Sparks

Co-funded by the
Erasmus+ Programme
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Templates of

Gamified E-learning Programs

Implementing the conceptual Framework of the SPARKS Project

Project Information

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Coordinator	Lascò srl [IT]
Partners	Bexley C-Level IT [RO] Center for Innovative Education [PL] ECOS-Cooperativa de Educação, Cooperação e Desenvolvimento, CRL [PT] Femxa Formación S.L.U. [SP] Kyttaro Enallaktikon Anazitiseon Neaon - KEAN [GR]

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Introduction

The labour market is no longer the same: it is now a fact. However, if, on the one hand, the COVID-19 pandemic and the related containment measures have severely hit the labour market, on the other hand, it has been a catalyst for processes already in place: **the digital revolution, the greening of the economy, and the search for new development models**.

Our interconnected and hypercomplex society has set the stage for a renovation process of its economic system. A process that is driven by three factors: **geopolitics, sustainability, and digital innovation**. Nevertheless, all our cultural and thinking models lack the capacity to process and respond to the accelerated increase in complexity, particularly social, economic, environmental and technological complexity.

In this new scenario, the world of education has a great challenge ahead: providing the tools and knowledge so that this epochal shift becomes an opportunity. Not only that: it needs to drive people to embrace lifelong learning and make it their own to **continuously increase their toolbox, approaches, knowledge and skills** to operate in highly uncertain and complex scenarios in ecosystems made of interconnected data, people and objects.

However, we are often afraid of change or embracing new challenges, including the strain of acquiring new knowledge and skills. **Overcoming the barriers to change requires the right motivation**.

Motivational drivers today are mainly based on incentive systems, leveraging the so-called extrinsic motivation (i.e., doing something to avoid a punishment or achieve a reward). We cannot spoil the "game of learning" by limiting the focus on rewards and grades.

A game is enjoyable because it is fun, not because of any specific purpose, but because of the amusement it has in itself. Thus intrinsic motivation arises from an interest that drives one to act regardless of the extrinsic rewards that will or will not be achieved. Therefore, teaching can foster learning when it supports and enables learners to manage and put their skills to use, to act by virtue of something meaningful and belonging to themselves.

We are all players somehow. Games represent for us the natural language that help us represent complex and interrelated concepts, build relationships and actions capable of arousing emotions and triggering our ability to construct new meanings. Games connect us emotionally with others, conveying authenticity and trust at every point of contact. Games are exciting, engaging, challenging, and a layered journey. They create a sense of community and reward intensity and effort over time and the quality of the activities we are engaged in. They help us achieve a wide range of goals built around a common meaning.

Games and education have never been so necessarily complementary.

Sparks

Through this publication, the Sparks project Consortium aims to share new guiding tools to enrich the toolbox of teachers and trainers, support them in creating their gamified online learning programs and, ultimately, get **one step closer to making learning a unique and engaging experience**.

ABOUT THE PROJECT

Sparks is a Partnership for Digital Education Readiness project, co-funded by the Erasmus+ Programme of the EU. The project aims at developing innovative practices and tools for VET providers, teachers and trainers to use digital technologies for learning creatively and collaboratively, and increasing the ability of VET learners, teachers and trainers to adapt to online learning.

Specific objectives

- Providing VET organisations, teachers and trainers with innovative tools to enhance students' engagement and motivation in e-learning through gamification;
- Increasing VET teachers and trainers' digital competencies;
- Increasing VET providers' knowledge and understanding of game-play mechanics and dynamics applied to education and training practices;
- providing VET learners with opportunities to improve their transversal and lifelong skills.

To achieve the project objectives, a consortium of six organisations, nonprofit entities and SMEs from Italy, Greece, Spain, Poland, Portugal and Romania, in two years (2021-2023) will engage over 600 VET teachers and trainers, 1.000 VET learners and 300 representatives of the six involved countries' vocational education and training system in shaping new innovative gamified educational resources and tools for VET.

Project results

1. **International Research** on "Gamification and Game-Based Learning: Best Practices and Requirements for Digital Environments", carried out in the six countries involved. The national and comparative research reports, including the findings and conclusions of transnational research of best practices and focus groups with VET teachers, trainers and learners, are available at www.projectsparks.eu.

2. A **Conceptual Framework** for Gamified E-Learning Programs, to support teachers and trainers in designing their own gamified courses, combining game elements in different online learning stages.

3. These **Templates** of Gamified E-Learning Programs, applying the Conceptual Framework and designed with mixed groups of VET teachers and trainers, through Co-design Labs, to be customizable, flexible and work with any curriculum.

4. The ProjectSparks.eu **E-Learning Platform**, which will provide a builder to create gamified learning programs by choosing and filling out the desired Template, manage the program and monitor learners' progress, behaviour and engagement. The platform will be tested in pilot with VET providers and learners and refined accordingly. The platform will also host a long-term virtual **transnational community** of education and training providers interested in innovating their practices through gamification and sharing knowledge and experiences.

5. **Support** Material for the platform users, including video tutorials, e-learning modules and use cases for teachers and trainers, and an interactive user manual for learners.

THE PROJECT CONSORTIUM

The Sparks project consortium is composed of six organisations, SMEs and non-profit entities, with complementary experience and expertise.

LASCÒ
Caserta, Italy | www.lascò.com

Lascò is an innovative SME, founded in 2013 to guide people and organisations in pathways towards **innovation and digital transformation.** The company is specialised in digital products, including e-learning platforms and LMS, complex ERPs and management software for corporates, apps, eCommerce and marketplaces, platforms based on *Blockchain* technology, Marketing Automation and Data Analysis systems, as well as methodologies and tools to carry out innovation projects within corporates, Adult, Vocational and Higher Education entities.

Together with its national and international partners, Lascò designs and implements training experiences to foster digital skills, innovation management competences and entrepreneurship among young people, adults, and corporations. The company regularly runs workshops with the Startup Grind community, supported by *Microsoft for Startups*, to inspire and connect innovators, holds coaching and mentorship activities for professionals and innovative teams, and design workshops to think, work and design through Lean, Design Thinking and Agile methodologies and frameworks.

Femxa Formación S.L.U.
Vigo, Spain | www.grupofemxa.es

Femxa Formación S.L.U is a company specialised in consulting and training for employment, addressed to companies, public administrations, professional offices, training centres, and individuals. Its goal is to increase organisational competitiveness and people's employability and professional qualification. Since 1999, Femxa has been developing and implementing training plans for diverse business sectors in Spain and Latin America, providing tailored training solutions, conferences, coaching sessions and workshops. The company has:

- designed and implemented over 1.300 training projects, training more than 550.000 students;
- delivered more than 400 face-to-face and e-learning projects, training workers from all over Spain, as well as staff from corporations and universities in Mexico, Peru, Colombia, and Romania;
- carried out consulting, virtualization, and e-learning platform services for large institutional and corporate clients, such as Inditex, Walmart, Bosch, Bayer, Nestle, Easter, BorgWarner, etc.

Kyttaro Enallaktikon Anazitiseon Neaon - KEAN
Athens, Greece | www.kean.gr

Founded in 2004, KEAN is a nonprofit organisation, developing and implementing humanitarian programs to protect the social and physical

environments. The organisation has wide experience and expertise in implementing projects to promote employability and entrepreneurship. It offers young people and adults a wide range of opportunities to participate in EU programs (Erasmus+, DAPHNE, REC, HorizonEurope, EuropeAid), vocational training opportunities and volunteering. Furthermore, KEAN developed the "Planetbook Game", the first educational board and floor game about the environment and climate changes, successfully delivered in three continents.

Bexley C-Level IT (BCLIT)
Constanta, Romania |
www.constantahub.ro

BCLIT is an SME founded in 2017 as an entrepreneurial hub specialised in IT solutions for education. Its business model gained recognition and funding from a national government program supporting startups. BCLIT provides digital teaching solutions for educational organisations (i.e., kindergartens, high schools, VET schools, universities, NGOs, and SMEs), delivering education to youth and adults. In the local environment, BCLIT accelerates interactions between academia, government institutions, industry and civil society (quadruple helix) to create learning opportunities for individuals and development opportunities for organisations, including NGOs, universities, schools and enterprises. Target groups of its activities are school and university students, youth (including young NEETs, young people at risk of marginalizations, migrants or with migrant background), youth workers and NGOs volunteers, professors, trainers, youth workers, youth organisations, schools, and universities staff.

ECOS - Cooperativa de Educação, Cooperação e Desenvolvimento, CRL
Faro, Portugal | www.ecos.pt

ECOS is a social cooperative founded in the region of Algarve in 2010. Its mission is to contribute to the promotion, recognition and valorisation of methodologies that can enhance learning, personal development, and social transformation, to contribute to social inclusion and strengthen social cohesion towards the community's sustainable development. Its main areas of activity are:

- creation of spaces for structured dialogue, cooperation, and collective construction among different actors, such as social, business, and institutional actors;
- promotion, design, implementation, and evaluation of educational, social, cultural, and sustainable development projects, informal and non-formal spaces;
- development of organisations' capacity towards more efficient management of their resources and projects through training and new ITC;
- monitoring, support, assessment, and consultancy to individuals, institutions and organisations, and their educational programs and social intervention projects;
- promotion, recognition, and validation of non-formal education and other alternative pedagogical methodologies that contribute to social transformation.

Center for Innovative Education (CIE)
Warsaw, Poland | www.ciedu.eu

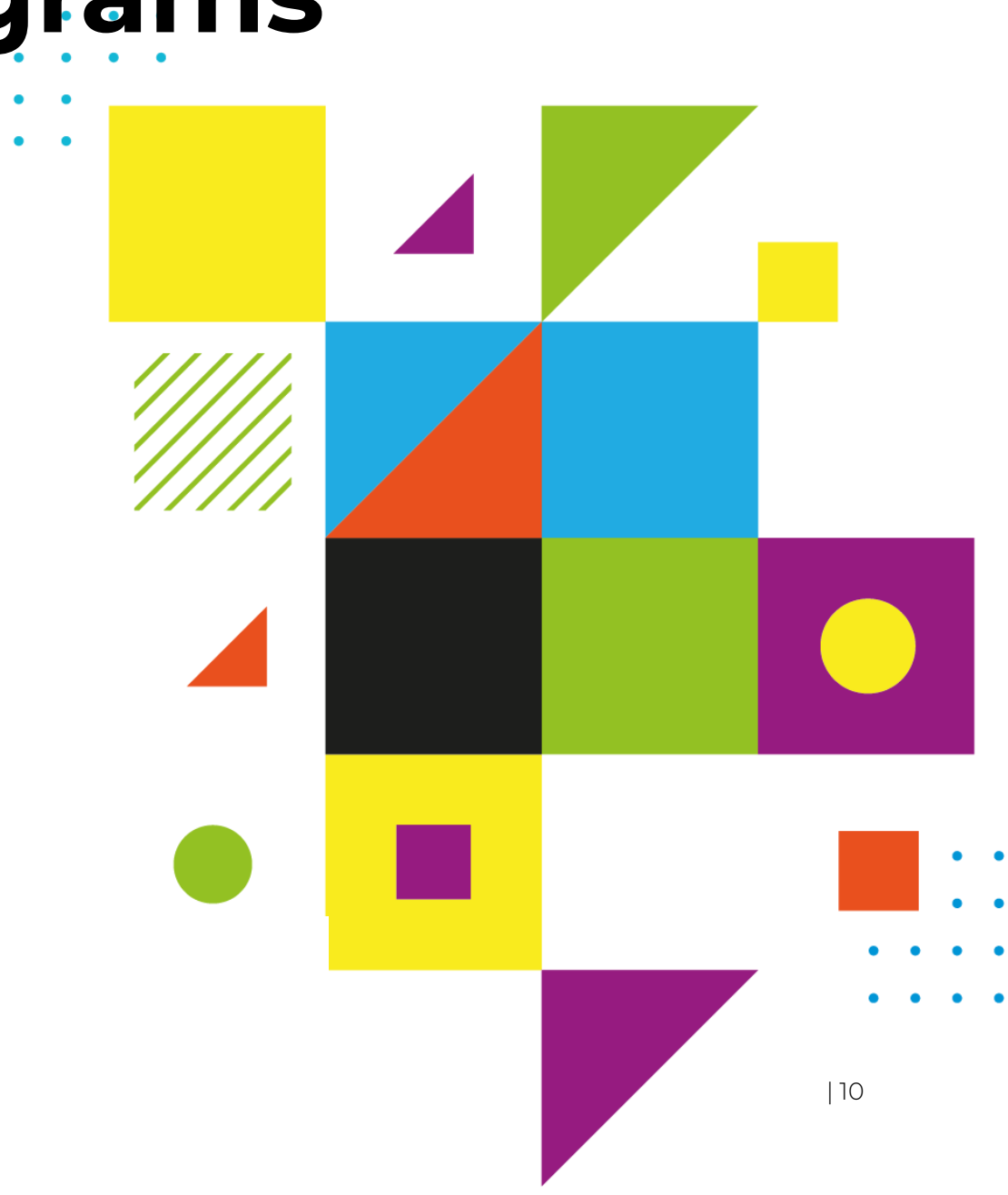
Center for Innovative Education is a

foundation, established in 2015 as a training institution of the Mazowieckie voivodeship in Poland. Working with regional and national governments, employers organisations, EU institutions and research centres worldwide, it creates and promotes social innovation, in particular in the field of education. CIE's educational activities are addressed to children, adolescents and adults and include formal, informal, and non-formal forms of education. CIE has many years of experience in creating and implementing its own educational solutions, focusing on learning programs that strengthen basic skills and transversal competencies.

Main areas of activity:

- development of educational models, programs, and solutions to improve professional training, based on the changing needs of the labour market;
- design and implementation of research and innovation projects with regional and EU structural and investment funds;
- management of an international platform of experts and authorities dedicated to sharing good practices in education and the labour market, tourism, agritourism, new technologies, and food by organising the New Education Forum;
- development of recommendations for EU institutions and cooperation with them on the improvement of labour market policies and influencing national and regional governments as to their implementation.

Templates of Gamified e-Learning Programs



About the templates

This publication contains a collection of Templates of Gamified e-Learning Programs developed using the *Conceptual Framework for Gamified E-Learning Programs* produced in the scope of the Sparks project. Designed with and for education and training experts, each Template includes the necessary information to design engaging learning experiences through gamification. They will be the foundations of the interactive templates and wizard that will be available on the project's e-Learning platform, where teachers and trainers, from December 2022, will be able to generate their gamified programs.

TARGET GROUPS. The Templates are addressed to VET teachers and trainers and were created by the project consortium organisations with the direct involvement of more than one hundred formal and nonformal education experts of the six countries involved. They are expected to provide teachers and trainers with knowledge and inspiration to design their own Gamified e-Learning Programs. The Templates can be a source for further development of more complex courses and activities.

TRANSFERABILITY POTENTIAL. The Templates can be used and adapted by every actor of the Education and Training sector to design their e-Learning Programs. Teachers from regular schools and Non Formal Education trainers were engaged in the development of the templates to ensure their full transferability.

ELEMENTS OF INNOVATION. The Templates are based on the innovative Conceptual Framework developed within Sparks project, resulting from the most successful (derived from best practices) and required (derived from the focus groups with a representative sample of the target group) elements, dynamics and mechanics of gameplay in both offline and online learning environments. They were designed to provide learners with key competences for lifelong learning: digital and technology-based competences, interpersonal skills, the ability to adopt new competences, problem solving, leadership, autonomy and responsibility, decision making and adaptability to change.

Development process

The Templates of Gamified e-Learning Programs were developed following three main phases:

❖ PHASE 1. Co-design Labs

During the first phase, the partners developed a one-day co-creation lab in their countries with teachers and trainers each, where they codesign with educators a gamified e-learning program template. The development of the program followed a series of Prompts based in the structure of the "Conceptual Framework for gamified e-learning programs", in order to collect all the necessary information in the 6 areas of the Framework: Goals and Outcomes, Environment, Onboarding, Design, Skill Atoms, Evaluation, Support, and Meta.

The consortium implemented a preliminary lab simulation with the managers and facilitators of each organisation, to tailor the drafted Prompts to the goals and structure of the activity. Afterwards, each organisation implemented a co-creation lab in their country, led by two facilitators to guide the sessions, instruct the group members on how to best participate and interact, and guarantee a smooth and effective implementation of the activity.

The co-creation labs were celebrated in one day-long sessions or two shorter sessions in two days. The format of the activity was chosen by each organisation; face-to-face, online or blended, depending on the environment that best suited the organisation and the VET educators involved.

The co-creation labs developed had the following structure:

- Presentation of the project and the activity, getting to know each other, explanation of the instructions to follow during the activity and the scope of what participants are asked to design.
- Implementation of the actual design of a gamified program by participants, guided by the facilitators, who asked guiding questions, presented examples, and encouraged active participation and creativity. The facilitators used the previously designed Prompts as support to design every step of the program according to the Sparks Framework. Participants were periodically asked to go back to previous statements and review whether the responses given fit with the overall design of the programme they were developing or needed to be modified.
- Each organisation recorded the educators' answers and design statements, using multiple methods such as taking notes or recording the session. Once the co creation Labs were completed, the facilitators of each organisation gathered all the results into comprehensive Design

Reports, which are the basis of each of the final Program Templates.

❖ PHASE 2. Finalisation of the Templates Design

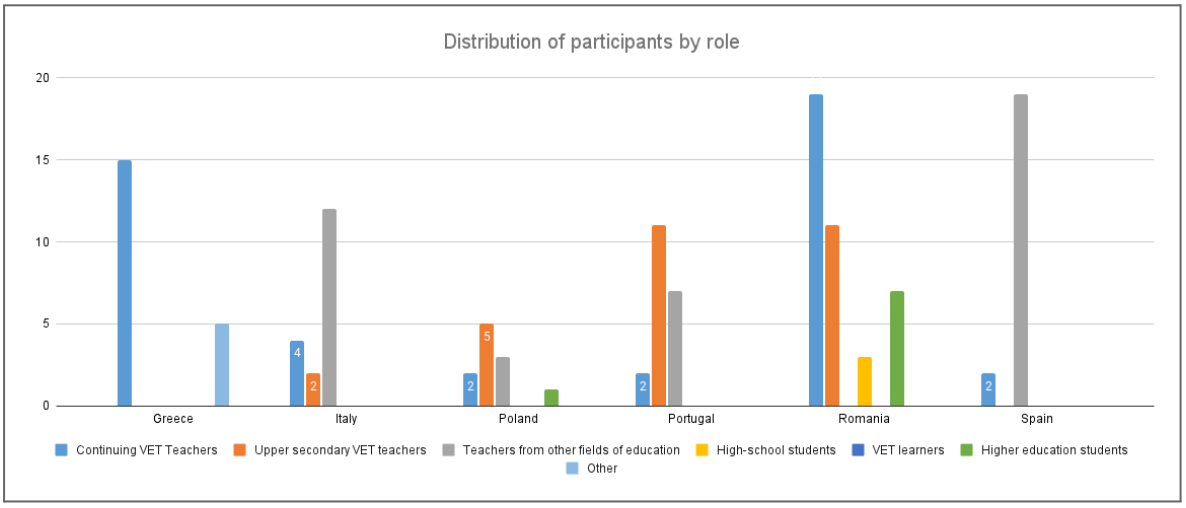
Each partner's trainers analysed the results of the Co-design Lab, collected in a comprehensive Design Report that incorporated conclusions and observations of the facilitators. The assessed lab results and the most recommended inputs, ideas and solutions resulting from the products of the previous phase were put together to create a unique and depurated Design Report. Each of the reports produced by the 6 consortium's organisations were shared among the partnership and collaboratively, discussed, reviewed and further improved, guided by the Output Leader. Once the final revision was completed, BLICT's technical staff proceeded to arrange the graphic layout of the final Templates and of the overall digital publication that contains both the templates and the detailed explanation on how to use them.

❖ PHASE 3. Publication

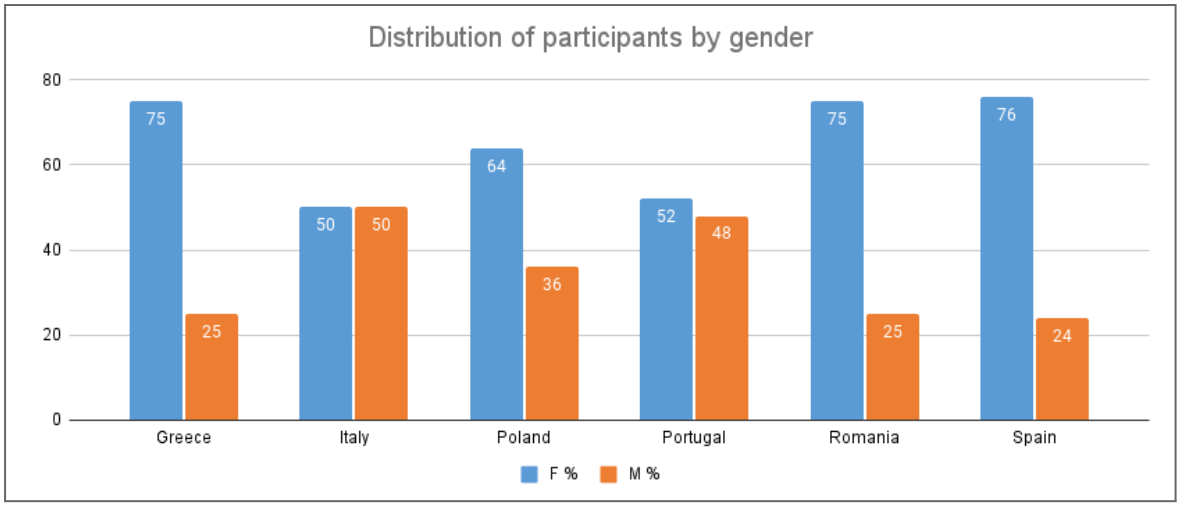
The Templates have been published under an open Creative Commons License on the project website, the Erasmus+ Project Results Platform, and on a public folder on Google Drive.

National Co-creation Labs

This chapter collects the results of the national co-creation labs implemented in the six countries by the partner organisations. A total number of **133 participants** took part in the six co-creation labs, such as 114 teachers and trainers, 11 learners and 5 volunteers. 25% of the teachers/trainers are working in Upper-secondary VET, 35% in Post-secondary and 38% Continuing VET. The graphs below show the distribution of participants by profile and gender.



Graph 1. Distribution of the all Co-creation Labs participants by role



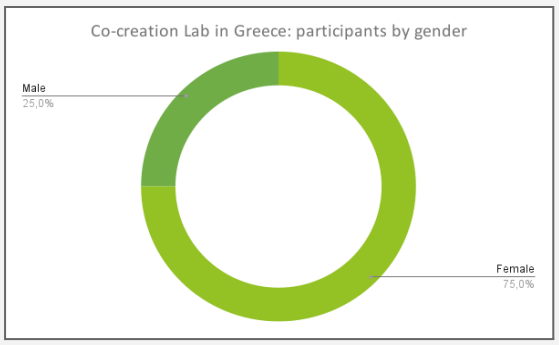
Graph 2. Distribution of the all Co-creation Labs participants by gender

Greece

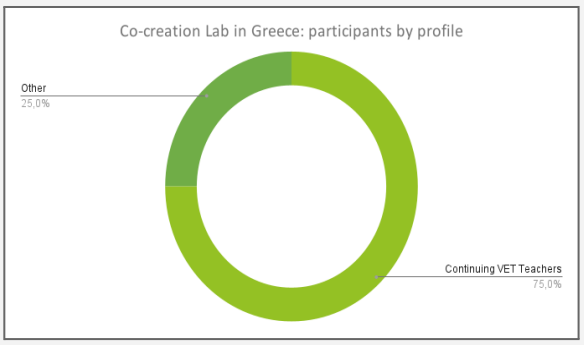
A virtual Greek Buddy to support youth immigrants to learn the Greek language.

The Greek Co-creation Lab was implemented by the NGO KEAN in a single in-person session with twenty participants. All the members of the participant group involved in migrant education either as teachers, educators, psychologists or social workers.

Composition of the group



Graph 3. Distribution of the participants in the Greek Co-creation Lab by gender



Graph 4. Distribution of the participants in the Greek Co-creation Lab by profile

GREEK BUDDY	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program. *Lenses.*	Teachers and adult educators as well as psychologists and social workers involved in the education of immigrants currently living in our country and trying to learn the Greek language participated in the KEAN's co-creation lab. Thus, in the workshop, we agreed on creating a platform that would help immigrants learn Greek. This idea was immediately embraced by all the participants due to the lack of a similar tool. The participants draft a list of goals and objectives for this purpose. When the goals have been achieved the students will be informed by mail of their success. Also,

		their avatar will change, and they will be able to get more clothes and accessories. On the other hand, if a student does not reach the goal or reaches it later than the co-creation lab, we have decided that the student will repeat the previous level so they can have a chance to assimilate better the taught material. Another idea was to make a simpler level for those students who fail to pass the core level. In this way, those who fail will automatically be directed to the easier level. In addition, it was decided that their score should not be lowered nor they will receive any kind of penalty.
1.2	Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	The target audience of our course will be immigrants living in Greece. They should have a pc, a laptop, or a tablet with an internet connection. Also, an email account and a speaker. We will try to identify their needs, and positive and negative emotions with tools such as the Empathy Map and the User Persona to analyze training needs and any access problems. We identified two segments: • The first segment (A) will be composed of immigrants living in Greece for less than six (6) months. • The second segment (B) will be composed of immigrants living in Greece for more than six (6) months. For segment B, we could define the need of adding extra modules of support dedicated to improving their digital competence, thus letting them benefit from the course. Every participant will have to fill out a test form and according to the results, each participant will attend the right level for their needs.
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	The competencies (knowledge, skills, and attitudes) we expect learners to acquire are: 1. Reading 2. Writing 3. Listening 4. Understanding an article 5. Ability to fill a form The aim is for participants to be able to live comfortably in Greece, overcoming the

		difficulties of communication. We want participants to be able to order in Greek in a restaurant or to be served in a retail store. To be able to communicate in public services. Read an article in a Greek newspaper and understand the lyrics of a Greek song. Be able to fill in a simple form in Greek with their details. Finally, to be able to understand a guided tour of an archaeological site such as the Acropolis. In the KEANs co-creation lab, we want learners to improve among others, their communicative competence. To improve such competence, we need them to develop their socio-linguistic, linguistic, strategic and discourse knowledge and skills. To show learners their progress, we can define the following gradual feedback: ● Improved Reading A wheel of fortune (with bonus interesting articles at their level) ● Improved Writing To invite them to write the continuation of a story ● Improved communication skills To invite them to a live chat with other peers ● Improved all the above Invite them to the next level with a new avatar.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	The minimum scores each student achieves at the end of the course depend on the importance of the subject. Also, we will foresee intermediate levels of evaluation along the way. If students reach an intermediate level with insufficient points, they are forced to attend some important units from the previous theory. Each student will have to complete the module with a minimum score of 80/100. Points will be awarded upon: ● Completion of lessons; ● Completion of modules; ● Quiz correct answers. The students are evaluated by their peers. If a student doesn't evaluate a peer, then none will evaluate them. Within modules, each student will receive bonus points every time:

		• They pass a quiz with 100% correct answers (+10 points) • They connect at least 10 minutes a day (+10 points) • Their paper is positively evaluated by at least 3/5 people (+15 points)
1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	Learning material we will be using: - Quiz - Crosswords - Videos - Video lessons - Written text - Reading - Web searches - Infographics The educational program will have five (5) levels. Each level will have three (3) units. Each unit will have three (3) sections.
Phase 2: Environment		
Action		Applied process and results
2.1	Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how these will interact within the offline space and with the virtual one. Space, Emotions, Relationships, Sensation.	No offline learning environment
2.2	Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any. Space, Interface, Emotions, Relationships	When someone enters the platform they see the city of ATHENS (streets, supermarkets, hotels, restaurants, civil services and the Acropolis museum). Profile page He or she can try to walk around, have a look and create their profile. The personalization of the avatar is essential because it allows learners to identify the player's characteristics and become accustomed to their digital identity. Therefore, it will be important to define, to make the level of progress and development more visible, the growth within the game/training experience to foresee the possible combinations of personalization of the avatar with a series of elements that represent the goals, the skills completed, bonuses achieved, new skills and other elements that represent the accomplishment of the level achieved within the

	game context. On the profile page, they can choose the look of the 12 Gods of Olympus. Every time they pass a level can add to their avatar some god elements. On the profile page, the participants can see their progress, their messages and their map. Settings Page Communication Form Map page A page with a flowchart showing exactly where the participant is now and where he can go. Support Area A page with frequent questions and answers. Also when someone joins the lesson a chat box will appear.
Phase 3: Onboarding	
Action	Applied process and results
3.1 Define how to analyse each learner's starting knowledge level. Emotions, Feedback.	**Language level: A1** Understanding of written speech 1. True-False: 7 sentences + 1 example (7 credits). 2. Linking/matching sentences: 6 correct answers + 1 example and 2 examples.(6 credits). 3. Multiple choice with 3 options: 4 correct sentences + 1 example (6 units). 4. Fill in the blanks in a text: 4 correct answers + 1 example and 2 examples.(6 credits). Understanding Verbal (video) 1. Correct (choice of pictures): 7 correct answers + 1 example and 2 misleading answers (7 units). 2. Comparison (completing a table): 6 correct answers + 1 example (6 units). 3. Multiple choice with 3 options: 4 correct sentences or pictures + 1 example (6.5). (6 units). 4. Notes: 6 blanks to fill in + 1 example (6 units). **Language level: A2** Understanding of written speech 1. True-False: 7 sentences + 1 example (7 points). 2. Linking/matching sentences: 6 correct answers + 1 example and 2 examples. (6 credits). 3. Multiple choice with 4 options: 6 correct

answers + 1 example (6 units).
4. Fill in the blanks in a text: 6 correct words or phrases + 1 example and 3 examples. (6 credits).

Understanding Verbal (video)

1. Description-picture matching: 6 correct answers + 1 example and 2 examples misleaders (6 points).
2. Multiple choice with 3 options: 6 correct answers + 1 example (6 units) Text: Friendly or less friendly dialogue between 2 persons.
3. True-False: 6 correct answers + 1 example. (6 credits). Text: monologue.
4. Notes: 7 notes + 1 example (7 credits). Text: Typical dialogue between 2 people Correct (choice of pictures): 7 correct answers + 1 example and 2 misleading answers

Language level: B1

Understanding of written speech

1. Linking/matching sentences/modules: 6 correct answers + 1 example and 3 misleaders (6 points). Authentic text, relatively formal discourse: informative,informative.
2. Comparison (filling in the table): 12 correct answers (0,5 marks for each correct answer). 1 example (6 points). Authentic text, standard discourse: descriptive, advertising, results of a survey, simple historical extract, simple biographies, etc. True - False: 6 correct answers + 1 example (6 credits). Text with a lower level of formality: extract from a narrative..
3. Filling in gaps in text: with correct words or short phrases found in Using simple words or phrases with words from a table. 7 correct answers + 1 example, 6 misleading answers (7 credits). Text friendly, simple newspaper or magazine article giving information on a subject, etc.

Understanding Verbal (video)

1. Notes. Text: friendly, informative (monologue), factual account, interview extract, extract from a literary work.
2. Comparison (completion of table): 13 correct answers + 1 example. Text: relatively formal, dialogue, a discussion

between 2-3 people.

Language level: B2

Understanding of written speech

1. Fill in the blanks in a text: 12 correct answers, only sentences (0,5 points for the correct one) 1 example, 6 misleading statements (6 points). Authentic text, standard discourse no special terminology, reviews, newspaper articles. Multiple choice with 4 options: 7 correct answers + 1 example (7 points). Text: authentic text of lower formality towards friendly, descriptive, historical, etc.
2. Fill in blanks in a summary: Summary (based on the previous text) that (based on the previous text). 7 correct answers + 1 example (7 credits).

Understanding Verbal

1. A dialogue between three people or a third person or an excerpt from a play. 10 correct answers + 1 example

Language level: C1

Understanding of written speech

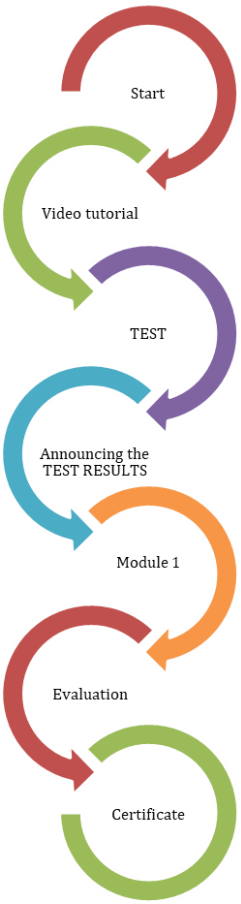
1. Fill in the blanks in text: 10 correct answers + 1 example, 5 misleading answers.
2. Matching titles with paragraphs: 5 correct answers + 1 example, 3 misleading answers.Text: authentic, to the friendly, literary, literary, theatrical, narrative (myth,
3. (story, story-tale), descriptive, etc. 3. multiple choice with 4 options: 5 correct answers + 1 example.
4. Fill in the blanks in a summary: 5 correct answers + 1 example

Understanding Verbal

1. Notes: 10 notes (up to 8 words) + 1 example (10 credits). Text (monologue): typical informative, a narration of events, excerpt from a literary work, part of a lecture on.
2. Comparison (filling in the table): 10 correct answers + 1 example, 6 misleading answers (10 points). Text: (towards the friendly) discussion between 3-4 people on various topics, every day, social, scientific, etc.

3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the	At the beginning of the course, a wizard will be activated to present all the areas of the platform. A welcome video will explain:

	environments and tools. Narration, Beginner's Luck.	• the topics of the various modules • the type of lessons and papers • the points system • the scores and the rewards associated with each activity • the chatbox and the forum for the communication of the participants on the same level.
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). Tutorial.	Animation tutorial videos are a wonderful tool to keep students entertained and tuned in. This video style makes for engaging training videos and can help students to retain the lesson in the video. Cute, playful visuals can help explain complex topics more easily than intense charts and graphs. Even with educational content, it's important to delight our audience.

Phase 4: Design	
Action	Applied process and results
4.1 Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	

4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	The aim of the course is for immigrant teenagers in our country to have the ability to understand and use everyday expressions that are familiar to them as well as very basic phrases that are aimed at serving specific needs. They should be able to introduce themselves and others and to ask and answer questions relating to personal details such as where they live, people they know and things they own. Must be able to converse simply, provided the person they are talking to speaks slowly and clearly and is willing to help. Participants should be able to exchange information about themselves and familiar people, meet everyday needs (buying goods, contacting services), and establish and maintain social and professional contacts (introductions, invitations, entertainment). Participants at this level should be able to communicate mainly orally, especially in interpersonal contacts, but also in those requiring the use of the telephone or mass media. Secondly, where appropriate, they should be able to understand the substance and/or relevant details of texts written in very simple and clear language and to express himself/herself in writing in the same way. **Oral comprehension** As a listener, the participant must be able to distinguish words, expressions and sentences relating to themself, their family and immediate environment, and their professional interests. At this level, the participant should be able to recognise basic information in public announcements (stations, airports, etc.), when listening to a radio programme, a television programme or a speech, understand instructions and follow short simple directions. However, at this level, comprehension is very much dependent on the circumstances of the communication. The speech the participant listens to must be clear and deliberately slow. If it is a live listening session, there should be pauses, repetition and rephrasing where necessary. If it is a recorded speech, the level of noise and interference from other sound sources should be low. In all cases, the use of visual aids (maps, drawings, illustrated stories, etc.) is particularly important to facilitate comprehension and lend

authenticity and realism.

Also, the student must be able to use comprehension strategies which will help them identify the basic meaning of what they hear, even if they do not fully understand the grammar and vocabulary used.

Reading comprehension
The participant must be able to recognise the letters of the alphabet, both upper and lower case, as well as words and elementary phrases. They should also be able to recognise and read road signs, traffic signs, names of countries, cities and streets, names and types of shops (e.g. bakery, butcher, etc.), and names of items in shops. They should also be able to understand the meaning and gather information of interest from notes (printed or well-written manuscripts), timetables, weather reports, sports fixtures and results, exchange rates, tourist brochures, telephone directories, bills, receipts, posters, notices and warnings, newspaper and magazine advertisements.

By using reading and comprehension strategies, the participant should be able to understand the general meaning of a simple text, a friendly letter or a card and to guess the meaning of some unfamiliar words from their context, provided that sufficient time is allowed to go back and reread parts of the text which cause problems. Finally, the participant should be able to follow the progression of a short and simple story and be able to follow short, simply written instructions, particularly if there is visual support (illustrated stories, maps, pictures of the use of objects, etc.).

Production of written language
In writing, the student should be able to form short sentences with a simple structure and use punctuation marks. In this context, the student should be able to copy a written text and write simple sentences to describe themself, their place of residence and profession. In addition, they should be able to write a card (mainly in a friendly style), fill in their details on simple applications and write simple notes and messages.

Oral production
The participant must be able to produce simple, single sentences and phrases to describe and exchange information about themself and people they know, ask and answer simple questions on familiar topics, ask for and give something and refer to time and place.

In interactive situations (conversation with the examiner or interviewee or interview), the participant should be able to introduce themself and use basic greetings and salutations, ask questions of others and respond to answers, and give direct and simply worded answers, possibly with pauses to look for expressions. However, the participant's performance in speech production is largely dependent on the interlocutor, who can assist by using simple structures, repeating or rephrasing where necessary.

Communication situations
The successful communication of a participant at this level with their environment depends largely on repetition, reformulation and restoration. The participant must be able to use Greek and perform the linguistic functions described in everyday communication situations such as:

Personal life inside and outside the home
Identity recognition
The participant must be able to give information relevant to their person orally and in writing such as their first and last name, address and telephone number, nationality, age, sex, date and place of birth, and occupation. They must be able to describe their marital status, indicating whether they are single, married, or have children. In general, he must be able to talk about his family and his relatives (father, mother, grandfather, grandmother, husband, wife, brothers, sisters, son, daughter, etc.). They should also be able to describe a person's physical appearance (e.g. tall, short, fat, blond).

Residence, accommodation
The participant should be able to say whether they lives in a village or a town, whether they lives in the centre, and give general information about the location of their house, whether it is near or far from a reference point, whether they lives in an apartment, whether they rents it or owns it,

describe the interior of their house, give a general description of the household equipment and services provided (light, water, telephone, heating, lift), describe the surroundings, referring to the shops in the neighbourhood. Also, if the applicant is interested in renting or buying a house, they should be able to obtain the information necessary.

Location, environment, flora, fauna, weather conditions
Participants at this level should be able to describe a location in terms of landforms, using words such as mountain, sea, river, lake, and beach. They should be able to understand and give information about the flora of a place (trees, flowers) and know the names of some animals. They should also be able to refer to the weather conditions according to the season (sunny, rainy, snowy, windy, cold/hot).

Free time, entertainment
The participant should be able to give and receive information on how they manage their leisure time and should be able to mention their hobbies (cinema, theatre, actor, concert, singer, museum, disco, radio, television, tavern, football, basketball, etc.).

Social relationships
Participants should be able to receive and give information and participate in various social activities (parties, celebrations, birthdays), develop personal or correspondence contacts (letter, postcard, telephone, fax, e-mail) with friends, acquaintances and colleagues.

Health, state of the body
Participants at this level should be able to identify the parts of the body (body, head, face, eyes, nose, mouth, ears, feet, hands, heart, abdomen, etc.).), be able to describe in general terms the problem they have (pain, fever, cough) to the appropriate doctor (physician, surgeon, paediatrician) or to go to a hospital or clinic, and be able to understand simple instructions for the use of medicines or, if they do not understand, ask for further explanation.

Daily life
Activities in the house

The person should be able to refer to their daily activities in the home and to their activities on holidays (e.g. waking up, sleeping, eating, washing, cleaning, cooking, talking, reading, listening to music/radio, watching TV, telephoning).

Activities outside the home
Shopping
The participant should be able to know the names of shops, follow directions in department stores, recognize the names of items of interest, communicate with salespersons, ask for what they wants, and ask for information about the price of products and their use, ask for any discount, express an opinion about prices (expensive, cheap), ask if food is fresh.

Nutrition
The student must be able to order food (snacks, salad, drinks, etc.) in the relevant places such as a tavern, restaurant, ouzo, or pastry shop and ask for and pay the bill.

Education/professional area
The student must be able to understand simple announcements relating to the operation of an educational institution, ask questions and seek explanations on the subject of their work or refer to their professional occupation. In particular, they must be able to give and receive information relating to their own and the other person's duties and working conditions. He or she should be able to identify vocabulary relating to the place of work (office, factory, shop, cashier, etc.) or to pay (salary, wages, security), working conditions and the various levels (break, leave, strike, a day off, overtime, colleague, manager, risk, customer). They must also be able to understand simple instructions given to them, leave simple messages and ask for simple explanations.

Public services
The immigrant must have the ability to ask for and give information, and be helpful when contacted:
- bank to make a deposit, withdrawal, and open and close an account. They must be able to recognise the relevant vocabulary (bank, account, book, cheque, etc.).

- mail to send letters, receive or send cheques. He must be able to recognise the vocabulary involved (post office, postman, letter, urgent, registered, stamp, post box, parcel).
- use the telephone, send a telegram/fax, use the payphone, fill in a form if necessary and know the relevant vocabulary (telephone, fax, list, bill).
- emergency services such as police, traffic, first aid, and fire brigade. Of course, it is necessary to know the relevant vocabulary for each service (police, police officer, traffic police, traffic policeman, traffic policeman, help, hospital, clinic, doctor, nurse, fire, fire brigade).

Movement/travel
Participants must be able to use public transport (train, plane, boat, car), be able to consult the relevant tables for timetables and be able to give and receive information on the correct direction to take. They must be able to recognise the vocabulary involved (journey, ticket, delay, road, one-way, pavement, speed, traffic lights, works, danger, toll, petrol, hotel, suitcase) so that they can also use their means of transport. Furthermore, they should be able to secure hotel accommodation by requesting a suitable room (single or double) after asking for information on prices.

Vocabulary
The participant should be able to understand and use, with some assistance, the vocabulary corresponding to the communication situations described and in which they may be involved in meeting their daily communication needs. Successful communication depends to a large extent on repetition, reformulation and reconstruction.

Phonetics
The participant at this level must recognise and use all phonemes, letters, diphthong vowels and consonants, stress words, and recognise consonant passages such as inflexion (to him), clipping (bring it), syncopation (bring, take). He must be able to articulate even less familiar or unfamiliar words.

Sociolinguistic elements
The function of a language is inextricably linked

		to the culture that produces it, and culture is an essential component of communication. To respond successfully to the circumstances of use and the functions of the language described above, the participant, in addition to making the correct linguistic choices in terms of grammar, syntax and vocabulary, requires knowledge of the socio-cultural elements of the Greek language. Thus, the participant must be familiar with elements of everyday life in Greece (meal times, public holidays, working hours, leisure time, etc.), living conditions (work, accommodation), and some of the prevailing customs and traditions in Greece (Christmas, Christmas cake, carols, Easter), interpersonal relations (family, gender), the most typical social behaviours of members of society, such as social conventions (invitations, gifts, (dis)greetings, dress, humour, rules of politeness). It should be noted here that the participant is not directly tested on habits and values in Greek society. His cultural knowledge is tested indirectly, by the way, he uses the language.
4.3	Define the student's personal profile area. *Avatar, Customization, Badge, Motivation, Mastery, Reputation*	Each participant will have their page/area from which they can check: ● the profile and avatar ● their messages ● their correspondence with the administration and teachers ● view and correct peers' work ● see their degrees and achievements and share them on social media ● access the forum and communicate with their peers. Here you can see some examples of the twelve god avatar.

4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	As we mentioned before, the setting of the game will be Athens. Each participant will be able to visit a few points which will be unlocked gradually depending on the point they have progressed to. There will always be a help desc in which they will be able to search for help.
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	In the Lab, we decide if learners finish the program of activities in less time to have a bonus. If they are late they have to make a basic session again. We also decide to have no randomly awarded special rewards.
4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	Greek Buddy celebrates small wins with unique messages congratulating users on what they've accomplished and encouraging them to keep going. We believe that continuous encouragement boosts users' confidence in their abilities, while also raising engagement within the app. And each lesson unlocks new achievements, which can be shared with friends and improved over time. Users can also automatically share achievements with their friends. This kind of sharing is known as a retention hook, a built-in feature that gives users a reason to send notifications to other users, which brings them back to the app. The validation technique is often used by social media sites in the form of likes, retweets, gaining followers, and so on. These are all means of allowing users to respond positively to one

		another's content.
4.7	Define the practical experiences that will be activated. *Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift*	Oral comprehension will be an application that will be able to understand whether students pronounce Greek words correctly and correct them. Students will be able to choose whether they want to work in groups or individually. In group work, they will have the opportunity to grade their classmates as well.
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	We will create an Athens map representation of all the activities that represent the basic units of our path and the challenges (for the milestones with several activities) and challenges (for each activity) to be faced (e.g., completing the first level with a minimum score of No.); the paths that the various learners will have to carry out, the basic skills on which we want to build the learning cycles and above all what are the objects that represent the elements of the game (e.g., a learner who obtains a badge for the highest score or the first in the leaderboard wins an award).
Phase 5: Skill Atoms		
Action		Applied process and results
5.1	Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	We have laid the foundations for planning the stages of the journey. We have defined levels and modules to be completed to reach the completion of a particular skill. In this phase, however, it is essential to define in detail every single activity of the path from which atom skills it is composed and how this will impact the achievement of the macro-skills we want to achieve. Every challenge or activity starts with a notification. Perhaps to have an animation to describe the next activity. We decided that we shouldn't have time limitations. But if the students manage to do their activities fast and correctly they will get some extra points. The game is broken down into elementary skills (called atoms), the acquisition of which allows the individual to advance to subsequent challenges and levels. The cycle consists of four phases: 1. Action - The player acts.Example: The player enters a shop. 2. Simulation-Based on the action

		performed, an effect is generated in the game. Example: The player speaks with the shop employee to buy something. 3. Feedback: the game provides feedback to the player to let them know that the action performed generated an effect or a change of state. This feedback can be a sound, an image or an object. Example: If the player manages to buy what he wants a "Congratulations" message appears and he can move to the next level. 4. Modelling. As a final step, the player absorbs feedback and updates their mental models based on the success of their action. If they perceive that they have made progress in acquiring a new skill, they will feel pleased and gratified. On the other hand, if they feel their action was in vain, they will feel bored or frustrated.
5.2	Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	At the KEANs co-creation lab, we will have plenty of different activities, so the students won't get bored at all. In every activity, we will have quizzes, puzzles, Crosswords, Videos, Video lessons etc.
5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	Intrinsic motivation is what drives an individual to engage in an activity just because they derive personal satisfaction from it. The sole fact of engaging in the activity is satisfying, regardless of the chances to be rewarded or gaining external recognition. Also, utilises progress indicators such as daily goals and streaks to make a player feel accomplished and get them to come back for daily usage.
5.4	Define the evaluation and assessment of the activity results.. *Rewards, Feedback, Expected Value.*	Our application will consistently celebrate small wins with unique messages congratulating users on what they've accomplished and encouraging them to keep going. We believe that continuous encouragement boosts users' confidence in their abilities, while also raising engagement within the app. And each lesson unlocks new achievements, which can be shared with friends and improved over time. Users can also automatically share achievements with their friends. This kind of sharing is known as a retention hook, a built-in feature that gives users

		a reason to send notifications to *other* users, which brings them back to the app. The validation technique is often used by social media sites in the form of likes, retweets, gaining followers and so on. These are all means of allowing users to respond positively to one another's content. is one of the strongest drivers of long-term quality engagement because it helps communities form.
Phase 6: Evaluation		
Action		Applied process and results
6.1	Define how each learner's activity, phase and performance will be evaluated throughout the learning path. *Intrinsic motivation, Competition, Rewards, Penalties, Balancing.*	We have decided to include a "point and translate" mode that allows players to turn on their camera, point to an object, and get the object translated in real-time. It's a phenomenal way to get creative and capture your vocabulary library.
Phase 7: Support		
Action		Applied process and results
7.1	Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	In all phases of the path, from the initial phase to the final phase, up to the completion of the activities of a specific module, teachers may need support and confrontation activities. We will have a chatbox and a forum for the communication of the participants at the same level where learners can interact with their colleagues. Also, there will be FAQs, for the learners to have all the information for completing a single activity. It is important, in this phase, to designate what the modalities of interaction can be and to foresee the moments in which support/discussion is expected. We can define if there will be the support of a mentor or a coach and if there will be repositories with information areas, documents, FAQs and supplementary materials. We define whether there will be dedicated areas and spaces such as forums, conversation areas, and messaging tools, where learners can interact with their colleagues and have all the information to complete a single activity. If we use platforms, we need to define how the relationship dynamics will be structured through internal messaging and third-party applications, group chats or video calls or interactions in virtual environments. It is necessary to promote a type of

		communication that is omnichannel, online and offline, favouring inclusive relationships and a constant and constructive dialogue between users, respecting their technological, technical, and social capacity and adapting it to the different stages of the process.
7.2	Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	The students could find support from peers through the forum or the chatbox. Also, they could be awarded if they help their peers. It will be essential to evaluate and define through scores and other elements the coherence and impact of these actions within the path and the primary game system, to define feedback mechanisms of the various interactions, integrating them into the system of points, prizes, and evaluation of the entire path.
7.3	Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	As we mentioned before in the environment of the game which will be Athens city, there will be the attractions and a help desk. This is where any student who needs help will be "addressed" there to choose from the chat box, the forum or the FAQs.
Phase 8: Meta		
Action		Applied process and results
8.1	Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	If a student does not complete the level in the minimum time, then he should do again a basic section to proceed. We believe that if students are punished with a penalty it will act as a deterrent to continuing their education. On the other hand, simply having to repeat a basic unit to move on and not having gaps in their learning will motivate them to move on. Also, random students will get “the Beginner's luck” an unexpected reward or a result achieved by luck rather than actual skills acquired.
8.2	Define the area where learners can collect, acquire and exchange information. *Knowledge Share, Rewards, Content Crowdsourcing.*	We believe the best support for students often comes from other students. They are the people who truly understand the challenges students are facing because they face those challenges

		themselves. We will create a student forum, an online community where students can help each other out. It exists for all young people who want to learn Greek – no matter their background or their aspirations. In the forum, the participants can talk to other students about courses, schools, admission requirements, study experiences and other questions.
8.3	Define the tools that can be used (e.g., online tools and platform, design tools). *Tutorial, Creativity tool, Gifts.*	First of all, we will have a tutorial video that illustrates how to use a game element, explaining its functionality and features with practical examples. Also, we will have creativity Tools that enhance the group's creative thinking. Finally, we believe that our students will enjoy the special rewards that can be given away or shared with other people to help them achieve their goals.
8.4	Define where the program's material will be collected. *Knowledge Share.*	Knowledge sharing among peers plays an important role in students' learning process. Online forums and discussion boards are frequently used by students for study-related knowledge sharing. The motivating factors are the feeling of belongingness, gaining respect from classmates, self-satisfaction, and the urge to help others.
8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	Digital communication tools would be included as an effective means to engage and connect students with their peers and the teachers. The proposals for communication tools comprise a daily email digest delivered to all the students, allowing personalization and choice for the information they will decide is most useful for them. An online calendar system for promoting events could have the functionality to embed tailored event feeds into various web pages.
8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	Considering that the participants of the training are people from vulnerable social groups (migrants and refugees) who need more than others both the reward and the motivation to continue and complete the training, we decided to have rewards and prizes at each stage that they will complete. But even if they don't make it we should encourage them to try again without

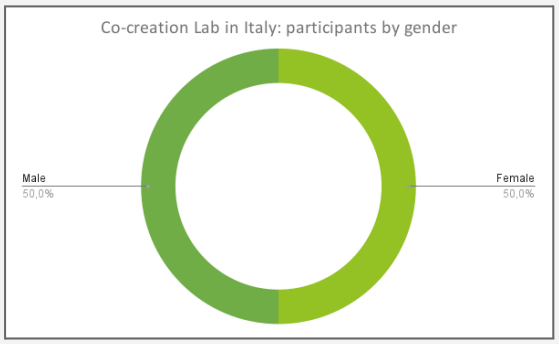
		any penalty.
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	A learning activity is balanced when it is easy to play, but difficult to win. So points will be used to drive engagement. A rewards program centred on virtual currency is the best way to appeal to the achiever archetype from Bartle's taxonomy. The taxonomy is based on a character theory. This character theory consists of three characters: Achievers, Explorers, and Socializers. These are imagined according to a quadrant model where the X-axis represents a preference for interacting with other players vs. exploring the world and the Y-axis represents a preference for interaction vs. unilateral action. Tickets are a currency reward given to players who unlock a new achievement, hit their daily goal, or finish in the top three of their leaderboard. The clever part is that the daily reward increases as the streak grows, providing exponential incentive for users to maintain their habit.

Italy

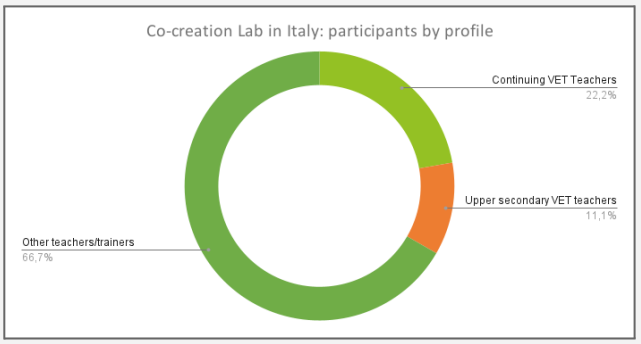
A gamified course to learn and practice foundational project management processes and techniques.

The Italian Co-creation Lab was implemented by Lascò in two online sessions, with two different groups of participants who tested Sparks' Conceptual Framework to develop a sample online learning course on Project Management. The Lab gathered twenty participants, such as vocational trainers (60%) and teachers (40%), working in Upper Secondary VET (10%), Post-secondary VET (25%) and Continuing VET (65%).

Composition of the group



Graph 5. Distribution of the participants in the Italian Co-creation Lab by gender



Graph 6. Distribution of the participants in the Italian Co-creation Lab by profile

INTRODUCTION TO PROJECT MANAGEMENT	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program. *Lenses.*	The program is an "Introduction to Project Management" online course that aims at training 20 students on the foundational project management processes and techniques in 30 hours.
1.2 Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	The program is addressed to Higher Education students. The profile of the target group was identified in one of the "lifestyles" formulated by the Research Institute Eurisko in its Synoptic Map (segmenting the Italian adult population according to social and consumer behaviours): the so-called "evolved youth". The "evolved youth"

		are mainly young people, of mixed-gender and of medium social level, with an economic profile that is still not very clear but with a boost to the professional and cultural commitment that is also mixed with forms of entertainment and disengagement. According to Eurisko's research, they are scattered throughout the Italian national territory, mainly in medium-sized urban centres. They are forming their own projects and are often involved in voluntary activities, also developing an ecological mentality. They read enough books and especially go to concerts, they are attracted to innovation. However, their consumption is distracted and not very organic.
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	*Expected* ***Outcomes*** • Increased knowledge of foundational project management processes and techniques; • Improved organisational and managerial competencies; • Increased communication, negotiation, problem-solving and influencing skills. *Expected* ***Outputs*** • 9/9 learning modules completed; • 100% of the mid-term tests successfully completed (minimum passing score: 85%); • no. 1 full project per participant submitted and positively evaluated by the trainer; • no. 1 final evaluation test completed, with a minimum passing score of 85%.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	**Success criteria** • Frequency rate (target 85%); • Modules completion rate (target 100%); • Success rate in the final evaluation test (target 85%). **Metrics to be monitored** • Students performance and progress; • Attendance rate; • Students competency and proficiency; • Activity completion rates; • Time spent on each activity; • Course evaluation ratings (incl. quality of learning materials, relevance of the training experience, ease of navigation).

1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	The program will be structured into **nine learning modules**: 1. Anatomy of a project 2. Activities and resource allocation 3. Team management 4. Budget management 5. Project planning 6. Risk analysis 7. Controlling the project work 8. Reporting 9. Closing Each module will be composed of multiple levels combining micro-pills (e.g., 2-3 minutes videos), practical exercises to apply the concepts (e.g., missing word, match up, quiz, crossword or group sort quizzes that simulate real-life management situations) and a final evaluation test.

Phase 2: Environment	
Action	Applied process and results
2.1 Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how these will interact within the offline space and with the virtual one. *Space, Emotions, Relationships, Sensation.*	*N/A*
2.2 Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any. *Space, Interface, Emotions, Relationships*	The online learning environment will include the following areas: • learners' **personal area**; • a **Learning Area**, where the learning modules, exercises and quizzes will be delivered; • a **Support Area**, where learners will be able to find support materials and FAQs, and request support from peers or teacher(s); • a **Knowledge Exchange Area**, where learners can find useful resources uploaded by their peers; • a **Meeting Area**, to schedule meetings with peers and the trainer or mentor; • a **Forum** for public discussions.

Phase 3: Onboarding	
Action	Applied process and results

3.1	Define how to analyse each learner's starting knowledge level. *Emotions, Feedback.*	A self-assessment quiz aimed at evaluating each learner's background knowledge of principles and basic concepts of project management.
3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools. *Narration, Beginner's Luck.*	Learners will be welcomed by: • an **introductory video** explaining the whole learning pathway; • a **guided tour** of the platform (e.g., a wizard or a video explaining the buttons, features and processes to interact with the platform).
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). *Tutorial*.	The Support Area will collect the instructions and answers to the technical FAQs.
Phase 4: Design		
Action		Applied process and results
4.1	Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	Each module of the course will be a mission for learners. Each mission will be structured into five quests/levels to complete. At the end of each quest/level, learners will be able to **visualise** the accumulated score and the ***doubloons***, ***hearts*** and ***badges*** won. In addition, the entire learning pathway will be visible on a map where modules will be the main points on the map, represented by an icon and/or number.
4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	Each module will be structured into five lessons, corresponding to **five levels**. **Each level** will be divided as follows: • **video lesson**; • **quiz**; • **practical test** (project work). At the end of the five levels, there will be the end-of-the mission final evaluation test.
4.3	Define the student's personal profile area. *Avatar, Customization, Badge, Motivation, Mastery, Reputation*	In the personal area, students will be able to view the following information: • their **biography**; • their position on the overall **learning pathway**; • the **accumulated score**; • the **heart**, **doubloons** and **badges** earned; • their **position** in the **weekly leaderboard** and the absolute/relative leaderboard;

		• a list of all the **learning materials** purchased in the Knowledge Area.
4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	Each week, a leaderboard will be made to collect the scores achieved by each learner during the course week. A relative leaderboard will also be updated: in addition to the number of *doubloons*, the relative scores of each learner will be calculated. The top three in the weekly leaderboard will receive a special badge and one *heart* as a prize, and ten *doubloons* to spend in the Knowledge Area. In addition, based on the position in the final leaderboard, students will receive a special prize from the Course Committee (book voucher or coupon).
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	Each module will be structured into: • No. 5 Lessons, each one consisting of a **video lesson**; a multiple-choice assessment **quiz** and a **practical test** (project work); • **End-of-mission** evaluation **test**.
4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	The evaluation system will be based on the following elements: **1. Hearts** – Learners will receive hearts upon the completion of a level. A mission/module is completed if the total score of the 5 levels is at least 35 total points (average of 7 correct answers and 7 scores given on the practice test). Each quest (new level opening) must be completed in a limited number of days. If it does not happen, the user loses one heart. A user who loses the 9 hearts must start over. Additional hearts can be purchased in the shop upon payment of doubloons. **2. Doubloons** – Doubloons, from 1 to 3, will be awarded, based on the score achieved after each quiz or practice test. Doubloons can be spent in the shop to buy: heart, help from tutors/peers, materials and handouts, and extra time for a mission.

3. Badges – Learners will be awarded with badges when:

They complete 5 modules in compliance with the original schedule ("the disciplined");
They correct/support at least three peers in their team ("the reviewer");
They complete at least 5 quizzes with 10/10 correct answers ("the champion").

In addition, there will be a **point-attribution system**. Points will be used in quizzes and interactions with peers, and will be redeemable as doubloons.

In quizzes: for every correct answer in a quiz, learners will be awarded one point. Through the points received. Particularly:

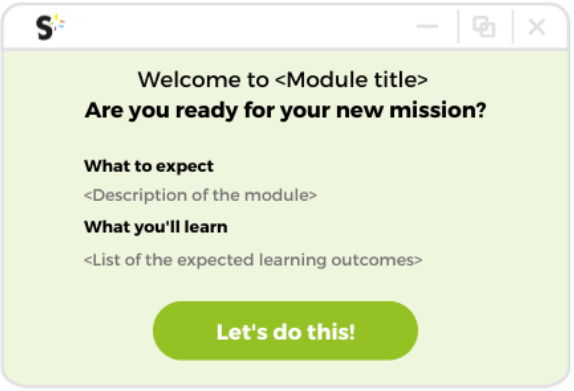
Correct answers	Doubloons
1-3	🪙
4-7	🪙🪙
8-10	🪙🪙🪙

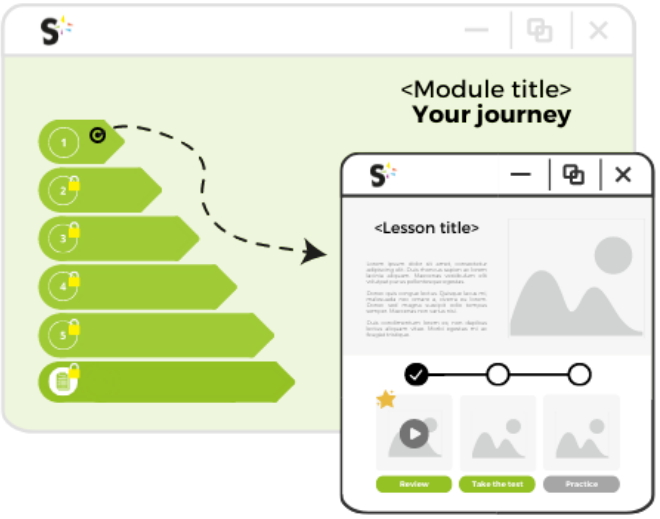
In interactions with peers: in the Support Area, if a student helps a peer with an assignment, the latter will give a score from 1 to 10 to the support received.

Score range	Doubloons
1-3	🪙
4-7	🪙🪙
8-10	🪙🪙🪙

The same scoring and doubloon-assignment system will be used when learners provide materials in the Knowledge Area and their materials are rated by other peers.

4.7	Define the practical experiences that will	Students will have to complete a practical project

	be activated. *Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift*	from a virtual case study. Learners will be provided with a *doc* or *xls* file with a customised template. The work will be uploaded to their area and evaluated by the mentor, who will assign a score from 1 to 10. Those who achieve at least a score of seven within three chances will pass the level. If the final test is not passed, the student will have to repeat the module or use 25 doubloons to retake the test. If not passed, they will have to start the level over again.
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	The end-of-module practical test for the modules no. 3 and no. 5 will be group-based. All students will have to work in teams (3-5 members) on a shared paper. The score, in this case, will be distributed among all team members.
Phase 5: Skill Atoms		
Action		Applied process and results
5.1	Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	Each mission will begin with a click and a screen that summarises the topics of the module, and the skills that will be developed. 
5.2	Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	The list with the 5 levels/lessons will open upon clicking on the module. Each subsequent level will be unlocked as soon as learners complete the previous one. Clicking on each lesson, learners will access the lesson page collecting a short abstract describing the content, the video lesson, the quiz and practical assignment .



5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	Each mission will have a maximum duration of one week. An absolute and relative time tracker will be activated as soon as the mission begins (always clearly visible to the student) to monitor the time spent to complete each level. Learners will be required to complete the levels in a limited timeframe. If they do not complete the level in the allotted time, there will be a penalty: the loss of one *heart*.
5.4	Define the evaluation and assessment of the activity results. *Rewards, Feedback, Expected Value.*	The evaluation of each lesson will be based on a quiz for knowledge-assessment and an assignment to test the application of the theoretical notions. Once the lesson is completed, a screen will give the outcome (OK or KO, depending on the result), the score, bonuses or any badges achieved.
Phase 6: Evaluation		
Action		Applied process and results
6.1	Define how each learner's activity, phase and performance will be evaluated throughout the learning path. *Intrinsic motivation, Competition, Rewards, Penalties, Balancing.*	Students' performance evaluation will occur at each lesson level and at each module level, respectively with a quiz and practical assignment and an end-of-mission test. Students' attendance will be monitored throughout the learning path. Possible penalties to discourage dis attendance could be the loss of one doubloon for each week of missed connection.

Phase 7: Support		
Action		Applied process and results
7.1	Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	A Meeting Area will be available to let students converse with peers or the teacher via chat or by scheduling a video call.
7.2	Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	A support area will be created within the platform. The area will collect the support materials uploaded by the teachers, the FAQs and the form to contact the teacher for any support needed.
7.3	Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	A Forum divided into 9 thematic sections will be implemented to let learners discuss the course topics.

Phase 8: Meta		
Action		Applied process and results
8.1	Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	At the end of the third module or third week of the course in random moments, three bonus *doubloons* will be awarded to those who have lost at least as many. To receive the special gift, students will have to answer a random question based on the modules passed. Every three days, the platform will send out a three-question quiz at a random time. If they answer all three exactly, they will receive 5 bonus doubloons.
8.2	Define the area where learners can collect, acquire and exchange information. *Knowledge Share, Rewards, Content Crowdsourcing.*	Three areas will be available to students: 1. a Forum where public discussions can be activated through thematic threads; 2. a Knowledge Exchange Area, where additional learning materials can be purchased using earned doubloons; 3. a Meeting Area where learners can request peer support or schedule a meeting with their teacher.
8.3	Define the tools that can be used (e.g., online tools and platform, design tools).	Learning activities will be hosted exclusively on an online platform.

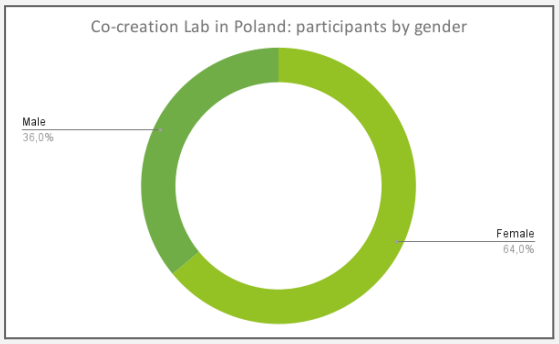
	Tutorial, Creativity tool, Gifts.	
8.4	Define where the program's material will be collected. *Knowledge Share.*	The general course material will be collected in the Learning Area. All the individual outputs produced by learners will be available in each student's personal area.
8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	The Google Meet platform will be used for video calls, while Google Drive will be used to store and share the templates for students to work with.
8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	The winners of the final ranking will receive the following prizes: I Place – A 150,00 EUR-worth bonus for books and a special certificate; II Place - Amazon voucher of 50,00 EUR; III Place – Amazon voucher of 25,00 EUR.
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	At the beginning of the pathway, during the first two missions, each student will be encouraged to have a free 5-minute call with their teacher. Students who are running late in the course, after three weeks, will be required to schedule a call with the teacher or a mentor.

Poland

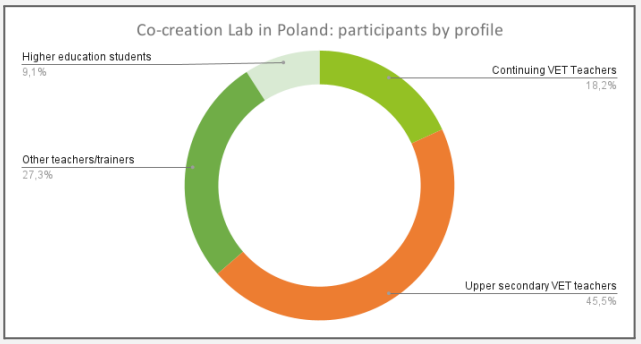
The concepts developed in the lab focused on learning and improving skills in quite narrow areas of knowledge, in line with the characteristics of the Polish VET education system. The student finishes the school with the title of a "technician" - the competences that qualify the student after leaving VET school.

The Polish Co-creation Lab was implemented by Center for Innovative Education in two sessions: one online and one offline. The Lab gathered eleven participants: vocational teachers (80%) and trainers (20%). From the teacher's group, 60% post secondary VET and 40% upper secondary tested Sparks' Conceptual Framework. Each of the teachers focused heavily on their subject, while the laboratory developed general concepts of the program that were repeated by most of the participants.

Composition of the group



Graph 7. Distribution of the participants in the Polish Co-creation Lab by gender



Graph 8. Distribution of the participants in the Polish Co-creation Lab by profile

INTRODUCTION TO PROJECT MANAGEMENT	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program. *Lenses.*	The respondents did not indicate one common topic of the program, but everyone focused on their school subject and strongly embedded the potential operation of the platform in the requirements used in this subject and the realities on which they currently operate in the teaching process. For example: - for a teacher of the masseur's profession, all suggestions were based on subjects related to

		human anatomy; - for a teacher working on the specialisation of technicians-foresters, the program's ideas were based on consolidating knowledge about the functioning of the forest, fauna and flora. Note: the respondents in the lab did not propose penalties for not achieving or too late achieved goals.
1.2	Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	*Target group: students of VET schools aged 15-19 & over 19 (in case of one VET university teacher)* Clear need for segmentation. Proposals did not match, so here are suggestions listed for potential segments: 1. students capable and willing to work with high general knowledge 2. students with less general knowledge and deficits (autistic, with learning difficulties, with psychological and pedagogical counselling decisions about the requirements of special education and approach to the student) 3. segmentation depending on the level of knowledge: basic, extensive and advanced 4. segment for creative students who are eagerly seeking extra-textbook knowledge, vs. students reluctant to deepen their knowledge, closed to theory, lazy Note: in the lab, teachers did not indicate the need for segmentation due to digital competences (it can be concluded that they take for granted high digital competences of learners).
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	Outcomes defined: knowledge at least basic, professional (hard) and soft competences, the ability to combine knowledge with the newly acquired, the ability to draw conclusions, progress, making the right decisions, consistency in action (not changing goals). Feedback forms: specialist certificate, badge, avatar visualisation, medal, ranking position, additional bonus points. Note: in one case, an interesting idea was pointed out: a suggestion to add a module that requires leaving the computer, interacting with people. In the case of this activity, it is possible, for example, to settle accounts with a report / photos from the implemented activity.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	The participants suggested a firm, orderly system. The suggestions are: ● min. the result is 50-60% for Basic Levels and

		70-75% for Advanced Levels • in the absence of reaching the minimum, the learner can restart their path • bonuses at 100% • bonuses when connecting every day x 10 min. • bonuses for the presentation of the task • bonuses for "tutoring" for the group.
1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	In this point, similarly to 1.4, the participants were giving hints which seemed to be important for them rather that complete idea of the program structure: • division into theoretical and practical content - access to practical tasks only after passing the theoretical part • elements that diversify: movies, texts, infographics, charts, quizzes, games, analyzes, white cards • the course is a whole - obligatory completion of each task or stage in turn, without the possibility of skipping tasks.
Phase 2: Environment		
Action		Applied process and results
2.1	Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how these will interact within the offline space and with the virtual one. *Space, Emotions, Relationships, Sensation.*	The lab participants did not define the off-line elements. Trouble with understanding this task.
2.2	Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any. *Space, Interface, Emotions, Relationships*	1. Platform, easy, intuitive, available on a computer and mobile devices, 24 hours per day. 2. Functional areas (registration, view, settings, avatar configuration), learning areas (theoretical and practical blocks, including knowledge, test, support, bonus, simulations, additional). 3. Division into sections, chapters, sub-chapters - depending on the subject and educational needs. 4. Ranking visibility - if the user wants to see, but at any time he can resign from this access. 5. The basic area of knowledge is available for beginners, and then - by passing subsequent tests and quizzes, and by completing the tasks correctly - they get access to further knowledge.

		There is no possibility of skipping – at any stage.
Phase 3: Onboarding		
Action		Applied process and results
3.1	Define how to analyse each learner's starting knowledge level. *Emotions, Feedback.*	In this question the lab participants have given split opinions: the same starting level for everyone (most respondents) vs. a placement test at the beginning, which allows to establish the starting level. Possibility to consult with the teacher was in 2 cases indicated.
3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools. *Narration, Beginner's Luck.*	1. When logging in for the first time, the manual is in the form of a movie, then manuals or infographics. 2. Creator. 3. Trailer - like a movie trailer, arousing interest and curiosity.
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). *Tutorial.*	Introductory module, tutorial, help windows, FAQ.
Phase 4: Design		
Action		Applied process and results
4.1	Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	• Clearly defined targets - complete x lessons, pass at least x tests, get x points etc. • The participant begins the journey by building an avatar and setting up the entire path. Then he or she is given challenges / tasks to be performed, but in order to complete them, they have to acquire specific knowledge confirmed by a test / quiz. • There was also an interesting but isolated voice that this is a risk to use the plot, because if someone does not like it, they will not want to continue participating. • An interesting example from the subject anatomy case: learning anatomy - the student, as part of the narrative and game building, or creating their character, must anatomically build their character, starting from the organs of movement (bones, muscles, joints) and ending with the systems (nervous, vascular,

		respiratory, etc.). After building a specific module, they move to the next structures, thus completing the next stages. ● Learning disease entities. The student's avatar struggles successively with new disease entities and in order to counteract them, he or she must acquire specific knowledge by passing it with a quiz or test.
4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	Notifications like: great, you go to the next level, congratulations (motivating praise during the implementation of tasks), adjustments for students with disabilities (extended time to complete tasks). Before a student is allowed to play, he or she will need to undergo appropriate training. Training materials in the form of recordings of lectures to be heard or watched will be on the platform for users with the "cadet" status, then, after being admitted to the "game" (e.g. by a test, quiz, or task to be performed), the learners will be able to earn points - bonuses. For the top 20 in the main ranking, there is a special chat, special emoticons or other options. In the student zone there should be a "VIP ROOM" where the best ones could have fun, for example playing puns, chess, scrabble and other entertainment.
4.3	Define the student's personal profile area. *Avatar, Customization, Badge, Motivation, Mastery, Reputation*	Student zone: yes, everyone has their own avatar panel and access to their own results. 1. *What can students do in their zone?* Compile your own documents, edit your profile. Chat between students. 2. *Should we include areas where points, bonuses/minuses, rankings, chat area documents, badges and rewards are displayed?* It is not necessary, learning is not competition. 3. *Can they see their stats? If so, how and what data?* Yes, the result, all tests, quizzes, crosswords etc. Time spent on the platform and the average time of other users of the platform. In their zone, students gain experience, gather knowledge, organise the avatar, ask questions to the teacher, and through their zone, they have

		access to quizzes, a virtual store, or an up-to-date check of their progress in the game. They can also support each other through barter trade related to access to specific areas of knowledge. For example, having access to a knowledge base they already have or do not want or need, they can barter another. Note: opinions were divided on the issue of sharing the results on social media, unambiguous and decisive, 50/50: some respondents said that yes, there should be such an option. The other part said no - students will not want to use this option.
4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	Some ideas proposed by the participants: • it appears in the student zone, in a separate tab, in the form of a ranking or table; • according to schools; • ranking from the best, but only the top 20 displayed; • weekly update - on a regular basis, in real-time; • no penalties.
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	Some ideas proposed by the participants: • all students have the same access to content regardless of the result; • no support for randomly awarded bonuses - only for certain positive activities: activity, speed, regularity; • special access only for students who have achieved 100% score; • high willingness to punish (despite previous declarations of no penalties) for being late.
4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	1. Student satisfaction/evaluation survey. 2. Additional tests, e.g. a crossword puzzle, a problem to be solved, at the end of each panel or only at the end (divided sentences) 3. They are all winners by completing all the way (scoring depreciation).
4.7	Define the practical experiences that will be activated. *Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift*	• The test can be repeated vs. the tasks can be repeated immediately, but to get the chance to get the additional task again, you will have to wait for the task's ranking to be reset, a specific period of time (e.g., weekly or monthly). • Individual lessons.

		• Practical experience: yes, competition and ambition. The need for self-realisation and the desire to be successful and show off the good side. • External support only for technical issues, not for knowledge.
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	• Rather individual, not group activities. If grouped, the results are distributed in % by involvement. • It is not necessary to assess individual involvement in group work because students will have the opportunity to prove themselves individually, while the whole group assigned to a given task should be equally responsible for the result of group work - thanks to this, they will have a chance to analyse their strengths in groups: weaknesses, the independent division of tasks and the exercise of social competences. The ranking is still individual, even in the case of group activities. • The goal of working in a group - eliminating competition, showing that working in a group pays off. Note: interesting voice - "I do not recognize penalties as such, possibly simulating the natural consequence of not performing a given task".
Phase 5: Skill Atoms		
Action		Applied process and results
5.1	Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	Notifications (also e.g. on the e-mail), additional animation, limited time for this part vs. no time limit.
5.2	Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	The call to action in subsequent modules is triggered after the call to action notification, in the scenario of each module, you can hide several items to be obtained by the participant and the key one may be hidden in a place that the designer of the course deems key (not at the end of the mission). The call to start can be triggered, for example, by a magic "card" obtained during the test/questionnaire / initial conversation with the teacher, and here, if the student is at the basic level, the course starts from the beginning.

		If his level is defined as intermediate or advanced, he or she receives a “card” that allows them to "jump to the next level." Access to specific resources is revealed to be able to perform this task, provided that they have passed the previous stage or passed the quiz/test with a positive result. Timing start, sound signal. Split opinions: either passing a specific task (test, gaining points), or no requirements (i.e. automatically) and access to the task after clicking.
5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	Each task can be completed in a shorter time, but there are time constraints. Extra fast completion bonuses. vs. time does not matter, only the merits of the completed task.
5.4	Define the evaluation and assessment of the activity results.. *Rewards, Feedback, Expected Value.*	The participant receives descriptive feedback regarding both the acquired skills and data such as the time of module completion, and elements on which the participant should additionally focus. Information about the completion of the challenge and the number of awarded percentage points. The student can monitor their results on an ongoing basis, unless the task requires verification (assessment) of the Game Master (expert, teacher). Depending on the result in the side quest, the animation should be different. In case of doing an additional task very well, there should be an animation, e.g. a crowning, in the case of a medium it is an animation: a calm meadow, and a bad result is a wild west and the sound of crickets. The end is signalled similarly to the beginning. The error is also signalled, but it is not possible to repeat/restart the task.
Phase 6: Evaluation		
Action		Applied process and results
6.1	Define how each learner's activity, phase and performance will be evaluated throughout the learning path. *Intrinsic motivation, Competition, Rewards, Penalties, Balancing.*	**1. Balancing inequalities**: • adding intermediate levels • creating checkpoints along the way • determining what will happen if the minimum number of points is not reached.

Balancing inequalities will be corrected by the support of a teacher/expert/game master who can be approached through the so-called Lifebuoys (ask the oracle, extend the time, provide additional sources, etc.) or guide the student on the right path of thought. The number of lifebuoys will be limited but can be replenished as the game progresses.

2. Current ranking, e.g. in relation to the average of all participants (final ranking available separately, after completing the path).

3. An additional window shows where the participant is currently located - how much is until the end, whether it is in the middle or at the end of the path, etc.

There is no consequence for not reaching the min. number of points.

Phase 7: Support	
Action	Applied process and results
7.1 Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	Everyone will have the same access to mentoring or coaching, focusing on students with lower results and rarely logging into the platform. Contact from the coach to these students will be recommended. The game master (mentor, teacher) will be available within a predetermined time frame. The path to it will be open only in a predetermined period of time, as in the Delphic oracle, and the student must shoot himself into this interval. In exceptional situations, the student will be notified about the answer/hint on the platform with an extended time: ● the time interval ● solving the test, ● crediting an earlier level ● possibility to buy additional lifebuoys for points The interaction with the coach/mentor will occur via chat. Coaches/mentors will be consultable before and after completing each department. Students won't need to spend resources to access them, nor a minimum number of credits to be eligible for help: on the contrary, vs. the aid price list and "spending" points on using the support equal opportunities (not a reward). The

		fewer points the student has, the better access to a coach/mentor (to catch up with the better ones).
7.2	Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	• Support - menu option. • Support only on issues where there is no competition. • The idea for motivational support only. • Communication and support, in addition to individual inquiries to the teacher, also take place in an open group chat. It is possible to generate private chats between students. Where can students find support? And what kind of support? • Teacher/expert/game master/mentor; • knowledge base; • list of sources, bibliography, literature provided, links to websites; • in the task; • an additional form of contact with the admin, a hint could also be a form of an additional reward for completing a special task; • chat support - with other students.
7.3	Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	• The conversation does not generate any benefits (additional points). • Information exchange on chat (most common answer among the lab participants) or forum. • The top 20 in the ranking has its own VIP chat where they can communicate freely. The rest of the ranking has its own chat, which has limited smileys and the rest of the options.

Phase 8: Meta		
Action		Applied process and results
8.1	Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	1. Automatic storage of tasks, additional bonuses, vouchers, coins. Each area starts with interesting info (motivation for further action). We also maintain it with the variability of tasks, updating prizes, changing the appearance of the avatar, by regularly adding announcements about upcoming events and possible prizes to be won, and the ability to perform subtasks that are not the main thread of the path, only additional, but related: scored puzzles, quizzes. etc. 2. Ongoing motivating comments: thumbs up, sounds (fanfares). 3. By using many tools - the scenario of a given game itself can be an element that arouses

curiosity, e.g. when we participate in a gardening course, the game may consist in designing and maintaining a garden based on knowledge about plants and soil types present in a given garden - to bonuses in this case for example, it may be necessary to obtain the specificity of acidifying or lowering the pH of the soil - depending on what vegetation in a given place was predicted by the participant.

4. Opportunity to participate in special tasks, gaining additional opportunities to modify the avatar, get badges, prizes, e.g. vouchers for small amounts to be used in online stores, e.g. on Allegro (*purchasing platform, very popular in Poland).*
5. There should be no penalty points, however, for example, if the task is not completed in time, the possible need to repeat the module or an additional insert in the module before testing the participant, possible "natural" consequences for a given action/ omission.

8.2	Define the area where learners can collect, acquire and exchange information. *Knowledge Share, Rewards, Content Crowdsourcing.*	• Creating their own discussion groups by students (as on Whatsapp or FB). • Prohibition of profanity and dissemination of controversial or unacceptable content related to the general intolerance on the basis of racial, religious, gender or other affiliation. • In the program, there should be a school on the home page. • There should be options on the screen, such as student's room, main ranking, challenges, VIP ROOM, etc. what happens with the result/rewards/character evolution. • The results update and the job ranking resets. Achievements should stay until the end. • For example, in a common part, or e.g. in a knowledge library that will evolve along with the development of the tool. **Where can students share and gain additional knowledge?** Catalogued knowledge library - for new entries - bonuses. As part of the bonuses, students can gain additional free access to usually paid knowledge platforms, e.g. online courses that broaden their competencies (but this is in the form of a reward for really high achievements, because the

		purchase of such access may involve certain costs on the part of the game administrator unless there would be a possibility of sponsorship from the organiser of such an online course). **Identify the characteristics of the space in which students can impart and gain knowledge.** ● Something like a virtual disk with redirection from the game platform; ● knowledge base on the platform; ● the ability to transfer files in the messenger. Access to the knowledge base, as mentioned earlier, is possible after passing individual stages and modules of the lesson, after passing a test or completing a task. Additional sources will be generated by the mentor when using special lifebuoys or buying them for the points already collected in the form of bonuses. ● Students could add other sources, but they would have to be authorised by the admin/teacher (also due to copyright). Vs. students cannot add content. It would be useful to cover details like: ● access criteria, if any (ie minimum score, individual asset) ● any special sections within the area ● can students add / edit content, incl. insert external sources **What happens with the score/rewards/ character evolution.** Through the student-communicator zone and thanks to the prepared documents, recommended links to thematic pages recommended by the game master, and other participants - it would be worth creating a knowledge base with links to professional sources outside the library of documents for participants.
8.3	Define the tools that can be used (e.g., online tools and platform, design tools). *Tutorial, Creativity tool, Gifts.*	● Quizzes, tests, crosswords, multimedia materials and equipment for their operation, software open to students. Knowledge Library. ● A program for viewing movies. ● Internet search engine. ● Powerpoint.

		• Computer, smartphone, tablet, laptop, a smartphone application. • Integrated curriculum written specifically for the game - methodological and substantive scenario. • Game platform (website equipped with messenger and knowledge base with blocked access, quizzes and tests. Also equipped with the possibility of creating a profile/avatar. • Program for creating presentations. • Possibility of simulation. • Contacts with companies/massage training centres. • Contacts with POZ facilities where an internship could be held. • Sponsors of material prizes - logo - website as a place for advertising instead. • Publication of product placement tutorial videos. • Anatomylearning applications. An interactive game for learning, for example, anatomy. Drawing, colouring, sticking
8.4	Define where the program's material will be collected. *Knowledge Share.*	Materials on the platform, in the form of e.g. a knowledge library or sent to a student's account. Access for the student only to those indicated by the teacher. No possibility to edit or edit only your own materials. Teacher access to all materials.
8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	• Shared chat and forum. The messages are delivered by the admin or a private message on the student's panel. • Access only to students' own materials, with the possibility of editing them vs. access to all materials, but without the possibility of editing. Students will be able to transfer some materials, but Messenger will have a limited amount of data traffic. The communicator itself will be used for quick information exchange and will be carried out only in real-time, so as not to facilitate "downloading" or copying. • Activity in the chat will be treated as in a traditional lesson, and inappropriate language, profanity or cyberbullying will result in a deduction of points. As with other communication tools, there should be the option of posting information both on the forum and exchanging it between participants. This form would also be good for communicating with the game master/teacher/trainer.

8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	• Clear and simple point system, based on bonuses (positive motivation, no penalty system). • Cons and bonuses should never increase sb's chances of getting more bonuses. In other words, users should receive visual or tangible (real) rewards such as achievements or cinema tickets. • There should be no disadvantages, the downside for the user will be the fact that they did not win the award, which will motivate them more to improve their academic performance. • There is no such thing as clusters or groups of better and worse students in the game. The emphasis of competition will be on an individual level, and when working in groups, students will be treated as one team (with some exceptions) so as not to create a permanent division into better and worse, thus teaching cooperation rather than competition. The only general breakdown will be into levels as previously mentioned, but this is due to exploring the next learning milestones and modules to complete the course/school. • Clusters - bad idea, pigeonholing students. If anything, it is grouping students with a similar level of viewers and skills, who are linked by a professional topic. Ev. inter-school rankings. Note: all the respondents unanimously opposed the penalties.
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	As in the document "Prompts for facilitators" points 8.6 and 8.7 were grouped into 1, the answers were given to both issues, not separated. Hence the answer is contained in the above.

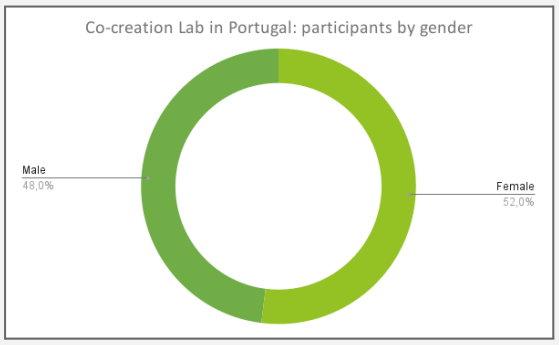
Portugal

Two proposals for a gamified e-learning training course were produced based on the Conceptual Framework for Gamified E-Learning Programmes for two different types of training, one with LGBTI+ as a subject and the other one with Dance.

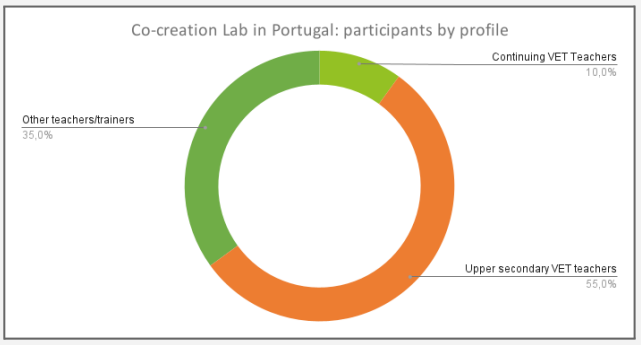
The participants in this activity were divided into groups and guided by an ECOS facilitator, together they produced two proposals for a gamified e-learning training course for each subject, LGBTI+ and Dance, based on the Conceptual Framework for Gamified E-Learning Programmes. Each phase of the Framework was discussed among the group members and appropriate game elements were introduced at each stage of the learning journey. At the end of the activity, the participants presented and substantiated their proposals.

Contributors: Ana Catarina Lopes; Ana Sofia Santos Martins; André Lara; Aurora Coelho; Cândido Fernandes de Jesus; Carlos Reis; Claudio Garcia; Dora Cristina; Duarte Gonçalves; Joana Franco; João Pássaro; Laura Neves Pereira; Marco Valente; Maria Gabriela Simão; Marina Pires; Marta Lima; Natalia Estrelo; Paulo Matos da Silva; Pedro Curado; Raquel Teixeira; Sérgio Cabrita; Sofia Justino.

Composition of the group



Graph 9. Distribution of the participants in the Portuguese Co-creation Lab by gender



Graph 10. Distribution of the participants in the Portuguese Co-creation Lab by profile

LGBTI+	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program.	The program is a short training session on LGBTI+ rights with the following objectives:

	Lenses.	- Acquisition of basic concepts - Understand terminology on LGBTI+ rights - Fight stereotypes and discrimination
1.2	Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	Young People in general, between 15 and 18 years old. No specific skills, directed to basic computer or phone users. Motivated to get to know more about LGBTI+ rights, equality and non-discrimination.
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	**Certification** - certificate of participation **Skills**: - Get to know basic concepts and be able to explain them - Adopt respect and non-discrimination attitudes - Be able to identify and act when facing or testimony a situation of LGBTI+ discrimination - Develop digital capacities It is a self-paced online training session of around 1,5 hours that can be used in group sessions with a trainer or autonomously by any young person.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	**Metrics**: ● Less than 50% score in each challenge - repeat the challenge ● 50% - 80% score in each challenge - - challenged achieved - move on to next level ● 80% - 100% score in each challenge - outstanding achievement - move on to next level
1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	Module 1 - Basic Concepts and terminology Module 2 - Non-discrimination Module 3 - Empowerment and pro-activity More information on phases 4, 5, 6, 7 and 8.
Phase 2: Environment		
Action		Applied process and results
2.1	Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how	*Not applicable*

	these will interact within the offline space and with the virtual one. *Space, Emotions, Relationships, Sensation.*	
2.2	Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any. *Space, Interface, Emotions, Relationships*	

Phase 3: Onboarding		
Action		Applied process and results
3.1	Define how to analyse each learner's starting knowledge level. *Emotions, Feedback.*	Regarding the digital competencies - no pre-evaluation, learners can use a support tutorial and/or a help wizard Regarding the course contents - small assessment game (crosswords or similar)
3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools. *Narration, Beginner's Luck.*	Narration will tell the story of the world where the avatar chosen by the learner lives. It is a grey world with no colours and diversity. They will face and surpass several challenges in order to be able to live in a colourful and diverse world, by

		colouring the rainbow stripes one by one while completing several challenges.
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). *Tutorial*.	Clippie button - Tutorial on how to use the platform Chat 1st robot for FAQs on LGBTI+ rights and how to use the platform Chat 2nd for specific questions to be dealt with by the trainer or support staff
Phase 4: Design		
Action		Applied process and results
4.1	Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	The avatar chosen by the learner lives in a grey world. They will face and surpass several challenges in order to be able to live in a colourful and diverse world. The main screen is composed of a Rainbow in grayscale colours. As the learner completes each of the challenges each of the rainbow stripes will gain a colour. The avatar will progress from stripe to stripe as each challenge is completed (at least 50% success).
4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	Units will follow the rainbow stripes. 1 – Create your identity/avatar 2 – Show what you know (Module 1) 3 – Explore basic concepts (Module 1) 3 – Discover (Module 2) 4 - Manifest yourself (Module 3) 5 - Challenge yourself (All modules review and evaluation) 6 – Celebrate (see achievements, print certificates, share with friends, invite friends, link to additional resources button etc...)
4.3	Define the student's personal profile area. *Avatar, Customization, Badge, Motivation, Mastery, Reputation*	Learners choose an avatar, and personalise with skin colour, hair, clothes and add their name. Motivation will come by colouring one stripe of the rainbow every time a challenge is completed. If the learners' score is more than 80% on a challenge, the rainbow stripe colour will glow. Outstanding achievements in each challenge will also unlock accessories to be used by the avatar (a hat or similar). Results and achievements can be shared on social media by the learners.

		After all the challenges are completed, the narration will complete the story: "Congratulations, you turned a grey world into a colourful and diverse place. We count on you to share this programme with others and to use the skills you've acquired today in real-life situations"
4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	*The board will be composed of a rainbow with 7 stripes. (See image 2.2.)*
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	**Activities per unit** 1 – Create your identity/avatar – choose name, hair, clothes, shoes, and skin colour (no gender definition). 2 – Show what you know (Module 1) – connect 4 basic concepts on LGBTI+ rights to corresponding cartoons/images (sexual orientation, gender identity, gender expression, biological/sexual caracteristics) - exercise. 3 – Explore basic concepts (Module 1) – connect 14 basic concepts with their definition creating a mosaic with an image relevant to the topic - exercise 3 – Discover (Module 2) Presentation of role-play situations of discrimination – some more visible, others less – that invite the learner to name the situation. The learner will have 3 to 5 possible answers and will choose one – exercise, or multiple choice. 4 - Manifest yourself (Module 3) Presentation of role-play situations of discrimination – some more visible, others less – that invite the learner to act in order to revert the discrimination. The learner will have 3 to 5 possible answers and will choose one – exercise, or multiple choice. 5 - Challenge yourself (All modules review and evaluation) With a countdown watch limit, the learner will
4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	
4.7	Define the practical experiences that will be activated. *Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift*	

		receive a definition and needs to find and fill in the corresponding word - Anagram or crosswords 6 – Celebrate (see achievements, print certificates, share with friends, invite friends, link to additional resources button etc...)
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	Not applicable
Phase 5: Skill Atoms		
Action		Applied process and results
5.1	Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	The rainbow stripe will gain colour when learners achieve more than 50% score on a challenge The rainbow stripe will gain colour plus glow when learners achieve more than 80% score on a challenge The avatar gains accessories when learners have an outstanding performance on a challenge (90%+ score or less time to complete challenge) Next stripe to be coloured/challenged will be unlocked upon successful completion of the previous one.
5.2	Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	See 4.5 to 4.7
5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	Rewards – move to the next level if score 50% or more in a challenge, a rainbow will progressively become colourful, with more than 80% the respective rainbow stripe will glow, avatar receives new clothes and accessories, certificate of participation with the person's avatar and name. Self-paced. Some activities will have a countdown watch. All activities are individual. See tools on 4.5 to 4.7.
5.4	Define the evaluation and assessment of the activity results.. *Rewards, Feedback, Expected Value.*	Rewards and certificate of completion. See 6.1.

Phase 6: Evaluation	
Action	Applied process and results
6.1 Define how each learner's activity, phase and performance will be evaluated throughout the learning path. *Intrinsic motivation, Competition, Rewards, Penalties, Balancing.*	Rewards – move to the next level if score 50% or more in a challenge, a rainbow will progressively become colourful, with more than 80% the respective rainbow stripe will glow, avatar receives new clothes and accessories, certificate of participation with the person's avatar and name. No Penalties – only need to repeat the challenge if scores less than 50% No competition between different users
Phase 7: Support	
Action	Applied process and results
7.1 Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	Clippie button - Tutorial on how to use the platform Chat 1st robot for FAQs on LGBTI+ rights and how to use the platform Chat 2nd for specific questions to be dealt with by the trainer or support staff
7.2 Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	*Not applicable*
7.3 Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	Integration with Whatsapp or other social networks for learners/learners and teachers/trainer/learner interactions.
Phase 8: Meta	
Action	Applied process and results
8.1 Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	Success in one level (rainbow stripe) will activate the next one
8.2 Define the area where learners can collect, acquire and exchange information.	There is a button with additional info on LGBTI+ rights that learners can access, such as:

	Knowledge Share, Rewards, Content Crowdsourcing.	- Movies - Books - Facts and curiosities - Links to relevant websites
8.3	Define the tools that can be used (e.g., online tools and platform, design tools). *Tutorial, Creativity tool, Gifts.*	Clippie button - Tutorial on how to use the platform Chat 1st robot for FAQs on LGBTI+ rights and how to use the platform Chat 2nd for specific questions to be dealt with by the trainer or support staff
8.4	Define where the program's material will be collected. *Knowledge Share.*	All users will have their results in their ID/Avatar reserved space. If the programme is launched through an organised training session, the trainer can access a backstage platform with results.
8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	Chat 2nd for specific questions to be dealt with by the trainer or support staff Integration with Whatsapp or other social networks for learners/learners and teachers/trainer/learner interactions.
8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	The rainbow stripe will gain colour when learners achieve more than 50% score on a challenge The rainbow stripe will gain colour plus glow when learners achieve more than 80% score on a challenge The avatar gains accessories when learners have an outstanding performance on a challenge (90%+ score or less time to complete challenge)
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	*Non-applicable*

My Dance Story	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program. *Lenses.*	The program is a small training session about Dance with the following objectives: - Understand the historical context of dance

		- Perform and creatively create short choreographic sequences The main objective is for students to learn about the various styles of dance in a chronological line using a time travel methodology. The training program was structured considering the existing dance styles. Being these styles distributed over time it was concluded that a chronological line would be the best way for the student to go through the training program.
1.2	Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	Young people between 15 and 18 years old without the need for previous knowledge on the subject but with an interest in knowing more about it, both in its theoretical and practical components. Minimum knowledge and interest in using digital equipment
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	Information - Students will learn about the historical aspects of each dance style, the associated costumes and choreographic steps. Certificate of participation. The completion of each dance style challenge will lead to a reward and there is the possibility of becoming a mentor throughout the training path. There is also a final challenge that will award a status in the training path.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	Each challenge involves 3 different types of activities. Only when they are complete will the trainees have the mission completed and acquire a star. If they are not successful they can consult the content again and repeat the challenges until they overcome them. All challenges need to be completed to get access to the final challenge. The final challenge has the following metrics:

		- choreography with 5 steps, the minimum level for success, a status awarded. - choreography with 10 steps, intermediate level, a status awarded. - choreography with 20 steps, maximum level, a status awarded.
1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	*T*he program is divided into modules, these modules are the missions corresponding to dance styles. Visually the dance styles will be distributed in a chronological line from the oldest to the most recent. At the end of this chronological line will be the final challenge that will only be unlocked after the completion of all dance styles.
Phase 2: Environment		
Action		Applied process and results
2.1	Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how these will interact within the offline space and with the virtual one. *Space, Emotions, Relationships, Sensation.*	The learning environment will be mainly online. There are some challenges, mainly choreography challenges that can be connected to the offline environment to be completed if students choose to record a video with a costume and perform the dance style. The final challenge can be offline but it would imply a mobilisation of resources that would not be possible in all contexts (e.g. travel, costumes, space)
2.2	Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any. *Space, Interface, Emotions, Relationships*	The online space would have an initial registration, a character that would be the guide during the learning experience, a help button and tutorials, and interaction spaces (Forums, chats, collective space, ranking table).
Phase 3: Onboarding		
Action		Applied process and results
3.1	Define how to analyse each learner's starting knowledge level. *Emotions, Feedback.*	An initial tutorial on how to use the platform and the resources and actions available would appear but trainees could skip iit f they felt comfortable with the platform. An initial diagnostic quiz would assess what stages the learners' knowledge of the topic was at.

3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools. *Narration, Beginner's Luck.*	The name of the training course is My Dance Story in which the trainees have to create their dance choreography using the various existing styles. The narrative of the training is framed in a timeline, so the trainees would be welcomed by a character, that symbolises dance, that would guide them through the journey in time, showing them what they have to do to reach the objective. The aim is to face a final challenge to become a dancing star or something else but to do so the trainee would have to travel back in time to learn as much as they can about the dance styles on the program. When they finish their journey and overcome all the challenges, they could finally face the final challenge.
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). *Tutorial*.	Pop up tutorials right after registration. During the journey, there will be a character who will guide the trainee through the learning path. Regarding programmatic content, access to a repository with content on that topic in various formats (videos, articles, images, etc.).

Phase 4: Design		
Action		Applied process and results
4.1	Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	The trainees will be welcomed by a character that will guide them in a time travel through the various dance styles, each dance style is a module that represents a mission composed of three challenges. When they complete the dance styles they unlock the final challenge and can play it.
4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	Each module is a mission in which the objective is that the student learns that dance style. The participants are divided into modules of 4 dance styles: 1st Renaissance and traditional dances 2nd Classical dances 3rd Modern dance 4th Contemporary dance

4.3	Define the student's personal profile area. *Avatar, Customization, Badge, Motivation, Mastery, Reputation*	After registration, the trainee will have to create and personalise their avatar. As the training goes on the trainee will earn costumes and credits to spend in the clothing shop and avatar elements. In the personal profile area, the trainee can customise their avatar, and see the number of stars and the status.
4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	There would be a table with the ranking of trainees that would be ordered by a number of stars, and status and would also give access to the avatars of the other trainees.
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	When entering each dance style the trainees are received in a kind of road map (google earth) that transports them to that time and they are provided with the program content through documents, videos, films, and audios, as a kind of interactive museum. After this learning momentum,the student can start the challenges. Each mission is divided into 3 challenges: 1st Answer a quiz on the historical, political and social context. Reward – Progress to the next challenge. 2nd Through a gallery of images the student will have to identify the costumes of that time. Reward – Progress to the next challenge and win a piece of that dance-style costume. 3rd In this challenge, the participants chose to give the trainees the freedom to choose in which format they want to complete it, with the objective of making the challenges more diverse and avoiding monotony (video, presentation, tertulia, etc). In this challenge, what is proposed is the execution or explanation of choreography of the corresponding dance style. Reward – Completion of the dance style, star. When the trainees complete the dance styles missions they reach the 4 stars and win the mentor status and are able to help other trainees. For the final challenge, trainees are asked to execute a choreography with a minimum number of steps that contains the dance styles
4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	
4.7	Define the practical experiences that will be activated. *Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift*	
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	

		they have previously learned. Reward – Reach a status, 5 steps – star, 10 steps – superstar, 20 steps – god of dance. There would be a collective space where students can meet and thus start a mission together. The learning experience in dance styles is free, students can choose the style they want to learn without the need for an order, the idea is to travel in time. They would have to complete all the styles to advance to the final challenge.
Phase 5: Skill Atoms		
Action		Applied process and results
5.1	Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	The trainees click the button to travel to that dance style, learn about it and face the challenges. When the challenges are completed they complete the mission and acquire rewards.
5.2	Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	See 4.
5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	In the first challenge trainees will answer a quiz with a certain number of questions about the content of that dance style, there will not be a time limit, it is a self-paced experience, they will need to answer the quiz questions correctly to move on to the next challenge. The second challenge is composed with images about dance style costumes. The trainees need to select the correct images to complete the challenge successfully. The third challenge is choreography with that dance style steps and trainees can choose how to complete it (videos, presentations, tertulia etc).
5.4	Define the evaluation and assessment of the activity results.. *Rewards, Feedback, Expected Value.*	See 6.1.

Phase 6: Evaluation	
Action	Applied process and results
6.1 Define how each learner's activity, phase and performance will be evaluated throughout the learning path. *Intrinsic motivation, Competition, Rewards, Penalties, Balancing.*	Rewards: 1st challenge - Progress to the next challenge. 2nd challenge - Progress to the next challenge and win a piece of that dance style costume. 3rd challenge - Completion of the dance style, star. At the end of missions, 4 stars, mentor status. Final challenge – 5 steps – star status, 10 steps – superstar status, 20 steps – god of dance They will only progress to the next challenge when the previous are completed but they are free to explore the dance styles missions with no need for an order.

Phase 7: Support	
Action	Applied process and results
7.1 Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	*If students are having difficulties they can ask questions or request a mentor by clicking on the Forum button.* *Pop up tutorials.* *Guiding character.*
7.2 Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	*Forum button, repository.*
7.3 Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	Collective space button to complete missions in group, chats and forum buttons.

Phase 8: Meta	
Action	Applied process and results
8.1 Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	Wheel of fortune each time a dance style is completed. They can also obtain credits and pieces of clothing during the activities. Status achievement.

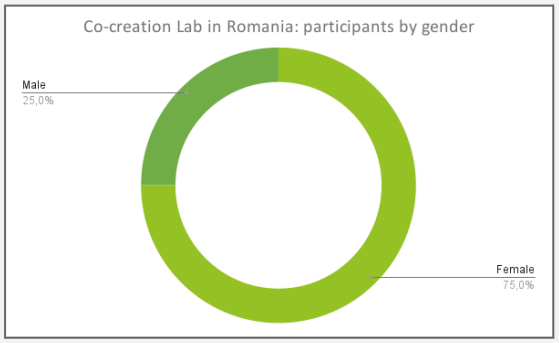
8.2	Define the area where learners can collect, acquire and exchange information. *Knowledge Share, Rewards, Content Crowdsourcing.*	Repository, Forum, Chat, Collective Space.
8.3	Define the tools that can be used (e.g., online tools and platform, design tools). *Tutorial, Creativity tool, Gifts.*	Camera, Zoom, Chat tools.
8.4	Define where the program's material will be collected. *Knowledge Share.*	When each mission starts, they are presented with the road map with the content inserted. Repository button.
8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	Forum, Chat, Collective Space (server style).
8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	Stars, mentor status, star/superstar/god of dance status.
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	*Wheel of fortune, clothes and credits to engage.* *Stars to reward.* *Status and ranking access to motivate.*

Romania

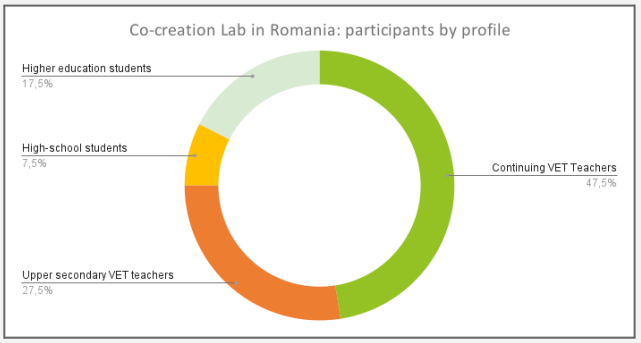
A program outline to Improve the pedagogical methods used by VET teachers and offer attractive educational paths to their learners

The Co-creation Lab in Romania involved 40 participants: 92% of participants were teachers and trainers and 8% learners, both in the VET field (75%) and other fields of education, such as high-school and university (25%). The group worked on the design of a possible structure for a game-based learning experience..

Composition of the group



Graph 11. Distribution of the participants in the Romanian Co-creation Lab by gender



Graph 12. Distribution of the participants in the Romanian Co-creation Lab by profile

PROGRAM OUTLINE	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program. *Lenses.*	The game aims at creating an online learning environment in which the users develop new skills and competencies through an online competition. Objectives: ● Improve the pedagogical methods used by VET teachers to offer attractive educational paths to their students through adding avatars and competitions that allow continuous monitoring of students' progress during the course; ● Develop new skills and critical thinking abilities of VET learners to choose appropriate

		ways for problem-solving; • Increase the graduation rate in VET education through the integration of game elements that allow learning and competition throughout the five-course modules.
1.2	Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	This game responds to the need of students to learn in a relaxing and attractive way. At each level, there is a new challenge because the questions are unpredictable. The target audience is VET learners, students and youth who want to improve their knowledge and be challenged at the same time. Another category of the target group is the trainers and teachers willing to offer attractive educational paths to their students. For this game, they should have only basic skills because there are levels from beginner to professional.
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	This game is based on questions and answers like a quiz game. At each level, there are some questions with different levels of difficulty. When the player does not know an answer, in time, they must find out the answer. After they go through several levels, we expect them to develop their knowledge and find solutions. After finishing a module, they receive badges. At the end of the program, they will receive a course completion certificate.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	This activity can run at the class level; each student must enrol and play this game to exist on the leaderboard. The teacher can add or change any questions he wants and the teacher will still see the ranking. Weekly, the teacher can compare the results and the reward with an extra point at exams or test the student with the best results. Players must answer no. 20 questions and each correct question awards one point. There will be five rounds depending on how correctly the players answer, so in the end, the winner should have one hundred points or close to this number. Of course, if somebody wants to see the intermediate levels of evaluation there will be a history of the day, date, time and score the player had each time he logged in. If some participants fail to collect the required

		points, they can repeat the game. If they don't have a good score, they can play and answer the questions until they have a good number of points.
1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	In order for the educational materials to be diverse, teachers can change the questions according to their scope. There will be five rounds, 20 questions each and 1 point for each question. If some participants fail to collect the required number of points, they can repeat the game but they will lose half points of each question.

Phase 2: Environment		
Action		Applied process and results
2.1	Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how these will interact within the offline space and with the virtual one. *Space, Emotions, Relationships, Sensation.*	Learners can play the game during the offline classes in the mode, bringing their own device. There are advantages that the teacher can provide immediate support and guidance
2.2	Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any. *Space, Interface, Emotions, Relationships*	The elements of the online environment are: access, start, choose, and play. - Those who want to use this way of learning must also log in their name, study program and password. - For a start, there will be an introductory part where the existing program is presented and a summary of what will follow. - In the second part there will be some boxes with existing lessons from which participants can choose what interests them. - After choosing the topic of interest, they will enter the game, if there are no other players at that moment, they will play with a robot that will guide them.

Phase 3: Onboarding		
Action		Applied process and results
3.1	Define how to analyse each learner's starting knowledge level. *Emotions, Feedback.*	The platform will register the performance of each participant because it will have a history. All students accessing this platform choose their

		study program to answer the question according to the educational program. Their avatar is assigned based on the level of responses.
3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools. *Narration, Beginner's Luck.*	The virtual teacher will explain to the students the steps towards this way of learning. All students accessing this platform can identify themselves with their individual names and passwords. The platform benefits from a video in which it explains step by step to the participants how it works.
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). *Tutorial*.	To make the platform easier to understand at the beginning, there is a virtual assistant that can answer all the participants' curiosities. There is also a video for a better understanding of the platform.
Phase 4: Design		
Action		Applied process and results
4.1	Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	After the participant has registered and gone through the introductory information, he can choose the lesson he wants to go through. After completing each level, they earn a number of points. At the higher levels, only the people with the highest score will go, the prize being an extra point for the future test.
4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	An infographic (map) will be available for each module, emphasising: - For the start, a quick test will allow participants to gain the avatar; - there will be videos and written materials to help students retain information in a fun way; - After the videos, participants can access an interactive game which will have a connection with the educational materials. Each activity will have a time of 40 minutes. Each unit presents more and more difficult questions to motivate the participant. While learners win points, their avatar becomes stronger. The winner's prize will be an extra point in the next test.
4.3	Define the student's personal profile area. *Avatar, Customization, Badge, Motivation, Mastery, Reputation*	The personal area of the student consists of: - Name - The study program in which is enrolled - A colour that is automatically set

		according to his progress. In the beginning, the colour of their avatar is black and the more points he collects, the more the colour changes. - The red colour is for those who have over fifty points.
4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	The leaderboard is structured in a table, in chronological order, by days. It appears after they finish a level and it is updated. The score depends on participants' progression; the highest score is given by the best of them. There are no penalties.
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	The activities are similar for all modules: ● Choose an activity; ● Quiz to evaluate the level of knowledge – initial assessment and entry-level; ● Communicate via forum in a chart "Know, Want, Learnt". Participants are required to collaborate and reply to colleagues that have challenges/queries and would like to know more about the subject; ● In this game, participants are allowed to search for information from any source. The time spent on the forum is not a scarcity element. The teamwork and problem-solving skills are evaluated based on the number of replies that someone has via forum; ● Reading and video modules; ● Final test; The students cannot pass over the modules, there are no lessons in advance, and the students can uncover new modules while they are solving test games with a passing score.
4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	After the end of the first module, it will appear as a pyramid that shows the student's progress. Each participant and the teacher will be able to see the progress and regression. This is a way of giving feedback and motivation. The test will be prepared by the teacher to ensure that the student has achieved the learning outcomes. The one who has a good score is considered to be the winner. The prize will be an extra point on the next note. The one with a lower score will receive messages to be guided towards further understanding and

		development.
4.7	Define the practical experiences that will be activated. *Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift*	During the learning journey, participants will be able to search for information for their benefit. Practical experience will be assessed through forum activities. They will be required to respond to colleagues in the "Know, Want, Learnt" chart. Their abilities to work in a team, solve problems and support colleagues will be activated.
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	After completing the first stage of the game there will be a group activity. The score will be distributed through a pyramid. With the help of the forum section, students can create groups and beyond, a competition. The answers will be written by the students and at the end, you will see the answer given by each student. In general, they will work individually to make it easier for the game to evaluate the performance. Group activities will be activated through the forum.
Phase 5: Skill Atoms		
Action		Applied process and results
5.1	Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	The activity will start with the virtual assistant. He will guide all those who will access the platform. Also, the activity is the basis for the answers to different questions created by the teachers depending on what is taught in class.
5.2	Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	After the participant will become familiar with the platform. He chooses the field he wants to participate in and then he will be sent to the first level to go through it. To make it easier, they will be advised to read the material provided by the teacher in class.
5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	When students complete the challenge/activity, they will be rewarded (e.g., their avatars becoming stronger or changing their own colours). The activity will be implemented individually to see the evolution of each student. At the top right there will be a time counter, long enough to have time to research if they haven't read the material. The score will be shown at the end of the level. If they cannot make it from the first attempt, the points that can be won will be reduced for the second attempt

5.4	Define the evaluation and assessment of the activity results.. *Rewards, Feedback, Expected Value.*	The final evaluation will look like a pyramid. The base of the pyramid will represent the first level and the respective score followed by the other levels. In addition, the students can see the results of other participants.

Phase 6: Evaluation		
Action		Applied process and results
6.1	Define how each learner's activity, phase and performance will be evaluated throughout the learning path. *Intrinsic motivation, Competition, Rewards, Penalties, Balancing.*	• After each module, the avatar will become stronger, and visually will receive a new colour • Each week the teacher will see the results for each student and according to the performance, the learner will receive messages (Congratulations, keep going,). • The final ranking is very important because it also presents the history of each one. Each student will be able to compare their own progress with other students' progress.

Phase 7: Support		
Action		Applied process and results
7.1	Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	During the activity, participants will be guided by the teaching assistant. There will be encouraging messages from one level to the next one, as well as for the questions that they fail. Feedback will be received from the teaching assistant at the end of each module.
7.2	Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	In order to receive support, the students have to enrol in the game. - For each module, there is a virtual assistant who will manage the forum section. He will guide the conversation. - If this is not enough, the participant will have the opportunity to send messages online, and the teacher can send individual responses through the game platform.
7.3	Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	The accounts need to be created with a valid e-mail address in order to join the conversation. Users can exchange information in the classroom forum, which will be a chance for them to interact. The direct messages for teachers will be sent via the game platform and the response will

		be received on the same platform.
Phase 8: Meta		
Action		Applied process and results
8.1	Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	During the game, there are several triggers, such as: - When the time expires, participants will be informed with few seconds in advance (last 5 seconds in red) - When the chosen answer is wrong, participants will be able to skip the question or to re-take with a different score. - On successful completion of the module, there will be rewards in Avatar colour.
8.2	Define the area where learners can collect, acquire and exchange information. *Knowledge Share, Rewards, Content Crowdsourcing.*	Areas: - On the bottom left, participants can access the chat with the game admin. - The right corner, the participants will receive the rewards. - The middle of the screen, the participants will be informed about the progress - In the forum section, participants can exchange info about the game. - The contact section, participants will interact with the teacher
8.3	Define the tools that can be used (e.g., online tools and platform, design tools). *Tutorial, Creativity tool, Gifts.*	The tools that can be used: - Self-registration platform will be available - Video-tutorial with teaching assistant to explain the stages of the game - Infographics to explain the flow of each module in images - Avatar construction, built by the user.
8.4	Define where the program's material will be collected. *Knowledge Share.*	The program's material will be collected in the game platform which can be accessed with the following roles: - Participant role – can see the material, collect and see the badges, review the own responses, see the own progress compering to colleagues - Teacher role – can add course materials, edit questions, see the badges collected by each participant in the course - Admin role –see all course materials and give access to those courses that are appropriate for the scope of the game

8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	Communication tools: - In order for students to communicate with teachers, they can use direct messaging on the platform. - For admin issues, the students and teachers can interact with the admin via chat. - Students enrolled in the same game can communicate via the forum.
8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	There will be a time score connected to the correct answers. This is the period in which a participant gives the correct and quick response. The winner of each module will receive extra points. They will be informed if a new participant gains a higher score. The information will be received only once when the score is higher for the first time. Then, they can access the game again and play to beat the record. The winner of a module will be able to choose a topic for the next test.
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	Based on the results of the first test, each participant will compete with participants having the same avatar colour. The avatar colour will show the level and they will remain at that specific level until a sum of conditions would be met: quick response, rapid response, and collaboration via forum to support colleagues/ give responses. When a participant gains a passing score in each area: communication/ teamwork/ knowledge then they will go to the next level.

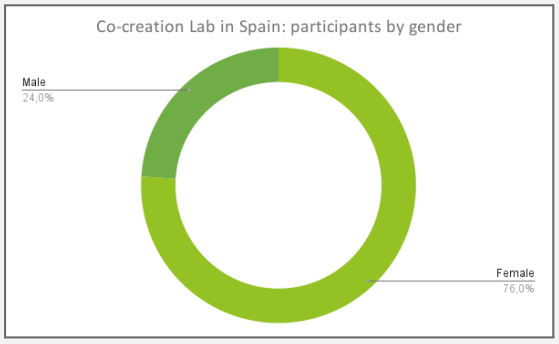
Spain

The Lost Island: a gamified immersive e-learning experience to improve individuals' digital and online information literacy skills.

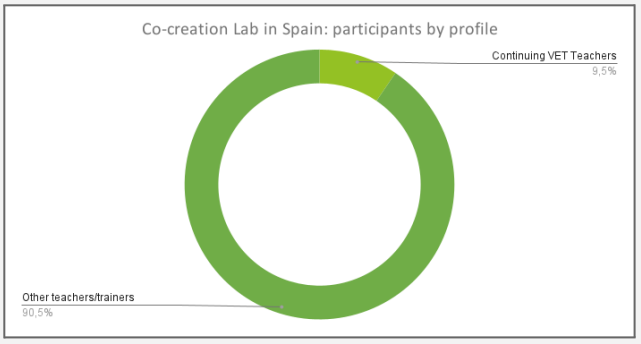
The Spanish Co-creation Lab was implemented by Femxa Formación S.L.U in two online sessions. A first one-hour preliminary session to present the co-design activity, the scope of the design, and to define the area of the learning content of the program. And a second four-hours session, where participants applied the Conceptual Framework to collaboratively design the 8 phases of a gamified e-learning program of a course on digital literacy and online information literacy, with a focus on cybersecurity. The end result provides an attractive learning experience targeting individuals with basic or low levels of digital and information skills.

The Lab gathered twenty-one participants, predominantly trainers and educators of continuing VET (90%), and of other areas of vocational education and training, including upper secondary and post-secondary VET (10%).

Composition of the group



Graph 13. Distribution of the participants in the Spanish Co-creation Lab by gender



Graph 14. Distribution of the participants in the Spanish Co-creation Lab by profile

The Lost Island	
Phase 1: Goals & Outcomes	
Action	Applied process and results
1.1 Define the overall aim and objectives of the program. *Lenses.*	The program's aims are the following: • To train in essential digital and information literacy skills, enabling learners to be able to deal with digital environments in a skilful and

safe way. The competencies gained will enable learners to navigate, contrast information, share content and interact through digital media.

- To foster transversal competencies of teamwork, leadership, communication skills and critical thinking, essential in interpersonal relationships, including those developed through digital media. Thus, to provide individuals with the resources necessary to safely navigate the highly digital world of today that is present in all spheres of society (e.g., education, workplace, economical transactions, social interactions, entertainment, etc.).

Accordingly, the learning objectives are:

1. To provide the basic concepts, knowledge, and practical skills for individuals to be able to navigate the internet, search, filter and communicate information and digital content.

2. To improve the information literacy of learners online, meaning: to train them in the knowledge, skills and aptitudes required to critically analyse and filter information and content online; to learn how to create, reutilize and share information in digital environments, and how to communicate and collaborate that content with others.

3. To train learners in the basic skills to ensure their digital safety in three spheres: devices, personal data and the well-being and integrity of individuals. As well as identifying the main dangers they can encounter online and how to protect themselves and their information.

4. To inform learners about their rights when being online, as well as the code of conduct everyone engaging in digital exchanges should follow to ensure fruitful, safe, and positive exchanges online.

5. To foster interpersonal skills of individuals through an interactive program that challenges learners' ability to think critically, solve problems, and actively communicate and collaborate with others online.

1.2	Identify learners' characteristics, needs and challenges. *Lenses, Intrinsic Motivation, Customization, Interest.*	TARGET GROUP: learners over 18 years old with poor digital literacy and information literacy skills that look to improve their competencies in this area. Prerequisites: to have access to the internet, accessibility to a pc, laptop, or tablet, and to have or create for the purpose of the course an Email account. Common NEEDS and CHALLENGES identified in the target group: - Lack of time related to personal issues (family, work, other studies, etc.). - Difficulty in scheduling time to connect for collaborative tasks. - Difficulties in accessing the necessary means (internet connection, computer, etc.) to take the course. - Lack of the basic knowledge necessary to comprehend the starting concepts developed during the program. HOW these needs will be considered by the program: The program is designed to be able to be completed by users at different times of the day, with a minimum amount of group sessions across the modules. Users will be grouped according to their personal schedules, and the time they plan to devote to the course. This information will be obtained during the onboarding process and will allow maintaining an interactive and collaborative game experience despite differences between users.
1.3	Define the skills, information and certification learners will achieve at the end of the program. *Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.*	Participants who complete at least 80% of the program will be given a certificate that describes the competencies achieved. As part of the gamified learning experience, customised digital awards will be given to the users whose final scores are in the first three positions. In addition, other distinctions will be given to participants that show the following skills and aptitudes: - Team player: to the user voted as such by

		the participants - Leader: to the leader of the group that achieves better results at the end of the program - Most Engaged: to the user that participates more in the chats and forum activities The final scores will be a result of the accumulation of a set of points for each task accomplished, the points will be shown in a common Ranking Tool that will be accessible from the eLearning Platform. The awards will be represented by customised badges that will be shown in their profiles as well as announced in the Forum.
1.4	Define the success criteria, metrics and KPIs. *Lenses.*	There are two differentiated aspects to consider: 1. The success of learners taking the course will be measured by a badge system and a point system supported by a ranking tool. These recognitions will be given by accomplishing the program modules, completing tasks, and achieving other milestones further explained in this report. The different tasks will go from activities related to revising documentation and going through other types of learning material, completing projects, passing quizzes and evaluation tests, as well as being an active participant in collaborating with other learners and providing tutoring or other types of assistance in the course chat. 2. On the other hand, the success of the course to improve the competencies of participants in relation to the achievement of the determined learning objectives will also be monitored and measured. Using a data analytic tool, the activity of participants will be recorded, to determine which tasks do not work (i.e., because multiple learners do not pass them, because they are too simple, users take a lot of chances in a particular task, etc.). The data collected will be considered for improving the course structure, as well as used by the teachers to improve their method in case faults are found in the explanations given to students. In addition, quality surveys

		will be periodically sent to participants and their feedback will be considered to further improve the course, both in content, approach, and structure. Main KPIs: - 70% or more learners finalised the course. - 50% or more learners that finalised the course have a score of 70% or higher. - 80% or more satisfaction rate among learners that at least participate in 50% of the course.
1.5	Define how the program will be structured: which and how many chapters, modules and levels it will have. *Lenses, Emotions, Progression, Challenges.*	The Program will be structured into 4 Modules that each will be divided into different lessons corresponding to the multiple topics addressed. The modules will be completed progressively, meaning that, till the minimum 80% of the tasks in a module is not finalised, learners will not be able to unlock the next module. Nevertheless, once unlocked, learners are allowed to go back to different lessons to refresh content or even improve their scores in certain tasks, mostly tests and quizzes. The tasks will be considered completed if learners achieved 50% of the points assigned to the tasks. To foster learning first, learners will be able to unlock a module without completing the prior one if they ask their teacher. Learners will just have this opportunity once, and this will be announced so that they are aware. MODULE 1: SURFING THE INTERNET 1. What is the Internet and how does it work? 2. TCP/IP protocol 3. Browsers, search engines 4. Electronic mail (e-mail) 5. World wide web (web) 6. Other internet applications MODULE 2: INFORMATION LITERACY: 1. Navigate, search, and filter information and digital content. 2. Analysing, comparing, and critically

evaluating the credibility and reliability of online sources. Journalistic method.
3. Creating digital content.
4. Re-use of information and digital content, dissemination, and collaboration. Respecting copyright and intellectual property rights.

MODULE 3: ONLINE SECURITY

1. Device security: the architecture and components of digital devices and their connected devices (hardware); and configuration of operating systems (software), troubleshooting, dangers to devices on the network and resources to avoid them.
2. Data security: safeguarding digital identity and reputation, data privacy, digital footprint.
3. Well-being and integrity of people online I: hate speech, impersonation, inappropriate content, abuse of digital media.
4. Well-being and integrity of people online II: Identifying dangers on the Internet to avoid disinformation; among others "fake news", "filter bubbles" and "echo chambers".

MODULE 4: DIGITAL CITIZENSHIP.

1. Freedom of expression and rules of conduct online.
2. Communication and interaction on networks in a positive and respectful way.
3. Intellectual property, licences, and their use.
4. Basic rules for administrative procedures and commercial interactions. 4.5.
5. Social network activism and digital ethics.

Phase 2: Environment	
Action	Applied process and results
2.2 Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with	The program is designed to be implemented in an online setting but is easily transferable to the physical classroom with the aid of digital tools.

	the offline space, if any. *Space, Interface, Emotions, Relationships*	The environment will be an eLearning platform, such as Moodle, Google Classroom, Blackboard LMS, etc. The program is adaptable to fit the learning platform used by the educator with minimal transformations. Some of the specifications that are required are the following: • Access to a personal area for students for them to track their progress. • Accessibility to a forum and a chat room for exchanges between students and announcements (External tools can be used) • Availability of a communication tool and a collaboration tool (External tools can be used) • Possibility to upload documents and other materials, add links, etc.
Phase 3: Onboarding		
Action		Applied process and results
3.1	Define how to analyse each learner's starting knowledge level. *Emotions, Feedback.*	A test will be done for learners starting the course, that will measure three different aspects: 1. Personal information relevant to the course: basic information for their profile, what role they want in the course, schedule availability, time to dedicate to the course, and internet and devices accessibility. 2. Knowledge level. A "0" Module will be available to learners that don't show the bare minimum, with written and video content to learn the main concepts object of the course, as well as the functioning of their browsers and e-learning platform. 3. Expectations and personal goals by doing this course (First quality survey)
3.2	Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools. *Narration, Beginner's Luck.*	Once learners register and have completed the first surveys educators will have the necessary information to group learners into 2 to 3 groups based on schedules and time to dedicate to the course, to foster collaboration between participants from the beginning by giving them a common trait that will create an immediate sense of proximity. At the same time, the groups will be formed by learners that will have a similar level of involvement and will mostly be

		connected at similar hours, facilitating their communication. Changes in schedules can determine a change in groups, a possibility that learners will be aware of. At the same time, learners will be able to update their personal profiles, which are visible to the group with a photo or avatar, a description of their competences and background and some fun facts. The profiles will include the group they belong to, as well as the badges acquired during the game. 3 group leaders will be chosen for each team based on the personal preferences chosen by students in the initial test, this will also be shown in their profiles with an insignia. Once the settings are completed the game begins, and a narration of the storyline will be shown to participants through a video animation or photos/music/narration composition. The learners will be able to access the Guides, the Ranking tool, and a map of the island where the game takes place, and they will be able to visit the public profile of participants, initiate conversations or ask open questions in the Forum. Once all students are on board a welcome meeting, called "The Shipwreck", will be scheduled to introduce the main aspects of the program and present the Guides with all important instructions.
3.3	Define the How-to guides (e.g., user manual, video, flowcharts). *Tutorial*.	A more specific explanation of the game, rules and how to progress will be available and it must be read to access the first module, this "Guide" will be designed in an attractive way in an infographic style. Multiple infographics will be designed to cover different subjects, a starter one to introduce the program, timetable, rules, and main elements. A second infographic to cover the program, lessons, activities included in each, the evaluation system, the scoring system, etc. A third one is to include the technical aspects explaining the functioning of the platform and other digital tools used, as well as how to ask for assistance. An infographic per module to explain in detail and priorly every aspect of it, this will be downloadable once a module is unlocked.

Phase 4: Design	
Action	Applied process and results
4.1 Define the learner's path, incl. milestones, modules, high-level activities and levels. *Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value*	Narration: Due to a virus, the navigation system of the transatlantic boat where participants were travelling shuts down, causing the ship to get lost and crash with the reefs of a small island somewhere in the Pacific Ocean. Miraculously, all the passengers survive, but their only way back is to manage to collect the parts of the ship's communication system and call for help. Unfortunately, the passengers have reached the coast at different points, already gathered between three beaches on the island; each group has a different piece of the communication system. To collect the pieces and call for help before they run out of resources, the passengers must overcome the various modules of the game and make their way across the island until they find each other. Once all learners have been introduced to the storyline and the rules and structure of the program, they can start going through the materials and tasks of the modules. The completion of at least 80% of a module allows unlocking the next one, by completing the fourth module the single user will be able to reunite with other passengers and call for help by fixing the communication system. Apart from unlocking the next module and going a step closer to finalising the mission and saving themselves, they will also be given a badge, each one having a design related to the module topic, that will appear in their profile. For each task completed a set of points will be awarded, the task will be considered completed by obtaining at least 50% of the points. Nevertheless, learners can go back and improve their scores. These points will be shown in a Ranking Tool, and the 1st, 2nd and 3rd players will have their username highlighted in the chart and will also receive an award at the end of the experience. Learners will have a map for a visual representation of the island with the boat crash, the three beaches where the passengers reached land, and four elements symbolising the different modules that get closer to the centre of the island and its highest point, where they will be

		able to ensemble the communication system, bypassing the last evaluation and call for help. The time given to end the program (in this case 2 months) is the time learners have to complete the mission, by going through the modules before they run out of water and food.
4.2	Define the units of each learning module. *Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.*	There will be the following modules: • MODULE 1: SURFING THE INTERNET • MODULE 2: INFORMATION LITERACY • MODULE 3: ONLINE SECURITY • MODULE 4: DIGITAL CITIZENSHIP Each module has from 4 to 6 mini lessons with a similar structure: 1. Explanatory material: being videos, presentations, articles and links to external websites and other sites, etc. 2. One activity: exploratory or search tasks, report, development of creative content, individual or group project, creation of their own study notes, game. 3. Evaluation: a test that can take different forms, mostly a simple quiz on Kahoot. It can be repeated once if the student fails. The lessons will be considered completed when: 1. The explanatory material has been open and visualised or read by the learner. 2. The activity has been delivered with a 50% of the score obtained. Activities can be delivered late, but a penalization of -5 points will be deducted per day out of the deadline. If a player decides to repeat a task to improve their score the deduction does not apply. 3. The test has been taken with at least 50% of points achieved. An evaluation test per module will also be implemented, always a multiple-choice test that can be repeated once. The last evaluation test incorporates questions related to past modules as well.
4.3	Define the student's personal profile area.	Students will have a personal area where they

	Avatar, Customization, Badge, Motivation, Mastery, Reputation	will be able to visualise their progress, meaning: • The modules and lessons they have completed • The scores they have achieved in each individual task • The general score that will also be visible in the ranking • The badges achieved • Time dedicated to the course and to each module. Also, learners will have a profile public to the teacher and other participants that includes: • A picture or avatar (they can choose from a set of avatars of three different colours related to the group they belong) • The role and groups they have in the game: Leader/Passenger and Tortoises (green)/Dolphins (Blue)/Pirates (Black) • A description of competencies and background and a description of Fun facts about themselves. All learners will have access to a common forum and to a chat to speak with other learners and the teacher.
4.4	Define individual, group or general leaderboard. *Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.*	A chart with the individual classification of all users based on a scoring system that gives a set number of points per task completed. The three first positions will have differentiated elements showing they are leading the competition. They will receive a special award at the end of the experience, and the results will also be published in the eLearning platform forum.
4.5	Define the type and list of activities for each module. *Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.*	

MODULE 1: SURFING THE INTERNET	EXPLANATIONS	ACTIVITIES	TESTS	FINAL EVALUATION
1.1. What is the Internet and how does it work? **1.2. TCP/IP protocol** **1.3. Browsers, search engines** **1.4. Electronic mail (e-mail)** **1.5. World wide web (web)** **1.6. Other internet applications**	-Presentations -Videos - Pdf documents -Link to resources	- Develop your own notes. Learners will develop their notes based in the resources given and their own research. The notes will be available for all students. -1.3. An exploring/search task Search task	- Complete 5 small quizzes about the presentations.	- 1 Final multiple-choice test.
POINTS	**5/50**	**10/50**	**25/50 (5 each)**	**10/50**
MODULE 2: INFORMATION LITERACY	**EXPLANATIONS**	**ACTIVITIES**	**TESTS**	**FINAL EVALUATION**
2.1. Navigate, search, and filter information and digital content.	-Presentations - Infographics -Videos -Articles - Pdf documents -Link to resources	-2.1. Practical activity: record your own Tutorial navigating on the internet to search information on an specific subject assign by the teacher. Explain difficulties and problems that can be encounter as well as how to properly search online. The results as well as corrections will be available for all students.	- Complete 4 small quizzes about the lessons 1 to 4.	- 1 Final multiple-choice test
2.2. Analysing, comparing, and critically evaluating the credibility and reliability of online sources. Journalistic method. **2.3. Creating digital content.** **2.4. Re-use of information and digital content, dissemination, and collaboration. Respecting copyright and intellectual property rights.**		-Practical activity: applying the journalistic method (small research) 2. -3 -4. Creating online content for SSMM, blog, website, etc. Use of a creative digital tool (i.e., Canva)		
POINTS	**15/100**	**30/100 (10 each)**	**40/100 (10 each)**	**15/100**
MODULE 3: ONLINE SECURITY	**EXPLANATIONS**	**ACTIVITIES**	**TESTS**	**FINAL EVALUATION**
3.1. Device security: the architecture and components of digital	-Presentations - Infographics -Videos	3.1.2. Project: A report on how digital devices and data plays an important role in	Complete 2 small quizzes	- 1 Final multiple-choice test

3.2. Data security: safeguarding digital identity and reputation, data privacy, digital footprint. **3.3. Well-being and integrity of people online I: hate speech, impersonation, inappropriate content, abuse of digital media.** **3.4. Well-being and integrity of people online II: Identifying dangers on the Internet to avoid disinformation; among others "fake news", "filter bubbles" and "echo chambers".**		Group activity: development of presentations on a subject assign by the teacher in this area. Use of digital tools to develop. The format is open (i.e., concept maps, Prezi presentations, etc.)	Complete 2 kahoot! activities about lessons 3 and 4.	
POINTS	**15/100**	**30/100 (15 each)**	**40/100 (10 each)**	**15/100**

MODULE 4: DIGITAL CITIZENSHIP	EXPLANATIONS	ACTIVITIES	TESTS	FINAL EVALUATION
4.1. Freedom of expression and rules of conduct online. **4.2. Communication and interaction on networks in a positive and respectful way.** **4.3. Intellectual property, licences, and their use.** **4.4. Basic rules for administrative procedures and commercial interactions.** **4.5. Social network activism and digital ethics.**	-Presentations - Infographics -Videos -Articles - Pdf documents -Link to resources	4.1 .2 Game: identification of bad habits online/dangers/good digital etiquette/etc. 4.3 4. Development of an infographic explaining one of these processes and/or concepts. The notes will be available to all students after corrections. Project: development of 2-3 post on a subject of interest to promote positive activism on social media.	- Complete 4 small quizzes about the lessons 1 to 5.	- 1 Final multiple-choice test.

4.6	Define how the evaluation will occur (e.g., quizzes projects, games, practical activities). *Rewards, Feedback.*	The evaluation activities that will be developed as well as the points assigned to each are described in the previous section. The evaluation tasks will have a deadline as well as the assignments, and each day of delay is -5 points less. The tests and other evaluation activities can be repeated once. Educators will send feedback to students when considered necessary after each module evaluation.
4.7	Define the practical experiences that will be activated.	Some actions from learners will unlock prizes and wildcards that will help the individual or group in

	Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift	future activities: MODULE 1: Publication of notes. These will be available to all students, they will vote on the different notes published in the forum, and the two users with more votes will obtain the opportunity to repeat a test for the third time at any moment of the experience. MODULE 2: Publication of Tutorial. Again, the Tutorial will be voted and the two learners with more votes will obtain the opportunity to repeat a test for the third time at any moment of the experience, and +20 additional points that will be added to the ranking. MODULE 3: The group presentations will be evaluated by the teacher and led by the appointed leaders of the three groups in the game. They will decide how to assign tasks within each group. The individuals of the winning group will obtain the opportunity to repeat a test for the third time at any moment of the experience, and +20 additional points. The leaders of the winning group will have another +50 additional points. MODULE 4: Publication of infographics. This again will be voted, and the two users with more votes will obtain the opportunity to repeat a test for the third time at any moment of the experience.
4.8	Define the type of group activities that will be activated. *Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value*	Participants will engage in a Welcome meeting at the beginning of the program, as well as multiple voting events that will take place in the forum of the platform and that will have consequences for the game. One activity in the project will be developed as a competition between the three groups led by the appointed leaders. Communication and collaboration tools will be available for students to develop these tasks as well as to collaborate, discuss or help each other at any point of the experience. Two of the tests included in MODULE 3 will be a Ka hoot, and learners will complete them in groups, assigned since the beginning.

	A final Awards ceremony will be organised to give the final Awards to the winners, called "The rescue". It will also be an opportunity to close the experience and for learners to publicly announce their impressions and remarks of the program.
Phase 5: Skill Atoms	
Action	Applied process and results
5.1 Define the action/activity that activates a skill atom loop or the linked quest/challenge. *Skill Atom Loop, Skill Chain, Quest, Challenge.*	The Welcome Meeting event will be the kick starter to the experience and its storyline, which is a mission/challenge against the clock to escape from a lost island. The modules, that comprehend multiple lessons and activities are designed to successfully achieve the learning objectives, that, at the same time, aim to improve the knowledge, skills, and attitudes of learners in digital and informational literacy. The completion of 80% of a Module means the learner has obtained a good level of competencies in the thematic area of that specific module. Therefore, they will be awarded a badge that graphically represents that competence. The finalisation of the prior module will be the action that activates the next one, that will be locked till this moment. This way, the learners will progress through the experience and accumulate competence badges.
5.2 Define the type and list of activities, and how you will present the activities to be carried out. *Quest/Challenges, Puzzles.*	The lists of lessons for each module and the activities that comprise it can be found in section 4.5. The overall program and rules will be presented from the beginning to the participants, as well as a calendar with the deadlines to complete each task and test. A more detailed explanation of the workings of each module will be available in the said module since this is unlocked for the participant, explaining the development of the activities, the digital tools they may need to use, and the way the tests will take place.

5.3	Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team). *Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.*	The overall experience is a mission that each individual must complete, as well as a competition as everything has a score assigned, that will be reflected in the Ranking Tool. Even though the activities are mostly individual, the classification in three groups from the beginning will help to create synergies within the participants of each group, who will be more willing to help each other and collaborate through the group activities. As explained in prior sections the pathways are explained from the beginning, learners know the challenges they will have, the scores they can obtain and the prizes they can win. The main element to motivate them is the recognition system based in the Score Ranking Tool and badges system, that appeals to both the individual competition with its own selves, and in relation to others. When finalising all the modules the mission will be accomplished and the participant will be able to escape the island. When the time to finalise the program has ended, an Awards ceremony will take place to provide recognition to those more involved in the course.
5.4	Define the evaluation and assessment of the activity results.. *Rewards, Feedback, Expected Value.*	The evaluation activities are listed in 4.5. The evaluation activities of each module will be available to be completed any time by participants once that module is unlocked, and a deadline will be set so that everyone advances in the game at similar times. Apart from the evaluation activities, the assignments will also suppose a set of points, and the total of all the points obtained in a module will be the reason why the student manages to pass the module or not, and therefore to advance to the next one.

Phase 6: Evaluation	
Action	Applied process and results
6.1 Define how each learner's activity, phase and performance will be evaluated throughout the learning path.	The Modules have a set of activities and tests to be completed. Each supposes a different number of points to be awarded based on the evaluation

Intrinsic motivation, Competition, Rewards, Penalties, Balancing.	of the educators and sometimes the other students (go to the 4.5 section). To pass a singular task, learners need to obtain at least 50% of the total points. A -5 points penalization is in place for those who are late in delivery. The completion of 80% of the Module means this module is achieved. The completion of 80% of the program means the students have completed it and they will receive a certification. The points each student gets will be accumulated and appear in a total Score Ranking. At the end of the experience, the first three learners in the ranking will receive insignias as Awards for their great results. Additional recognitions will be given to: • Team player: to the user voted as such by the participants • Leader: to the leader of the group that achieves better results at the end of the program • Most Engaged: to the user that participates more in the chats and forum activities Finally, special prizes and wildcards will be given to certain learners, this is explained in section 4.7

Phase 7: Support		
Action		Applied process and results
7.1	Define if and how mentorship or coaching opportunities for students will be available during the path. *Emotions, Relationships, Feedback, Conversation.*	Learners will always have the possibility to raise questions and doubts publicly in the forum of the eLearning Platform where the experience takes place. Other students and the educators can answer them. Moreover, a schedule will be available, showing the educator's availability for mentorship sessions. The possible channels for communication will be multiple, meaning the

		educator will give students the opportunity to use the channel they prefer from a short list of options they find optimal (i.e., email, chat, video conference call). These sessions need to be booked at least 1 day in advance
7.2	Define the criteria and methods to access and use the area where learners can find support. *Emotions, Feedback, Conversation.*	A great number of activities developed during the program will produce notes made by students for students, all of this will be public so that learners have as many useful resources for learning as possible. Apart from the produced notes during the program, additional resources will be linked for each lesson, apart from the learning material the educator uploads.
7.3	Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners. *Emotions, Relationships, Feedback, Conversation.*	The students and teacher can interact through the forum for any occasion. The rules of this area will be visible to maintain a positive space. A chat and videoconference tool will also be available for students that want to interact with each other in any part of the experience, especially when the group projects are taking place. The eLearning platform will include these tools, in case they don't, teachers can link Google Meets, Teams, etc to give students a place to meet and collaborate.

Phase 8: Meta		
Action		Applied process and results
8.1	Define the triggers to activate during the programs and the events determining their activation. *Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.*	A -5 points penalization is in place for those who are late in the delivery of tasks. Learners can repeat tests and certain assignments to improve their scores at any time. (Just one repetition is possible) Learners also can unlock one module even though they have not finalised the prior one by requesting it from the educator on one occasion. The finalisation of a module will trigger the awarding of a recognition badge and the unlocking of the next module. The finalisation of the program will trigger the award of a certification and multiple recognitions

		related to other behaviours (see section 6.1). As well as the completion of the mission and being able to escape the island.
8.2	Define the area where learners can collect, acquire and exchange information. *Knowledge Share, Rewards, Content Crowdsourcing.*	The interaction between learners will happen by: • A forum where they can exchange information, discuss a certain topic proposed by the educator, vote on some of the content produced in the program by students, etc. • A chat to involve in a group or individual conversations with students. • A communication and collaboration tool to ensure optimal collaboration in tasks and a way for them to help each other. The educator will upload in each module the notes created by students for them to download at any time, as well as to comment and initiate a discussion in relation to the result.
8.3	Define the tools that can be used (e.g., online tools and platform, design tools). *Tutorial, Creativity tool, Gifts.*	List of digital tools: • Communication tool • Collaboration tool • Video editing • Creative editing • Storage tool • Task management tool and calendar • Raking tool • Assessment tools: tests, quizzes, kahoot, real-time test, etc. • Others: Youtube, social networking.
8.4	Define where the program's material will be collected. *Knowledge Share.*	The eLearning platform will host the program materials, the forum, the personal profiles, and any other tool that is necessary, whether it will be an existing tool of the platform or a link to an external tool that complements it.
8.5	Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing). *Relationships.*	A mentorship calendar will be posted in the eLearning platform for students to priorly know the availability of the educator. The channel for communication will be agreed personally between the teachers and the student from the different possibilities the teacher offers, to facilitate the process for both the teacher and the students accommodating to the means that are familiar to both.

8.6	Define the benefits/special prizes students will receive and the events/results determining their awarding. *Scarcity/Rarity.*	The completion of at least 80% of a module allows to unlock the next one, by completing the fourth module the single user will be able to reunite with other passengers and call for help by fixing the communication system. Apart from unlocking the next module and going a step closer to finalising the mission and saving themselves, they will also be given a badge, each one having a design related to the module topic, that will appear in their profile. For each task completed a set of points will be awarded, the task will be considered completed by obtaining at least 50% of the points. Nevertheless, learners can go back and improve their scores. These points will be shown in a Ranking Tool, and the 1st, 2nd and 3rd player will have their username highlighted in the chart and will also receive an award at the end of the experience. The finalisation of the program will trigger the awarding of a certification and multiple recognitions related to other behaviours: • *Team player: to the user voted as such by the participants* • *Leader: to the leader of the group that achieves better results at the end of the program* • *Most Engaged: to the user that participates more in the chats and forum activities*
8.7	Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances. *Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalties, Oracle effect, Free lunch, Gifts, Motivation.*	Firstly, at the beginning of the experience learners will take multiple surveys to determine the information necessary to group them into 3 different groups that have common learning schedules, thus facilitating collaboration. Also, the initial survey will determine the level of competencies of the learners, being able to access a module “0” when the level is not enough to start the program. Again, at the beginning of the experience a quality survey will be completed by participants with their expectations. And multiple quality surveys (one after each module) will also be sent so that participants can give their feedback and

	impressions of the program. The data collected through these surveys, as well as through analytics of the student's performance, and complains that can be issued by the students themselves through any of the channels available to do so, will be consider and use to implement the necessary changes to make the experience better, and more accurate to achieve the learning objectives and be as immersive and interactive as possible for learners.

Sparks

Contributors

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Appendix:

Facilitator Guide

This Guide collects a set of guiding questions and possible actions for facilitating Co-creation Labs aimed at designing the outline of gamified eLearning programs with VET teachers and trainers, implementing the Conceptual Framework of the Sparks project. The process is **built around the eight building blocks of the Conceptual Framework** for gamified eLearning programs. Each chapter of this guide addresses one building block and is structured as follows:

Conceptual Block

↳ Actions and game elements composing the block

↳ **Starting questions** to facilitate the implementation of the actions

↳ Possible **actions** to implement with participants

↳ Additional questions to refine the design

It is recommended to have a printed copy of the Conceptual Framework while reading this document. The Framework is available on the website of the Sparks project at the link

- Sparks' website, at https://www.projectsparks.eu/project-results.htm;
- Zenodo, at https://zenodo.org/record/6374318.

A printable copy of the document is available in the following page.

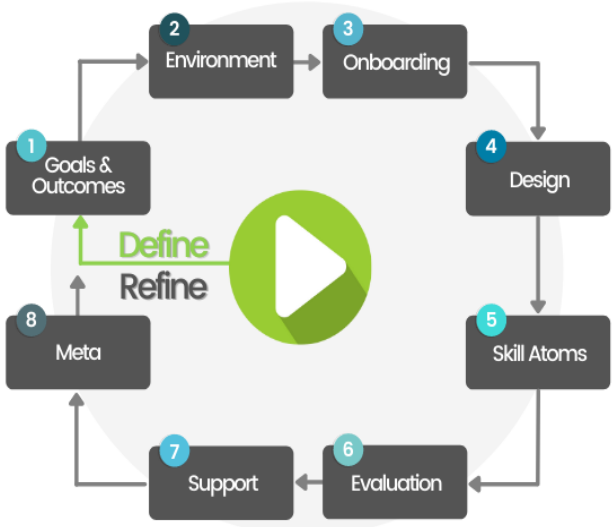
Recommendations

The Co-creation Lab could be organised online or in-person, with the support of virtual whiteboards and collaboration tools, or flip chart papers and sticky notes.

The **lessons learned** from the Sparks project drive the authors to recommend:

- to compose a group of minimum five and maximum ten people;
- to foresee multiple sessions, rather than a one-day long activity, due to the high amount of information to process and share;
- to introduce the Conceptual Framework and explain the implementation method of the Lab before the actual Lab, to let the participants already get familiar with the Framework and its sections. This introduction could be done by sending an explanatory video and the Framework to the participants or implementing an informative session prior to the event.

CONCEPTUAL FRAMEWORK FOR GAMIFIED E-LEARNING PROGRAMS



1.1 Define the overall aim and objectives of the program.
Lenses.

1.2 Identify learners' characteristics, needs and challenges.
Lenses, Intrinsic Motivation, Customization, Interest.

1.3 Define the skills, information and certification learners will achieve at the end of the program.
Lenses, Narration, Rewards, Progression, Competition, Challenges, Turns, Transactions, Mastery.

1.4 Define the success criteria, metrics and KPIs.
Lenses.

1.5 Define how the program will be structured: which and how many chapters, modules and levels it will have.
Lenses, Emotions, Progression, Challenges.

- 1.1 Goals
- 1.2 Target
- 1.3 Outcomes
- 1.4 Metrics
- 1.5 Program structure

2.1 Define the offline learning environment, if any, identifying the elements and tools present in the environment, and how these will interact within the offline space and with the virtual one.
Space, Emotions, Relationships, Sensation.

2.2 Define the online learning environment, identifying the elements and tools present in the environment, and how these will interact within the virtual space and with the offline space, if any.
Space, Interface, Emotions, Relationships.

- 2.1 Offline space
- 2.2 Virtual space

3.1 Define how to analyse each learner's starting knowledge level.
Emotions, Feedback.

3.2 Define the onboarding process, the initial stages of learners' engagement in the program, the presentation of the environments and tools.
Narration, Beginner's Luck.

3.3 Define the How-to guides (e.g., user manual, video, flowcharts).
Tutorial.

- 3.1 Assessment
- 3.2 Welcome/Wizard
- 3.3 Tutorial

4.1 Define the learner's path, incl. milestones, modules, high-level activities and levels.
Narration, Challenges, Curiosity, Levels, Quest, Turns, Progression, Object, Expected value

4.2 Define the units of each learning module.
Map scenario, Milestone Unlock, Skill Atom&Skill Chain, Challenges, Win states, Object, Chance, Expected value.

4.3 Define the student's personal profile area.
Avatar, Customization, Badge, Motivation, Mastery, Reputation

4.4 Define individual, group or general leaderboard.
Leaderboard, Reputation, Customization, Gifts, Levels, Rewards, Challenge/Quest, Object.

4.5 Define the type and list of activities for each module.
Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift.

4.6 Define how the evaluation will occur (e.g., quizzes projects, games, practical activities).
Rewards, Feedback.

4.7 Define the practical experiences that will be activated.
Challenges, Scarcity/rarity, Curiosity, Free Lunch, Gift

4.8 Define the type of group activities that will be activated.
Competition, Voting, Conversation, Turns, Conflict, Reputation, Expected value

- 4.1 Learner's Journey
- 4.2 Learning Units
- 4.3 Student's Area
- 4.4 Leaderboard
- 4.5 Activities
- 4.6 Evaluation
- 4.7 Practical Experience
- 4.8 Group activities

5.1 Define the action/activity that activates a skill atom loop or the linked quest/challenge.
Skill Atom Loop, Skill Chain, Quest, Challenge.

5.2 Define the type and list of activities, and how you will present the activities to be carried out.
Quest/Challenges, Puzzles.

5.3 Define how the activity will be implemented (e.g., time, score, pathway, tools, individual/team).
Intrinsic motivation, Challenges, Scarcity/Rarity, Curiosity, Free Lunch, Gift, Booster, Puzzle, Chance.

5.4 Define the evaluation and assessment of the activity results..
Rewards, Feedback, Expected Value.

- 5.1 Call to action
- 5.2 Start activity
- 5.3 Execution
- 5.4 Results/Feedback

6.1 Define how each learner's activity, phase and performance will be evaluated throughout the learning path.
Intrinsic motivation, Competition, Rewards Penalty, Balancing

- 6.1 Performance Evaluation

7.1 Define if and how mentorship or coaching opportunities for students will be available during the path.
Emotions, Relationships, Feedback, Conversation.

7.2 Define the criteria and methods to access and use the area where learners can find support.
Emotions, Feedback, Conversation.

7.3 Define the criteria and methods to access and use the space for discussion between learners, and between teacher/trainer and learners.
Emotions, Relationships, Feedback, Conversation.

- 7.1 Mentorship Coaching
- 7.2 Support Area
- 7.3 Conversation Area

8.1 Define the triggers to activate during the programs and the events determining their activation.
Motivation, Booster, Random Rewards, Gift, Beginner's luck, Free Lunch.

8.2 Define the area where learners can collect, acquire and exchange information.
Knowledge Share, Rewards, Content Crowdsourcing.

8.3 Define the tools that can be used (e.g., online tools and platform, design tools).
Tutorial, Creativity tool, Gifts.

8.4 Define where the program's material will be collected..
Knowledge Share.

8.5 Define which tools to use to let students communicate with the teacher/trainer/mentor/coach and with other students (e.g., forum, chat, messaging, ticketing).
Relationships.

8.6 Define the benefits/special prizes students will receive and the events/results determining their awarding.
Scarcity/Rarity.

8.7 Define balance mechanics in order to tailor the difficulty of the path based on learners' skill/effort/commitment levels and performances.
Random rewards, Turns, Emotions, Balancing, Scarcity/Rarity, Penalty, Motivation, Oracle effect, Free lunch, Gifts,.

- 8.1 Automated Reminders
- 8.2 Knowledge Areas
- 8.3 Tools
- 8.4 Repository
- 8.5 Communications
- 8.6 Benefits
- 8.7 Balance

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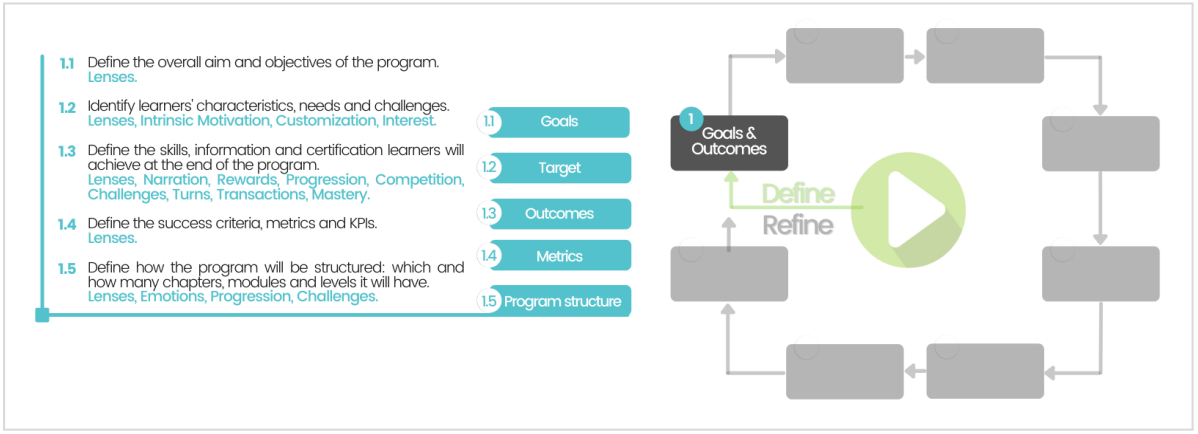
1. Goals & Outcomes



1.1 Define the GOAL

Starting question

What are the goals and objectives of the program?

Actions

- Make a list of SMART goals and objectives.
- Distinguish macro and micro, optional and mandatory objectives.

Refining Questions

What happens when the goals are achieved?
Examples of questions to facilitate the discussion:
What feedback do students get?
What score will we assign?
What rewards/bonuses (rewards, badges, points, awards, avatar customizations, access to a special section/content) are obtained?

On the other hand, what happens if a student doesn't reach the goal or reaches them late?
Examples of questions to facilitate the discussion:
Will their score be lowered?
Will they receive any kind of penalty?

1.2 Define the TARGET

Starting questions

- Who is the target audience of our course?
- What basic skills do they have or should they have? What's their digital competence level?

Actions

Let's try to identify their needs, positive and negative emotions. We

can use tools such as the User Persona or Empathy Map to analyse training needs, any access problems (e.g., infrastructural, time, competence).

Refining Questions

How many different segments could we have within our target groups? Would you imagine additional, complementary or alternative paths/modules for such segments?

Example

We're building a course for aspiring managers of educational projects. We identified two segments:

- The first segment (A) is composed of recently graduated youth, aged 18-25, with excellent knowledge of English and digital tools.
- The second segment (B) is composed of teachers, averagely aged 35-45, with excellent knowledge of English, but low digital competence.

For segment B, we could define the need of adding extra modules or support dedicated to improving their digital competence, thus letting them benefit from the course.

1.3 Define the OUTCOMES and OUTPUTS

OUTCOMES

Starting question

What are the competencies (knowledge, skills and attitudes) we expect learners to acquire?

Action

List the competencies you want learners to develop: for each competence, identify the basic knowledge and skills that compose them.

Refining Question

When learners develop the desired level of knowledge and skills for each competence, what feedback do they get? E.g., message, certificate, avatar personalization, badge, reward, special prizes?

Example

In our project management program, we want learners to improve, among other competencies, their communicative competence. To improve such competence, we need them to develop their socio-linguistic, linguistic, strategic and discourse knowledge and skills. To show learners their progress, we can define the following **gradual feedback**:

Achievement	Feedback

Improved linguistic skills	Badge: LS Master
Improved socio-linguistic skills	Badge: SLS Master
Improved strategic communication skills	Badge: SC Master
Improved discourse skills	Badge: DS Master
Improved communicative competence	Avatar Customization: CICERONE

OUTPUTS

Starting question

What outputs can we associate with the identified outcomes?

Example:
The outcome "improved communicative competence" could be associated with:

- min. 4/4 learning modules completed on socio-linguistic, linguistic, strategic and discourse-related topics;
- min. 2/2 projects successfully completed;
- min. 3/3 tests and 1/1 final evaluation passed.

Action

List all the outputs of the teaching/training path and define the weight or quantitative value each of them has in the experience.

Example (based on the one above)
Each learning module is valued 5/100 (tot. 20/100)
Each project-based experience is valued 10/100 (tot. 20/100)
Each test is valued 10/100 (tot. 30/100)
The final evaluation is valued 30/100.
→ 20+20+30+30 = 100

WHY? This could help us allocate points/badges/rewards or define the levels later in the design process.

1.4 Define the METRICS

Starting question

How do we evaluate the success of our teaching/training path?

Actions

List the success criteria (e.g., minimum score, students' satisfaction level, students' commitment and effort, quality of the outputs).

Refining questions

- What minimum score should each student achieve at the end of the course?
- Do we want to foresee intermediate levels of evaluation along the way?
- What happens if students reach an intermediate level with insufficient points? How can they integrate and pass the level?

Example: Each student will have to complete the module with a minimum score of 80/100. Points will be awarded upon:
- completion of lessons;
- completion of modules;
- quiz correct answers.

How do we evaluate students' performance? Which behaviours do we want to reward and which ones discourage? What bonuses/malus do we associate with these behaviours?

Example: Within modules, each student will receive bonus points every time:
- they connect at least 10 minutes a day (+5 points)
- they correct an assignment of their peers (+10 points)
- they pass a quiz with 100% correct answers (+15 points)
- their paper is positively evaluated by at least 3/5 people (+5 points).

- Did we foresee satisfaction surveys or feedback from students during the course? What reward do we give to those who complete their feedback?

1.5 Define the PROGRAM STRUCTURE

Starting question

How will our program be structured?

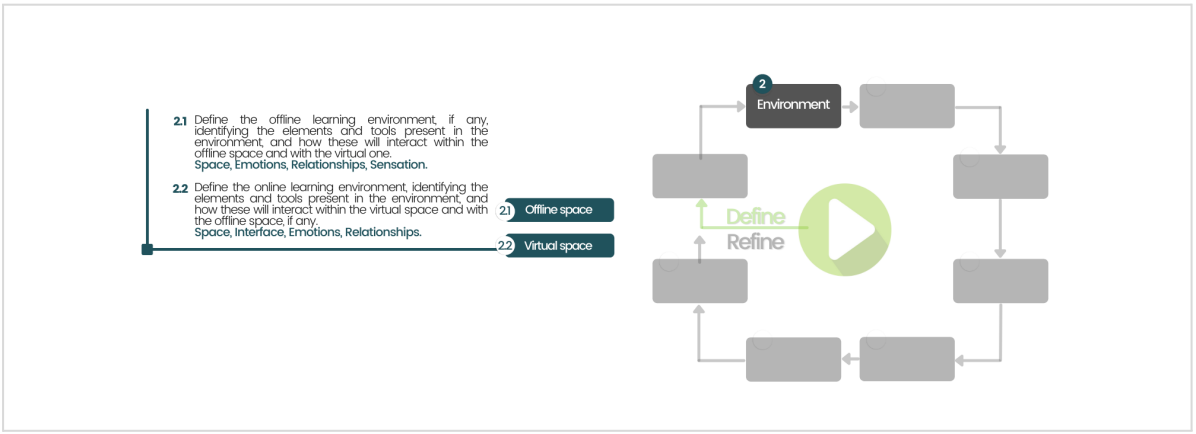
Actions

Let's start by listing the **lessons** and **materials** that will be used, grouping them into Learning Objects (or other blocks that we will consider as basic Learning Units), such as training content that constitutes a self-consistent and meaningful learning unit from the didactic point of view.

We can include, for example, videos, video lessons, written text, quizzes, white papers, web searches, infographics, analyses to be carried out using defined tools.

CHECKPOINT: is everything we designed so far consistent?

2. Environment



2.1-2.2 Define the SPACE

Starting question

What will be the learning environment? If it's a platform, what are the areas and features that characterise it?

Actions

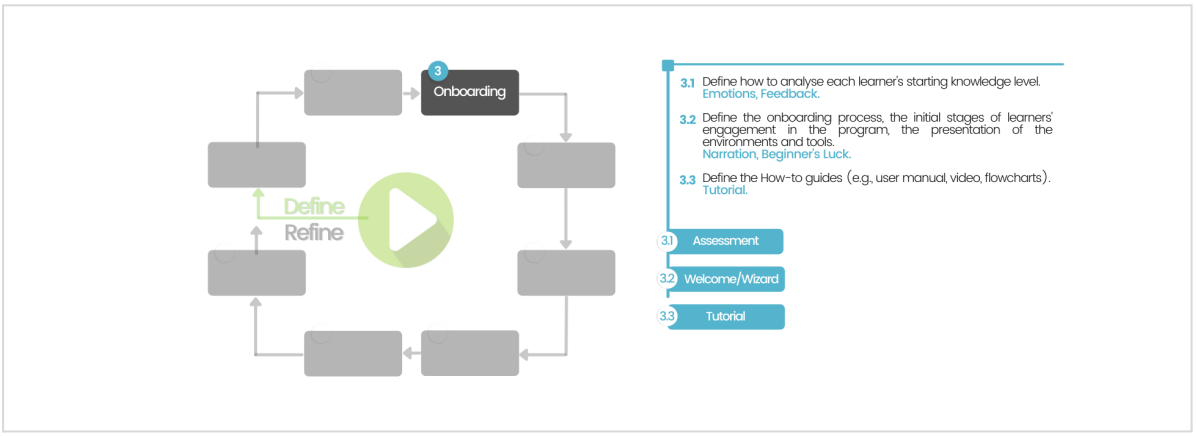
List the areas of the platform, dividing them into functional areas (e.g., settings, connection, registration) and learning areas (e.g., lesson area, test area, support area)

Refining questions

- What tools are included?
- How do students access the various areas?
- Are there any tools or areas that can only be used/enabled by students who have achieved a certain score/level?
- Do we want to provide for the assignment of bonus/malus particulates for specific activities in certain areas? Do we want to create some special quests?

CHECKPOINT: is everything we designed so far consistent?

3. Onboarding



3.1 Define the ASSESSMENT

Starting question

How do we evaluate the entry-level of each learner and have its baseline?

Actions

Define the assessment tools.

Refining questions

- Do students with different levels follow special paths? Do they access complementary modules? Does their avatar get any form of customization?

Example: As soon as they are connected to the platform, students will have to take three quizzes and a practical exercise. From the results of the module based on the score achieved, students will be able to start three different paths:

- path A - with recovery modules for a score lower than 50
- basic path B starting from 1 lesson for scores between 50 and 80
- path C direct to lesson 5 for scores higher than 81.

3.2-3.3 Define the WELCOMING tools and TUTORIALS

Starting questions

How will students be welcomed into the new learning environment? How will learners be supported to get oriented in the new environment and learning experience? Do we have a wizard, an introduction module/video or a tutorial?

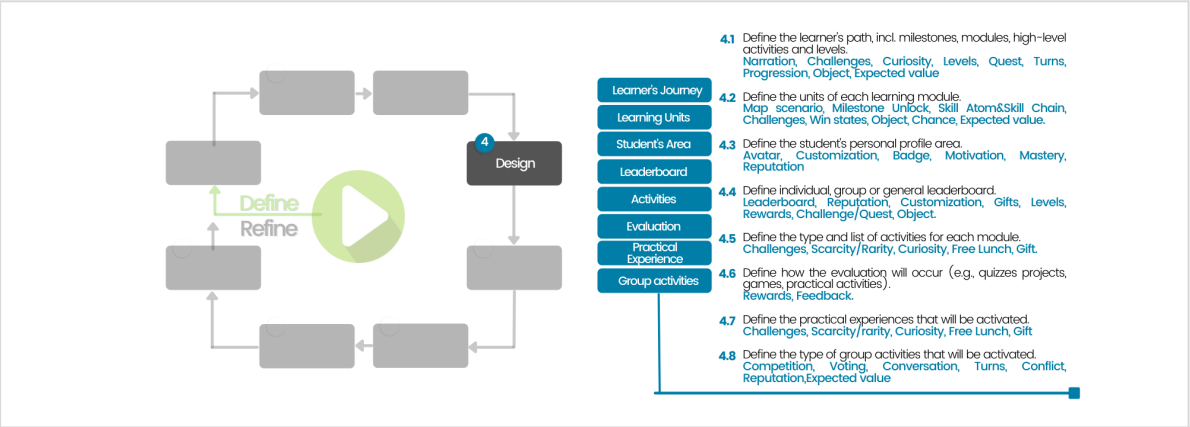
Action

List the activities/tools that will offer a general overview of the entire experience and its path and clarify the objectives and tools. It may be helpful to insert a series of guides, small manuals and/or video tutorials, flow charts that help orientate and serve as a compass for the student who is about to start the journey.

Example: At the beginning of the course a wizard will be activated to present all the areas of the platform. A welcome video will explain the topics of the various modules, the type of lessons and papers to be produced, the points system, the scores and the rewards associated with each activity.

CHECKPOINT: is everything we designed so far consistent?

4. Design



4.1 Define the LEARNER'S JOURNEY

Notes

Through this action, we transform the activities and the learning blocks that we have outlined previously at a high-level (within 1.5 "Define the Program Structure") into Quests and Challenges. Therefore, **we need to transform the preliminary Learning Units/Learning Objects into missions, such as groups of challenges linked by an educational objective.**

Example: the learning unit "Communicative competence" could become a mission, composed of the following challenges to be overcome:

- complete at least three video lessons;
- pass the verification test;
- support two students and attach at least three new documents in the knowledge area.

Once completed this mission, learners will achieve [NO.] POINTS.

Starting question

Now we need to transform the preliminary learning units into missions. How would you decompose the learning units into challenges, connected by storyline/narrative elements?

Actions

Design with the participants a visual representation of the Learners' Journey. You could design it like a flow chart, placing graphic elements to:

- Identify the steps of the learner's experience, the milestones and quests;
- Represent the feedback they get when they complete a

module/level/step (incl. points gained/lost, notification/message upon completion);
- Represent how they proceed in the journey through micro and macro activities.

4.2 Define the LEARNING UNITS

Notes

This action aims to detail the learning units and the learner's journey, which up to this point we should have defined at a higher level. The focus is on: didactic units, levels, rewards, customizations, special areas, level advancement, special permissions, completion timing.

Starting question

What kind of activities have we planned so far? How can we further detail them?

Actions

Let's review the draft of our learners' journey. We begin by detailing each learning unit with a list of modules, lessons and activities that must be carried out for each lesson. We will:
- choose between study documents/papers, video lessons, practical exercises, tests, games;
- set a time duration for each activity;
- review our system of scores and bonuses/malus (e.g., avatar evolution/regress, reward/penalty, minimum scores, badges) associated with different actions;
- identify the preliminary assessment activities (test, project, output, teamwork ...).

Refining questions

- What notifications and what feedback do students receive every time they advance a level or complete a challenge /quest/activity?
- Are there any bonus levels?
- Are there any areas of the course that are exclusive to some players?

4.3 Define the STUDENT AREA

Starting question

Will there be a student area? What should it look like?

Action

Define the student's dashboard and personal area.

Refining questions

- What can students do in their area?
- If their avatar evolves, how do they view it?
- Should we include any areas where points, bonuses/malus, rankings, conversation area documents, badges and rewards are displayed?
- Can they see their statistics? If yes, how and what data?
- Can they share their prizes/achievements on social networks?

4.4 Define the LEADERBOARD

Starting questions

How is the leaderboard structured?
Where does it appear?
When is it updated?
What scores are given to the periodic daily/weekly winners?
Are there any penalties for the bottom of the standings?

Actions

Review the journey designed so far and the ranking/score/point attribution system you put in place so far and then define the characteristics and functioning mechanisms of the leaderboard.

4.5 Define the ACTIVITIES

Starting questions

Let's review the picture with the activities to be completed for each module, the challenges and the quests: do we want to include any particular tasks not included in the course but which give access to additional benefits?

Example

We could provide a shop area where I can buy credits, bonuses, items upon payment of an asset (e.g., time bank: I spend time correcting my peers' documents and I earn points/bonuses/assets).

Actions

Review the journey designed so far and complement it with any additional activity.

Refining questions

- Let's take a good look at the game elements that we have already decided to use. For each one, we indicate/verify how they can be acquired, lost. How do they complement each other? Does possession of a particular asset give the student special permissions/ access/ content/ activities?
- What happens if learners finish the program of activities in less time? What if they're late?
- Are there special rewards that are randomly awarded?
- If they reach a series of objectives below are there extra points they can earn?
- Do we want to include components that enhance/weaken certain assets (levels, scores, special accesses, rewards)?

4.6 Define the EVALUATION activities

Starting question

What evaluation activities will we include and when?

Actions

List all the types of exercises/tests/checks that the learners will have to do. Structure feedback and tests and assign absolute scores (test passing and relative output quality scores).

We could include: activities/tasks/outputs to be carried out alone; team activities, cooperation activities between groups, complementary or challenges between teams.

Refining questions What happens to whoever wins and what happens to whoever loses? Are there any additional bonuses/penalties?

4.7 Define the PRACTICAL EXPERIENCES

Starting question What practical experiences will there be throughout the learner's journey?

Actions List all the tests/projects that learners will have to carry out as an output.

Refining questions
- How will practical experiences be evaluated? What activities will be allowed?
- Will it be possible for students to review/retry a test that went wrong? Will they have to spend particular assets or wait a certain amount of time?
- They will be single or group activities?
- Is it possible to ask for external support?

4.8 Define the GROUP ACTIVITIES

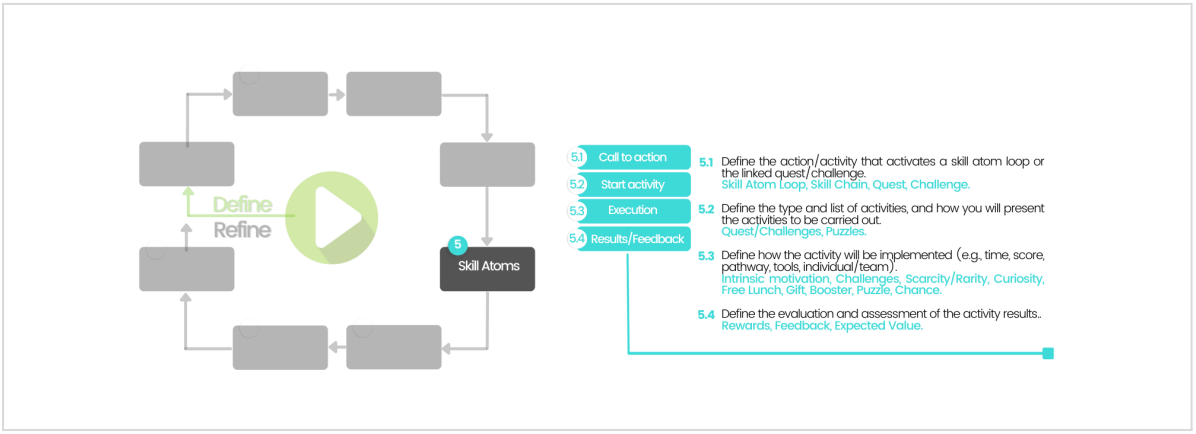
Starting question What group activities will there be throughout the learner's journey?

Action List all the group tests/projects that the learners will have to do. Refine structure feedback and reward systems.

Refining questions
How do we distribute scores?
How do we evaluate the activities of individuals within group work?
Do we want to activate team or individual competitions?
How do results affect
- rankings,
- scores,
- other game elements,
- bonus/malus?

CHECKPOINT: is everything we designed so far consistent?

5. Skill Atom



Define the SKILL ATOMS (5.1-5.4)

Notes

The four activities within the "Skill Atoms" block should be implemented sequentially for each challenge/activity: the scope of this part of the Lab is to transform such challenges/activities into **SKILL ATOMS**.

Questions

5.1 Call to action

How does a single challenge/activity start? Does a notification appear? Is there an animation? Are there any penalties/bonuses/time limitations?

5.2 Starting the challenge/activity

How does a challenge/activity start? Are there any special assets or actions to acquire to unlock it?

5.3 Execution

How do students complete the challenge/activity? Would we foresee some boosts to complete it in less time / higher quality?

5.4 Feedback

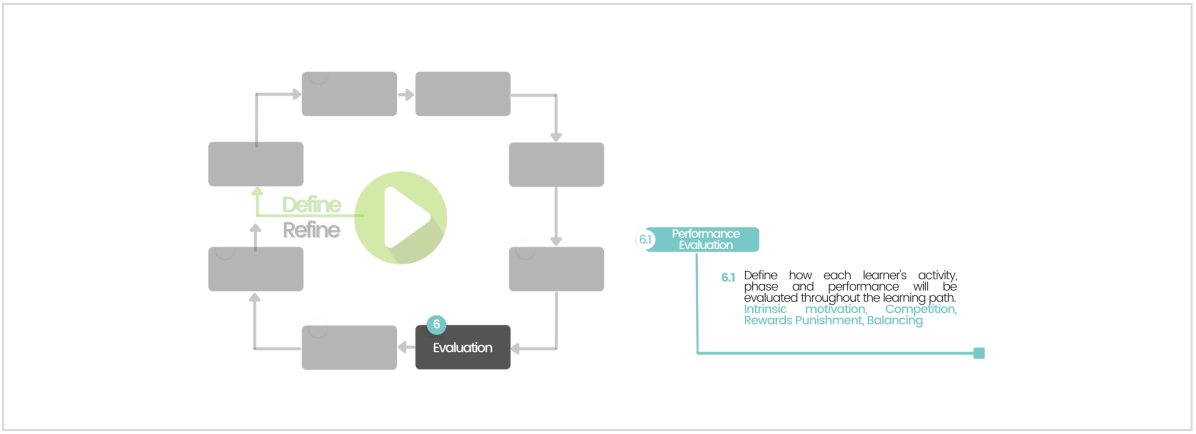
What happens at the end of an action? Does the user see anything? Is the error expected? What happens?

Actions

Enrich the learners' journey representation/flowchart with these new processes and information.

CHECKPOINT: is everything we designed so far consistent?

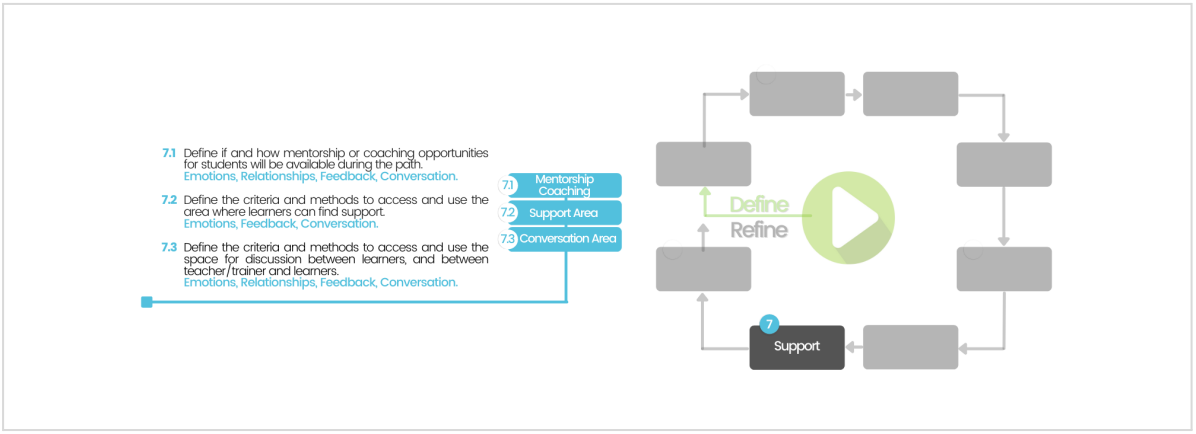
6. Evaluation



Action: review the evaluation mechanisms within the learning journey. This action could include:

- Balancing inequalities;
- Adding intermediate levels;
- creating checkpoints along the way;
- defining what happens if the minimum score is not achieved.

7. Support



7.1 Define MENTORSHIP/COACHING (if applicable)

Questions How does the interaction with the coach/mentor take place?
How many times and how can it be consulted?
Does the user spend assets to access them?
Do students need a minimum score to be able to receive assistance?
Can they make a limited number of requests in a specific time frame?

Actions Define the mechanisms for accessing mentorship/coaching opportunities.

7.2 Define the SUPPORT AREA

Questions Where can students find support? And what kind of support?

Actions Define the characteristics and activities within the support area between peers or teacher/students. The action could include the identification of what the peer-supporter is rewarded with.

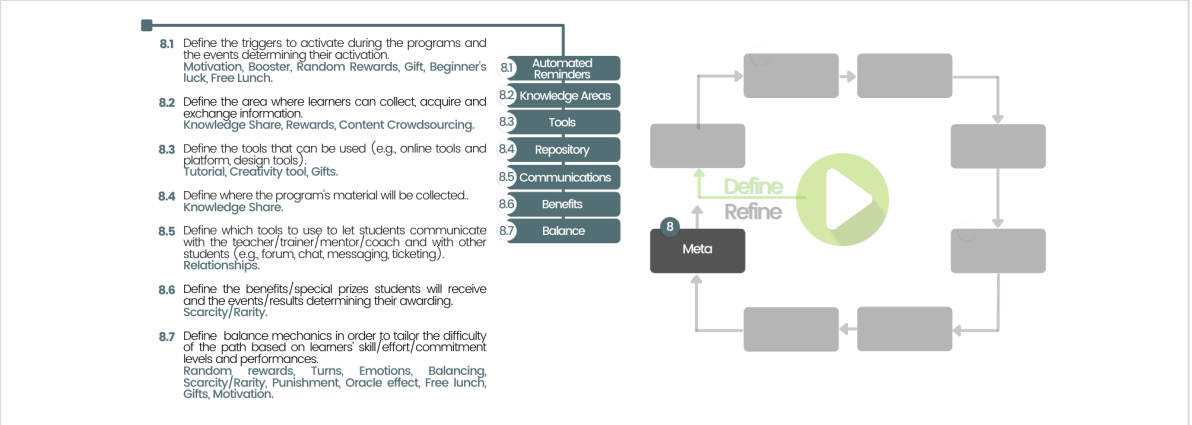
7.3 Define the CONVERSATION AREA

Questions Where can users exchange information?

Actions Define the characteristics of an area dedicated to conversation and discussion among peers. You could detail if the conversation/exchange activity generates benefits/rewards/bonus points.

CHECKPOINT: is everything we designed so far consistent?

8. Meta



8.1 Define AUTOMATIONS

Starting question

What automation could facilitate the teaching and learning experience?

Actions

Set the "**if → then**", defining notifications, actions, and rewards that we can automate.
An example of questions to facilitate the discussion:
- What happens if a person doesn't complete a task by a certain deadline? Can we add bonuses/malus or create incentives such as bonuses or unexpected rewards?
- What triggers can we build to generate the desired behaviours?
- How do we develop curiosity?
- Which mechanics can we insert to maintain high effort and commitment?

Example: If a student does not complete the level in the minimum time, he receives a penalty of 10 points but which can become zero if he completes the level within a number of hours. If a student does not carry out activities in the knowledge area he receives this penalty in the ranking.

8.2 Define the KNOWLEDGE AREA

Starting question

Where can students share and gain additional knowledge?

Actions

Define the characteristics of the space where students can transfer and gain knowledge.

It could be useful to detail:
- access criteria, if any (i.e., minimum score, particular assets);
- any special sections within the area;
- if learners can add/edit contents, incl. insert external sources;
- what happens in terms of score/rewards/character evolution.

8.3 Define the TOOLS

Starting question	Based on what we designed so far, what are the tools we need?
Actions	List all the conceptual/design/application tools we are going to use.
Refining questions	Are there bonuses/maluses/scores/rewards associated with their use?

8.4 Define the REPOSITORY

Starting question	Where will all the shared documents end up?
Actions	Define the space where all the documents will be stored, detailing if and how they can be edited, and what viewing permissions users have (e.g., only their materials/all).

8.5 Define the COMMUNICATIONS mechanisms and opportunities

Questions	What kind of interaction can students have? Will we provide forum chat messages? What viewing permissions do users have (only their materials / all)? What bonus malus are there?

8.6-8.7 Refine the BENEFITS & BALANCING

Let's review the list of bonuses/malus: can we balance everything? Can we create clusters based on performance? What happens if a user ends up in one of these clusters?