievement are another form of feedback; they can be used for similar purposes as points and assessments; badges and points can also be used as a requirement for learners to unlock additional content; badges and certificates of achievement can motivate learners to learn new skills (sewing, cooking, making fire, etc.);

(5) collaboration/teamwork: Teamwork can be used to have learners work together to complete a task; teamwork promotes mutual learning, peer learning, and healthy competition; it motivates learners by creating a sense of belonging and striving toward a common goal; it helps foster each learner's unique personality by highlighting their role within the collaborative group; learners work together to solve challenges based on learning materials and compete with learners in other groups to demonstrate knowledge and skills related to a particular topic.

Macklin & Sharp (2016) summarize a set of game development tools that can be used for gamification of teaching-learning activities. The 10 basic tools for gamification rely on combinations of the six elements of a game (actions, goals, rules, objects, game space, and players) to create endless possibilities for the learner experience: constraint; direct and indirect actions; goals; challenge; skill, strategy, chance, and uncertainty; decision-making and feedback; abstraction; theme; storytelling; and the context of game. These can be used individually or in combination to develop new learning activities.

(1) Constraints: The actions, goals, and rules of the game impose constraints on the players/learners; the role and effect of constraints is to make the activity more fun and challenging; constraints promote a particular game experience that learners enjoy and find both challenging and satisfying; to better understand constraints, we can think of golf: Hitting the ball with a stick to direct it into a hole, rather than simply taking it with the hands and putting it into the hole; "much of the satisfaction we get from playing comes from well-designed constraints" (Macklin & Sharp, 2016).

(2) Direct and indirect actions: Direct actions are those actions that allow the player to interact with objects and the space of the game; indirect actions occur without direct contact from the player or the objects used to perform the activity; for example, in a pinball game, hitting the ball with the flippers is a direct action, while hitting the ball against walls, ramps, holes, and other features are indirect actions; In other words, indirect and direct actions within a game or game-like activity can be considered as cascading actions that are more or less under the control of the player; direct and indirect actions give the game-like activity a lifelike image; another example would be to associate the learner's movements or direct actions with certain sounds (e.g., certain sounds for a correct or incorrect movement/action/response); direct and indirect actions create the unexpected in a game;

(3) Goals: Goals give shape and purpose to game experiences by providing goals for player/learner actions; goals can be quantifiable, strong, and/or experiential, loose; goals provide the reasons for players to follow the rules; both quantifiable and experiential goals are motivating to the player; a good example of this is players changing the way a story progresses or the rules of the game based on a specific achievement;

(4) Challenge: Challenge represents the way a game challenges players either by the difficulty of achieving the goals or by the concepts embodied in the game; challenge is often approached with reference to Csikszentmihalyi's idea of the flow state, a state of high concentration and enjoyment; Csikzentmihalyi's flow chart describes what the relationship between your skill level and the degree of challenge feels like (Figure 1).
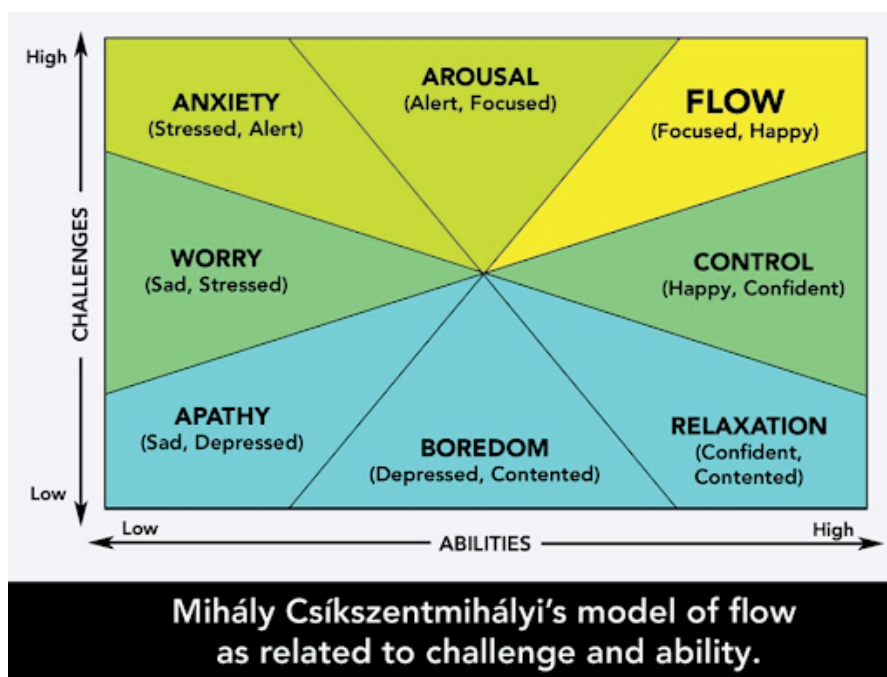
Source: Figure 1. Csikzentmihalyi's flow chart

Flow theory is useful not only in the design of games, but also of educational activities. For example, an activity in which the challenge is high and the learner's skills are also high leads to a flow state; however, if the difficulty of the activity is high and the learner's skills are low, this leads to worry or anxiety (Sillaots, 2016, 2014) (Figure 2; Figure 3).
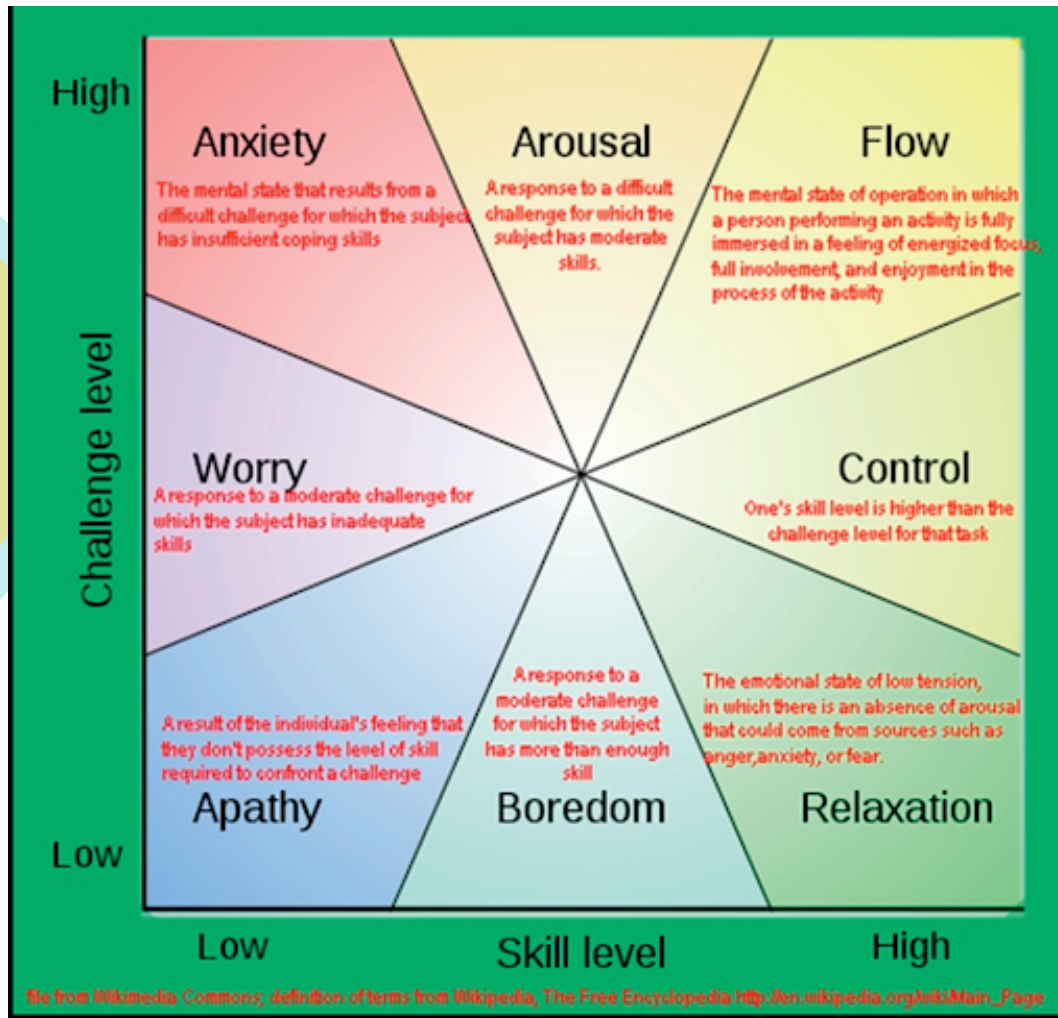
Source: Figure 2. The flow states explained

In the 1970s, Hungarian psychologist Mihaly Csikszentmihalyi began studying people who regularly engaged in activities that captivated them: dancing, outdoor activities, playing with the dog, painting, gardening, etc. The people he studied pursued these activities for their own intrinsic value; they were not motivated by any external reward and made effortless progress, were fully focused, and were not distracted by other thoughts. Csikszentmihalyi found that people who regularly pursued such activities (so-called "flow activities") were happier overall in their lives and felt more satisfied.
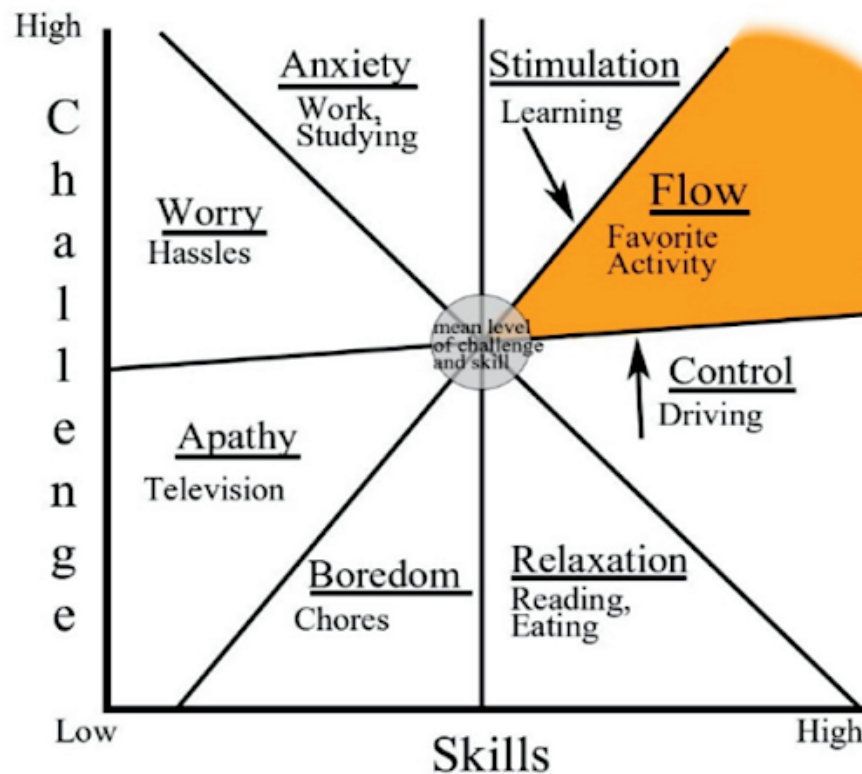
Source: Figure 3. The flow states illustrated

The flow chart reveals what learners need to stay motivated, focused, and engaged, which is to enjoy learning. The educator's role in gamifying a teaching-learning activity is to determine the ideal level of difficulty for learners. It should be noted that flow does not guarantee a good gamification design, but it does contribute to a very satisfying experience for the learner that is linked to long-term memory. Flow can be experienced in a learning activity, but it is not the only type of experience learners can have. An alternative concept to flow that comes from challenge is absorption: players can become deeply engrossed in their gaming experience. The point is to use challenge while making the learning process playful to create flow and/or absorption in learners to foster skill development.

(5) *Skill, strategy, luck, and uncertainty*: Skill is the mastery of actions, while strategy is the learner's ability to achieve the goal(s); luck is the use of randomness in a game, and uncertainty is the feeling created by the unpredictability of what will happen during the game; an example would be giving learners the opportunity to draw cards, roll the dice, or hit a target with a ball and continue the activity, making their strategy dependent on the outcome of the card drawn.

6) Decision making and feedback: during the game/game-like activity, learners make decisions about their next move/action based on the feedback the game/activity gives them. Games and game-like activities require learners to constantly evaluate what is happening as they continue to perform their tasks. This means that in a game-based learning activity, learners should be able to make decisions based on their actions and progress within the activity; one way to provide learners with the opportunity to practice their decision-making skills is to include turn-taking in the activity; another way would be to have learners make decisions against the clock. The decision-making- feedback loop gives learners an idea of the status of the activity.

(7) Abstraction: involves giving complex phenomena the form of a game by reducing the real game to an essential form, e.g., simplified maps of the world/city/region, player tokens, identity cards, color codes, decks of cards, rules;

(8) Theme: provides the logical framework for the representation of a game; for example, is it a war game, a parlor game, or a nature game? The answer cannot necessarily be deduced from the tasks, but from the roles that embody real-life occupations, positions, and functions.

(9) Storytelling: traditional narrative structures are often used as tools to create a game/playful activity. Storyworlds make learning more interesting and increase learner engagement by having learners play roles and perform activities through their character/avatar; sometimes learners develop their own story as they play/perform the activity.

(10) Game context: the context (when, where, with whom) in which the game is played; will the players/learners use their phones/tablets, will the activity be done in the classroom or in another location (lab, classroom and hallway, library, museum, etc.); the context frames the game and can change the nature of the game and create new variations and forms.

2.4.c. Meaningful gamification of the learning process

Learning is a process through which meaning is produced based on the acquisition of new information, the processing of experience, the linking of new information to prior beliefs, and the modification of behavior (Damon, 2004). According to Mezirow (1991), the process of transformative learning focuses on the search for meaning and each learner has a different framework for meaning depending on their needs, interests, and abilities. Helping learners search for meaning in non-game learning activities (Kotini & Tzelepi, 2013).

By considering the principles and tools for gamification of the learning process presented above, we ensure that learners design their own learning process and take responsibility, as well as credit, for achieving learning goals; furthermore, gamification of the learning process ensures that all learning styles are covered. The use of external rewards to control behavior is not a learner-centered function; it may generate negative feelings and gamification may prove to be meaningless. In order to select the most effective tools for meaningful gamification, the educator should always ask the following question when designing the gamification process: "How does it benefit the learner?"

Another important element to consider when designing meaningful gamified learning activities is assessment: the game score itself cannot be considered an assessment of the extent to which learning objectives have been met. In addition to the game score, the learner should be provided with a descriptive formative assessment of his or her learning process so that he or she can chart his or her own learning path and set his or her own goals; these goals can be constrained, if necessary, to ensure that they are achievable based on the learner's knowledge and skill level (Chen & al, 2011). The opposite of meaningful gamification is meaningless gamification. In the latter, the design of the activity focuses on the goals and needs of the curriculum without considering the needs of the learner. One threat to meaningful gamification is the overuse of extrinsic rewards, which is in fact based on achieving a certain lean outcome in a short period of time. Another threat to meaningful gamification is the focus of the design on what is easiest to apply without consideration of the needs and goals of the learners (Nechita et al, 2019; Reiners & Woods, 2015: 224-226).

To ensure meaningful gamification, there are several design values worth considering. Design values are defined as the qualities and characteristics we want to embody in the game and in the game experience. According to Nicholson (2015; 2012), the design values for meaningful gamification are those listed below; indeed, upon closer examination, these are the tools we have identified as most effective for gamifying the learning process:

- EXPERIENCE: what can the player/learner do and how does it make them feel physically and emotionally?

- THEME: what the game/activity is about and how it is presented to the player/learner; the concepts, perspectives, or experiences and how they are communicated to the learner (story, metaphors, systems modeling, etc.);

- POINT OF VIEW: what the player sees, hears, or feels; the cultural reference point? The way the game/activity and information are presented (simple graphics, stylized geometric shapes, detailed models, etc.);

- CHALLENGE: the challenges that the gamified activity presents to the learner (mental, physical, perspective, topic or theme challenges);

- DECISION MAKING: the choices the players/learners must make, how the choices are presented, how many choices the players must make over the course of the activity to complete the task;

- SKILL, STRATEGY, CHANCE, AND UNCERTAINTY: the skills the learner practices and builds during the activity; whether strategy development, chance, and uncertainty are present and relevant to the learner's experience;

- CONTEXT: who is the player/learner; where, when, and why do learners engage in the gamified activity; and who developed the gamified activity;

- EMOTIONS: the emotions that the gamified activity may evoke in the learner.

The design values described above are guidelines that the educator designing the gamified learning activity must consider. They are tools to ensure that the process of gamification of learning is focused on the learning objectives and the needs of the learners.

Reflection (tasks):

1. Imagine how you might gamify a teaching-learning activity for a subject you teach using the strategic framework of a game of chess. Try to define the learning content (the subject of the lesson) and outcomes, the spatial environment, the time frame for the activity, the level of the learners and the lesson objectives, the skills that the learners would practice, the challenges and emotions that the learners might experience during the gamified activity, the choices they would have to make. Try to anticipate the difficulties that might be encountered as learners engage in this gamified activity and how they might be overcome.

2. Think about your preferred teaching method and consider how you can add challenges and uncertainties to make it more fun and engaging.

2.5. How do we choose games in the training process?

Theoretical background

1. Games are fun and learning through games can be fun too!
Because of their traditional upbringing, adults often see education as a serious activity and any other way that does not look serious enough may be suspicious to them, their interest and motivation may decrease. Too much fun can also lead to frustration. For this reason, it is recommended that the trainer/teacher establish clear outcomes and goals when games are used in learning.

Once the learning outcomes are defined:
- activities that help learners achieve those outcomes need to be found and
- ways in which these activities can be embedded within a game have to be identified.

Once an appropriate game has been selected, the following steps were analyzed and followed:

1. identifying the learning goal of each activity;

2. determining the level of Bloom's revised taxonomy (*see* 1.3. above) for each learning goal;

3. determining the learning mechanisms for each learning goal and activity;

4. determining the game mechanics used to support the learning mechanisms for each learning goal and activity;

5. determining the assessment mechanisms for each learning goal and activity;

6. determining the game mechanics used to support the assessment mechanisms for each learning goal and activity.

Do we need joy and fun in the learning process more than we used to? It is because the general interest in studying and discovering phenomena has been decreasing or we have simply become more interested in what and how we learn. Modern learners do not want to be passive collaborators in the educational process, they want to be part of their education and have their needs addressed.

Learning is no longer seen as the transmission and absorption of knowledge, but as a process of skill development. The learning process is now **learner-centered** and becomes more active through modern methods such **as project-based learning, problem-based learning, the use of learning games, the development of learning games, storytelling, role-playing, peer reviews,** etc. Based on this perspective, it is becoming more and more obvious that gamified learning could add value to the training process and the main challenge lies in selecting the right games.

The strategy for selecting an appropriate game in the training process must be based on the objectives of the activity in which the game will be integrated. The dynamics of the game chosen must add value to those objectives, such as:

- enliven a session;
- consolidate knowledge;
- give an innovative format to the training;
- encourage participants to be more motivated to attend the training.

For example, in an assessment, if we transform the questions into a challenge for personal improvement, we create a motivating, safe and interactive environment in which the fear of doing something wrong disappears and the answers can be practiced with emotion, so that the mental agility of thought increases more and more, improving professional performance. If the goal is to really learn while playing games, it is very important that the dynamics of the game are not stressful.

To achieve performance in learning through gamification, it is important that the dynamics of the game allow enough time to:

- reflect on the answers identified, and
- allow for a careful review of the answers given in order to learn from mistakes with the feedback received.

When quizzes are selected in the training process, for example, a particular motivation to learn can be observed in people. In a game environment, it is more comfortable to determine the level of knowledge without feeling intimidated by a professor or trainer.

According to Butler et al. (A. C. Butler, J. D. Karpicke, and H. L. Roediger, 2007), learning with multiple-choice tests is at least 65% more effective than learning in traditional ways. It was also found to be 123% more effective than learning without multiple-response testing. In addition, if the test includes feedback after the answers, an increase of 35% is achieved in the test without any correction. (Bainad M, 2018). Simulation games, on the other hand, provide a safe environment that allows players to explore new behaviors or strategies without taking a risk. In the simulation games, we can test our knowledge and know that our actions do not have real consequences because "what happens in the game stays in the game environment".

The way the game interface is designed is as important as the content. The game's screens, which are designed for content, should contain visual messages that enhance recall of the concept being conveyed. In this way, video is a format that enhances comprehension and retention of what is being learned.

Storytelling is essential to the development of serious games because learners can identify with the characters and situations, and learning is transferred from an abstract situation to a context with meaning and purpose. Facts are better remembered when told in a story than when presented as a list. Legal arguments are more persuasive in a narrative story than in legal precedent. Serious games is the term for games that are not used for entertainment purposes, but there are several other definitions, including simulation games, educational games, or digital learning games. (Hauge J.B. , Soebke H, Broeker T, Lim T. , Luccini A.M., Kornevs M. , Meijer S. 2021).

We can mention some important educational values of games, such as challenge and curiosity (the desire to know or learn).

Trivia games, quiz games, point-and-click games have a drill and practice concept built in. In terms of game design elements, games that present materials in a quiz or drill and practice format are not engaging for learners (e.g., Lester et al., 2014; Ruggiero & Watson, 2014), while well-designed games "can make learners think" (Johnson & Mayer, 2010).There are many educational computer games that are essentially forms of programmed instruction.

Puzzles and strategy games as environments for decision making are examples of the cognitivist approach. Many of today's games give us the opportunity to participate in the creation of the story and shape the environment to our liking.

Studies (Carbonaro et al., 2010; Spieler & Slany, 2018) show that game design-based learning can be successfully integrated into numerous disciplines such as computer science, conceptual thinking, engineering, artificial intelligence, language skills, design, and art.

In terms of modern skills development, board games are an excellent way to make players/adults aware of the strengths of collaboration.

Team-based games help build communication and relationship skills: Players work face-to-face to answer questions or solve problems/situations and find that by working together they are better able to find and implement solutions more quickly (Methodology for the selection of game mechanics suitable for creativity development, http://game-ed.eu/services/).

INFO BOX

1. Appropriate **game technology and didactic approach** (both in game design and classroom implementation) can efficiently support learning.

2. The search for a potential learning game must always be linked to the question: "What do we want the players to learn?"

(3) After the learning objective for the young people is determined, the tools, resources, and appropriate games are identified.

(4) "Games can connect us to our peers in valuable ways, reduce our anxiety, and increase our ability to direct our attention" (C. Steinkuehler)

Source: https://playxlpro.com/11-tips-to-get-game-based-learning-right/

Application/example

1. Kahoot! is a game-based learning platform that can be used for both testing young people knowledge and formative assessment. It provides a good alternative to traditional classroom activities. The first benefit of using the Kahoot! Platform in the classroom is to increase engagement, motivation, fun, and focus to improve learning performance and classroom dynamics. Kahoot! is a "combination of audience response, role-playing, and the use of video and audiovisual aids" (A. I. Wang, R. Tahir, 2020). Kahoot! is a game-based student response system (GSRS) in which the classroom is temporarily transformed into a "game show in which the teacher is the game show host and the young people are the participants" (Wang, 2015).

2. Dragon Box Elements is a good example of a serious game where young people learn math while having fun with a video game. The example is one of the simplest and most effective games in education. Players must build an army, defeat the evil dragon Osgard and save Euclid's island. The game is designed for children 9 years and older to teach them the basics of geometry and the theorems of Euclid. The title of the game is inspired by the "Elements", one of the most influential works in the history of mathematics, which describes the basics of geometry.

Keep in mind!

"Play provides an enjoyable and relaxed atmosphere in which children can learn to solve a variety of problems, enabling them to efficiently tackle complex real-world problems." (Wood, Bruner & Ross, 1976).

Reflection (tasks)

It is not necessary to use complex games in the training process.

If the game is too complicated, they will spend more time playing than learning through the game.

Paradoxically, the games that seem the simplest are usually the most complex. Although there is a tendency to add unnecessary complexity to the game, it is better to avoid this in training because the goal for learners is to retain the content and not focus on playing the rules.

2.5.1. Are there steps to follow when we want to use gamification in the learning process?

Theoretical background

In the process of including gamification in learning it is important that those who coordinate the learning process have good knowledge about the background of the person or group of people for whom the gamification process is prepared, about their ability to understand and even adapt gamified learning content. From this perspective we think it is important to follow a series of steps such as:

A. Assessing those who are going to benefit from the gamification results. Knowing the elements that cause learning or behavioural difficulties for young people, we have a good starting point to think about a gamification strategy. For example they may not be focused on traditional teaching, they may not understand how to calculate the area, or the dynamics of historical events. If we know this, then it will be easy to design games with formative potential for young people. We can also discover their needs by using interviews, focus groups or questionnaires.

B. Following the assessment, prioritize where and how gamification can be more useful than other methods, and decide what content to gamify or what games can be used to achieve learning objectives.

C. Establish a set of educational and behavioral objectives that you are pursuing through the use of play, ensuring that what young people do through play helps them learn and develop skills.

D. Design the mechanics of the gamified or game-based learning activity so that it is well structured and largely predictable and manageable by the proposer.

E. Analyze and procure the resources you need for this type of activity. Sometimes it is necessary to produce your own materials, from lists of game instructions to game pieces/elements, drafting tasks and challenges etc.

F. Application/play, this is the stage where we test the mechanics and effects of the game used in education. This is the stage where we may need our attention and creativity so that we can make adjustments to tasks, dynamics etc.

G. Evaluation - this is the moment when we ask ourselves and check if what we discovered in point A, set as targets in point B and proposed in point C has been achieved.

INFO BOX

1. Determine the purpose of game-based learning: intervention, enrichment, reinforcement;

2. Don't hesitate to play the game yourself, making sure it is aligned with learning goals; also consider: teacher control, intuitiveness, engagement, content types and learning styles, content levels;

3. Ensure the game meets the expectations of learners in terms of achievement;

4. Dedicate time to consistent in-class play

5. Assess progress throughout play, informing instruction (in-game reports, self-reports, class discussions)

HOW TO **GAMIFY** YOUR ESL CLASSROOM

07 Consider Playing in Teams
Gamification in the classroom does not necessarily mean students will play individually and compete with others.

01 Choose a Goal
What do you want your students to accomplish? Is there a behavior/habit you want them to learn?

02 Divide It into Milestones
How can you divide your goal into achievable steps, targets or milestones they can progress through?

06 Design a Leaderboard
Leaderboards display which students have reached the most milestones, gained the most points.

03 Design Your Game Board
A simple chart with milestones? Or a board game type of path they must travel down?

05 Create Badges
Badges are an essential part of any effective gamification experience. Students earn a badge when they achieve a particular milestone

04 Create Avatars
How will students be represented in your game? Design avatars they can choose from or have them design their own.

Source: https://busyteacher.org/20574-gamify-esl-classroom.html

Application/example

A very simple and easy-to-use way to gamify teaching-learning activities is to adapt and transform common games.

For example, to gamify a Math activity, the educator may adapt the tic-tac-toe, or a game on any topic of interest by dividing the sheet into squares and, instead of leaving the squares blank, they can be filled with equations, problems to solve or various concepts and tasks, depending on the learning goals.
s discussions).

Or, any method that involves role-play, for example Frisco, or Six Thinking Hats may be easily transformed and used as a gamified activity by adding learning goals, specific tasks for each role/player, a set of rules, reward and punishment, challenges and competition.

Keep in mind!

- Do some research to see how others use games in the learning process and see if it is fit with learning objectives and outcomes;

- Set the learning goals according whit learner particularities;

- Search for and find games according to the learning goals;

- Assess resources (whether it is a digital or a board game, card game, etc.);

- Select the game/s for which you have the required resources and skills;

- Play the game/ monitor how players play/ identify strong and weak points, risks, challenges, etc.;

- Check whether learning goals are being met and get feedback from players at the end of the game;

- Reflect on how the game session went, identify challenges or risks, find support or ways to reduce such risks and challenges in future game sessions;

- Ask yourself if is possible and easy to modify and adapt gamified learning (including game concept)

Reflection (tasks)

Think of situations where or for which the use of games has a:

a) High level of effectiveness in achieving educational goals. Give a concrete example

b) Level of effectiveness that does not sufficiently justify the use of games in the training process.

2.6. How do we evaluate the impact of games, game-based learning and gamification in terms of building competencies/learning outputs?

Theoretical background

Despite the growing interest in games for learning, rigorous empirical evidence is needed to assess the potential of game-based learning with respect to 21st century skills. Moreover, empirical research on GBL is fragmented by many variables such as learner variables, game design variables, research purpose, and methodology (Hays, 2005).

Skill refers to one of the elements from the structure of competence. In the European Qualifications Framework (EQF), it is defined as: 'the ability to apply knowledge and use know-how to perform tasks and solve problems'.

The use of games can only be justified if the learning objectives cannot be achieved efficiently in any other way. From this perspective, the game is not a stand-alone activity, but part of the learning process designed to facilitate specific learning objectives.

The implementation of a collaboratively developed gamification methodology strategy represents a tool that, if properly applied, can provide a competitive advantage, outweighing the risk of initiating a disruptive process in the industry (R. Shams, H.R. Kaufmann, 2018).

Based on the needs of young people in the learning process, the influence of games as a means of learning and developing skills is increasing.

Exemplary game elements include points, stars, badges, leaderboards, achievements, levels, or virtual rewards to encourage learners to put effort into an otherwise uninteresting or boring task. (Werbach and Hunter 2012). These elements also help to develop work skills and autonomy, thereby increasing learner motivation in the work or learning context.

Intrinsic motivation is one of the most important elements in game strategy and also in the learning process. Many studies show that the use of games during a learning process promotes critical thinking, makes learning more active and exciting, and can be virtual models for real-life scenarios.

Games can introduce goals, interaction, feedback, problem solving, competition, narratives, and entertaining learning environments, elements that can increase learner engagement and sustain motivation.

Recently, Chang, Wu, Weng, and Sung (Chang et al., 2020) found that young people showed more flow experience and better problem-solving performance than modern skills in a game-based learning approach compared to traditional instruction.

A game can be a motivating way for employees to share their hands-on experiences. Another key objective in gamification learning relates to social skills. Games are also social environments where participants interact with each other and in some situations learn to work together for a common goal.

A **serious game** can be a successful solution for team-building activities to unite high-performing teams when individual scores are complemented by other teams.

In the manner of a simulation game, the person learning is carried in an environment that resembles the reality in which they are applying what they are learning. Virtual reality and augmented reality technologies from the simulation-like games could provide learners with detailed and realistic learning experiences. In such an artificial environment, learners learn the consequences of their decisions. Some recent studies have focused exclusively on the motivational potential of simulation games, ignoring their potential to improve work-related skills (Sitzmann T., 2011).

Learners who are also involved in co-creating gamified learning can develop their leadership skills.

In terms of learning outcomes, gamification develops problem-solving skills through a complex system of rules that encourages active exploration and discovery. The researchers also recognise the value of "concrete challenges that are tailored to the player's skill level and increase in difficulty." Likewise, they acknowledge the importance of the "emotional domain" (i.e., pride, joy, optimism, curiosity, and frustration at failure).

Role-playing is a method of experiential learning that allows young people to develop a deep understanding of an issue and express their creativity. It also promotes the development of various skills: basic mental skills - comparing, classifying, generalising, identifying, inferring, analysing, researching; critical thinking skills - analysing arguments, testing hypotheses, using language correctly; communication skills - listening, establishing a dialogue, taking positions, forming opinions.

In several games, learners had to develop new solutions by creating code that solves a given problem situation; design or create a solution for a given problem situation. They created their own characters; they wrote and told different stories in response to the problem situations; they designed different strategies to play and build their own civilizations; they also built relationships with each other while playing in a group; they played different roles that required them to synthesize and combine different information into a new whole; they planned and performed different activities, such as a performance show. Thus, collaboration, cooperation, and role-playing were the most commonly used game mechanisms to support learning mechanisms at the creativity level. This was followed by storytelling and design, which in several cases was supported by strategy, planning, and the ability to redesign. Other important modern competencies developed through gaming could be **identity formation, autonomy, tolerance, or coping behaviors.**

In a 2016 paper (M. Qian, K. R. Clark, 2020), two researchers from Clemson University in South Carolina set out to find out what existing research really says about the impact of games on 21st century skills. In their study, they found a "dearth of high-quality" research on the topic, suggesting that the field is either unpopular with researchers or difficult to measure. The findings suggest that "a game-based approach to learning can enhance student skill development in the 21st century." The studies that showed the greatest success (i.e., larger effect sizes) included specific elements of game design, including collaboration, competition, role-playing, and exploration and discovery.

In this extended study, M. Qian and K.R. Clark show some important conclusions regarding the effects of games on learning and skill building. The original study considered 3118 journal articles, suggesting that interest in digital games for learning is increasing. In the end, 137 articles were selected for review. These studies focused on learning outcomes, game types, and participant age, reflecting all types of interest in games for learning. This paper considered the most recent literature on game-based learning and identified 29 studies that focused on 21st century skills. However, as expected, the most common outcomes were still behavioural and attitudinal (42%) and cognitive gains (38%). The most common type of game used was educational (e.g., serious games, simulations, educational games), accounting for 50%, and a relatively small proportion of studies used entertainment games (25%) or mobile games (15%), although the latter remain popular as daily entertainment activities. (M. Qian, K.R. Clark, 2016)

Games offer the opportunity to teach knowledge, skills, and methodological abilities, but most importantly, how to use them. If necessary, games can even teach attitudes. Based on the definition of competence by the European Parliament, "a competence-developing game (CDG) is a game whose main purpose is to teach knowledge, skills, and personal, social, and/or methodological abilities in work or study situations in order to promote the professional and personal development of the player" (J. A. Koenig de Martin, R. Wolf, 2016).

The use of serious games in training can provide many benefits to the training process, such as:

1. Stimulates the mind;
2. Applicable to real world;
3. Increasing intrinsic motivation;
4. Permanent personal development;
5. Immediate feedback;
6. Collaborative learning.

According to Karl Kapp, a pioneer in the field of using digital games and gamification in learning, there are two types of games. "Test games are games where the learner must already know the information to be successful. The focus of the game is not on the application of knowledge, but on the retrieval of knowledge... If you want to test knowledge, test games are fine, but do not expect learning to occur in the process" (Kapp K., 2013). The second type is learning games: "Learning games, on the other hand, do not test knowledge, they teach knowledge. This is done through a series of activities within the game that teach the learner what he or she needs to do" (Kapp K. 2013).

When we choose one game or the other in terms of learning outcomes, some aspects need to be considered:
- The learning objectives/outcomes must be supported by the game;
- To address more skills, multiple games can be used in the activity/classroom;
- A realistic game could develop skills that are useful in the real world;
- The game must be fun, engaging, and challenging for the players;
- Is one game better aligned with the expected learning outcomes than the others?
-

Will the game address other learning outcomes to achieve a multidisciplinary experience for young people?

INFO BOX

In a keynote by prof. Constance Steinkuehler at the Games for Change Festival of 2017, some important facts mentioned are:

1. "Games provide a 23 percent gain over traditional learning";
2. "Content should be married to game mechanics";
3. "Action games enhance attentional control";
4. "Games are more powerful combined with paratexts";
5. "Games are great for language gains";
6. "Games are useful for overcoming bias and cognitive dissonance";
7. "Despite popular opinions, games promote learning and discourage negative behaviors".

(https://www.classcraft.com/blog/10-facts-games-learning/)

Application/example

In relation to the development of modern competencies, as an example, consider 8KEYCOM (https://www.salto-youth.net/tools/toolbox/tool/8keycom-first-aid-kit-for-trainers.2044/), a series of games that includes 9 games that focus on one of the 8 key competencies and all include different elements such as simulations, discussions, individual work, group work, etc. By using games in education, participants improve their knowledge and develop skills and attitudes in different areas and at different levels. The complexity of the games can be adapted for different age levels. By evaluating the game, young people analyze and reflect on the competencies they develop by completing a particular task or exercise in the game, why these competencies are important, and how they relate to their personal and professional lives.

The 8KEYCOM games increase participants' motivation in developing the 8 competencies of lifelong learning - communication in native language, communication in foreign languages, mathematical competence and basic competencies in science and technology, digital competence, learning to learn, social and civic competence, sense of initiative and entrepreneurship, cultural awareness and expression. Below we will elaborate on the games mentioned:

"ONE WAY OR ANOTHER" – builds understanding and communication in foreign languages and the mother tongue;

"ONCE UPON A TIME" – develops communication in foreign languages, acquisition of new foreign language vocabulary, builds conversation skills in a foreign language;

"ETHIC-POLY" – mathematical competence and basic competences in science and technology are developed;

"4 ELEMENTS" – mathematical competence and basic competences in science and technology are developed;

"DIGITAL ADVENTURE" – focus on developing the digital competence;

"MY LEARNING WAY" – the competency of learning to learn and understand importance of lifelong learning will be developed;

"SOCIAL EMOTION" – will help to develop social and civic competences, expression, communication skills, team work;

"PITCH" – develop the ability to turn ideas into action, dare to take risk, take the initiative;

"MATCH TO DISCOVER"- develop the competence of cultural awareness and expression, increase creative expression of participants;

(https://educationaltoolsportal.eu/en/tools/competence-games-8keycom)

Keep in mind!

1. Modern skills are developed through gamification learning.

2. Gamification will have an important impact on the globalization of education in the future.

Reflection (tasks)

For educational games, the following question is important: "Does the game include assessment tools or performance measures to provide feedback from players to users and instructors?"

Another issue to think about is the importance of creativity in the process of gamification.

Strategic training is usually associated with innovative learning programs combined with creativity.

Conclusions

Gamification and the use of human-centred design elements are challenges for both formal and non-formal education. As the users of this guide may find, experiential and child or youth-centred approaches lead to educational approaches with the greatest formative potential. From this perspective, we can conclude the following:

- The process of gamification and gamified learning in the way it approaches the relationship with young people can be considered simple and easy to put into practice. However, trainers should pay particular attention to the goals they aim to achieve by using gamified learning and gamification in education.

- Educational approaches using gamification and gamified learning are not play but accessible and experiential learning approaches, the essential purpose of such approaches is not to have fun but to have learners engaged in accessible and enjoyable learning.

- As educational approaches, gamification and gamified learning can be approaches that successfully build general skill sets that will enable most children and young people to adapt to real life and have a successful life.

- Educators who use gamified learning and gamification in education should do so only after they understand the philosophy of these approaches, their advantages as well as their limitations.

- Gamified learning and gamification do not exclude from schools or universities the classical training approaches but are integrated to serve the objectives of building general and specific competences

- Flexibility and mobility, to which we add creativity, are qualities that educators should own and manifest while developing learning together with those whom they train.

Co-creation and gamification in education, and not only, foster collaboration, engagement, creativity and an innovative environment, as well as a particular type of growth mindset: whereas gamification provides rules, steps, challenges and approaches, co-creation supports the participation and contribution of the beneficiary that adds value and customization to the process and/or product. In other words, co-creation of gamified content in formal and non-formal educational settings engages learners in building personalized learning activities and learning outcomes. Besides the advantages of active-interactive teaching-learning methods, such as enhanced engagement, raised learner motivation and improved retention, the co-creation of gamified content has long-term benefits such as creativity and innovation skills, and learning outcomes taking the form of tangible results (e.g., inventions, ideas put into practice as solutions for a variety of local, national and global problems, services etc.).

The human-centred design approach highlights empathy as a skill crucial to innovation and development in education and all other fields: the educational process can be improved by the educators' capability of understanding the learners' experiences, emotions, wants and needs, and by fostering a learning environment in which learners build learning (as product) and learning strategies (as process). One of the major challenges of implementing co-creation in gamification of education is the transfer of some decision power concerning the educational activities from educators to learners, but once this happens, the results are long-term as the learning process turns into a learning-creating-innovating process.

Be confident, playful and courageous in practicing gamification or gamified learning and human-centred design in education!

Success!

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