XCAPE: Breakout Challenges for Developing Transversal Skills
Project Number: 2019-1-IS01-KA202-051133

O 2 XCAPE In-Service Training

Value proposition

XCAPE
BREAKOUT CHALLENGES FOR DEVELOPING TRANSVERSAL SKILLS

Erasmus+

Contents

Introduction

New technologies are changing our lives in every aspect – from the way we shop and communicate to the way we learn and teach. These changes are setting the foundations of a new era which is already here and in order to be competitive people and especially young people need new skills and competencies which cannot be acquired through the traditional means of teaching and learning. By developing this handbook along with all other XCAPE intellectual outputs, the project consortium aims to offer educators an innovative teaching approach aimed at boosting the 21st century skills among young people. To know more about the teaching methodology offered by XCAPE project, go through the next pages of the Handbook and get acquainted with the resources and most importantly try applying what you've learned, it's going to be interesting and fun both for the educator and for the learners!

Aims & Objectives

The main aim of the in-service training programme is to ensure that VET tutors are fully trained to harness the potential of the XCAPE digital breakout resources and the online platform developed with the XCAPE project to help target group members develop the selected key creative and critical thinking skills and entrepreneurial attributes that are highly valued in the European labour market.

The In-Service Training Manual aims to serve the following purposes:

- to *support and guide* VET professionals in using dynamic online environments such as the XCAPE digital breakouts with regards to helping young people develop key critical and creative thinking skills and promoting entrepreneurial spirit;
- Familiarise VET tutors with the new approaches required to effectively use and integrate the new media rich and interactive resources into everyday activities;
- explore the *different roles* of VET professionals in new dynamic, online learning environments.

The XCAPE digital breakout resources represent media-rich and interactive resources bringing a wide range of new educational environments into the learning process especially smart phones, other mobile devices and social media platforms and therefore the In-Service Training manual aims to ensure that VET providers and/or other educators are:

- comfortable working with the new resources in these non-traditional learning environments;
- fully bought-in to the benefits that online learning can bring;
- fully aware of the risks that pertain in online environments;
- able to safeguard against possible negative factors associated with online learning.

Target groups

The **target users** of the In-service training manual are:

- VET tutors and professionals who would like to apply the XCAPE training approach or to know more about interactive learning environments and applicable teaching methods for such;

- other educators that would like to know more about the application of digital breakouts and who would like to use them in various educational contexts;

Key learning outcomes & Objectives

Upon completion of the In-Service Training, VET professionals and other educators will:

	Description
Knowledge (will have…)	☑ Theoretical knowledge of the methodological fundamentals of Digital breakouts as an educational resource: What are digital breakouts? ☑ Theoretical and factual knowledge of the structure, aims, specifics of Digital Breakouts. ☑ Theoretical and factual knowledge on how to use Digital Breakouts to promote critical and creative thinking and entrepreneurial mind set in learners ☑ Theoretical knowledge on the specifics of dynamic online educational environments ☑ Theoretical and factual knowledge on applicable teaching approaches when working in dynamic online environments.
Skills (will be able to….)	☑ Use the digital breakouts with regards to developing critical and creative thinking skills and promoting entrepreneurial spirit among learners ☑ Prepare an entrepreneurship education programme using Digital Breakouts ☑ Implement various teaching/learning activities with the XCAPE digital breakout resources ☑ Apply different teaching approaches in dynamic online environments ☑ Guides students through the digital breakouts and promoting active learning;
Attitudes	☑ Awareness of the XCAPE training approach ☑ Awareness of how to guide learners in the process of completing Digital Breakouts without hindering

the creative process

- ☑ Engage learners into developing their critical and creative thinking and entrepreneurial mindset
- ☑ Awareness of how to implement different teaching scenarios

Overview of the XCAPE training resources

Intellectual output 1: The XCAPE Digital Breakout resources

The digital breakouts resources represent a comprehensive set of 32 challenge-based activities following various storylines aimed at boosting learners' critical and creative thinking skills, entrepreneurial mindset and other skills, competencies and attitudes related to the EntreComp framework and the skills of 21st century. The breakouts are hosted by an interactive user-friendly online platform – the so-called XCAPE learning portal where both educators and learners can make use of the innovative resources.

Intellectual output 2: The XCAPE In-Service training Handbook

The XCAPE In-Service Training Handbook aims to respond to the specific challenges that new resources will provide for VET professionals and to support their continuous professional development so they can take full advantage of the resources provided. The main aim of the handbook is to support VET professionals and other educators on how to use the XCAPE products (learning portal and digital breakouts) and how they can create similar educational challenge-based resources on their own. The In-service training handbook is structured in the following units:

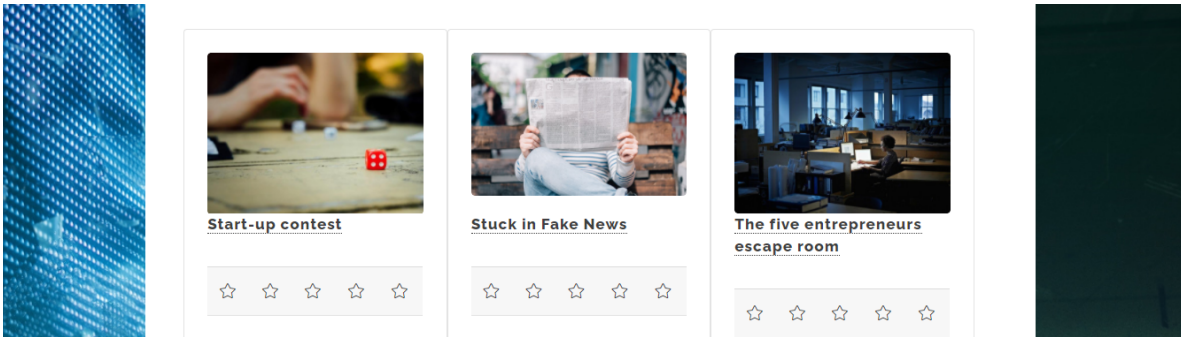
- **Unit 1: Digital Breakouts Concept:** In this first unit you will find information regarding the etymology and roots of the digital breakouts concept. You will learn which the integral components of a breakout are; how digital breakouts are connected to the constructivism theory and what are the benefits of applying breakouts in your teaching approach. This unit is autodidactic and in the beginning you will find tips on how to most effectively go through the contents as well as useful exercise to test what you've learned after.
- **Unit 2: The XCAPE Digital Breakouts:** In this unit you will find the specific structure of the XCAPE project digital breakouts briefly explained. Next, you will find definition of the key competence areas addressed by the XCAPE breakouts - Critical and creative thinking and Entrepreneurial spirit. You will also learn about our award badges system for completion of different breakouts and its potentially motivating impact on students' desire to learn. This unit is based on self-learning, therefore you will find our tips in the beginning on how to go through the contents.

- **Unit 3: Methodological approaches for working in dynamic online learning environments:** In this unit you will find information on how to work with the XCAPE online learning platform as well as similar dynamic educational environments. You will also learn the difference between traditional and the constructivist educational approach as well as the different role that the VET professional has when dealing with constructivist teaching resources. In the beginning of this unit you will find tips on how you can organize training sessions for training others on what you have learned from units 1 and 2.
- **Unit 4: Scenarios for teaching/learning activities with the XCAPE digital breakout resources:** In this unit we will provide you with examples of how to apply the XCAPE breakouts in online and traditional classroom with regards to boosting critical and creative thinking and entrepreneurial mindset of learners.
- **Unit 5: Digital Breakouts development & Evaluation:** In this unit you will learn how you can develop your own digital breakouts and how to evaluate learners' performance by using open badges. The unit also provides tips on how to organize training to pass your knowledge from this unit to other fellow educators.

Intellectual output 3: The XCAPE Online learning portal

The XCAPE online learning portal represents an interactive digital platform which hosts the developed XCAPE digital breakout resources as well as the In-Service training handbook. The portal represents an online setting offering a plethora of challenges and varied plots and mysteries for learners to figure out, immersing them in an unforgettable adventure.

The XCAPE platform can be accessed on the following web address: https://xcape.online/ie/learning-portal/ . It requires a registration which gives unlimited free access to all potential users to the digital breakouts and allows them to communicate with each other; to track their progress and earn badges (our special awards!) upon completion of different challenges.



Digital Breakouts on the XCAPE learning portal

Unit 1: Digital Breakouts concept

Digital Breakouts concept	Duration
Learning objectives: ☑ To acquaint the reader with the term “digital breakout” and to present the structure and components of a digital breakout; ☑ To present the advantages of using digital breakouts compared to other teaching and game-based methods; ☑ To explain what are the benefits of applying digital breakouts in teaching both for the overall teaching process and for the learners;	1.5 hours (90 minutes)
Planning and practical tips It is recommendable to carefully read the text of this learning unit which will take you not more than 30 minutes depending on the individual reading pace. Upon completion of this learning unit it is recommendable devote at least half an hour to review the useful links section where you can find a number of articles and videos that will support you in getting deeper in the topic. A good exercise to self-evaluate what you have learned could be to check some of the XCAPE digital breakouts and in the process of trying to solve them to try answering some of the following questions: - What is the backstory of the digital breakout? - Which is the lock? What type it was – word, date, name? - Were there additional challenges, puzzle, and riddles? - What kind of skills is this digital breakout promoting? If you are able to answer all these questions it means that you are already aware of the components of digital breakouts and maybe you can try creating your own! (For this purpose check unit 5. Digital Breakouts development & Evaluation)	

1.1. What is a Digital Breakout?

Digital breakouts were inspired from the real physical escape rooms. “Escape rooms are action games that take place in a real environment, in which groups or teams are required to pass tests, find clues and follow a series of challenges in order to solve a mystery or to find a way to leave a certain space—all this with the condition of a

certain available time." (Jiménez, Cr., Arís, N. et al., 2020). However there are a couple of differences:

Photo by Maria Orlova from Pexels

- with digital breakouts the "room" isn't physical, but it's hosted on a single webpage usually in Google forms, Google slides or similar web tools (like creating escape rooms in Learning Management System (LMS)) which can effectively represent the digital breakout scenario;

- instead of physical objects and locks which act as clues to solving the physical escape room mystery, in the digital breakouts we have lock-forms, texts, links, puzzles, pictures, graphs which are in the role of the clues supporting the learner to "breakout";

- Unlike physical escape rooms which usually have limitation for people allowed in the room, digital breakouts can involve one person or a large number of participants (depending on the activities design) going through a series of exciting challenges and acquiring new knowledge and boosting their skills at every step of the way without even realizing it;

Taking into account the aforementioned, it could be concluded that digital breakouts are considered as an online equivalent of escape rooms and we can also call them online escape rooms. The XCAPE digital breakouts represent an online escape room combined with educational content aimed at boosting learners' critical thinking, creative and entrepreneurial skills and competences in line with the EntreComp (The Entrepreneurship Competence Framework).

1.2. Anatomy of the Digital Breakout

Digital breakouts consist of several integral components which are usually present also in real escape rooms as follows:

- **LEARNING OUTCOMES & OBJECTIVES.** When a digital breakout is applied in teaching, it's mandatory to know what learning outcomes and objectives have to be met. What skills, knowledge and attitudes will the learner(s) acquire upon successful completion of the breakout? Defining the learning outcomes can also help in defining the backstory of the breakout.

- **PLOT/ BACKSTORY/ NARRATIVE**. This is a very important element as it creates the first impression of the learner from the breakout, because based on this impression the learner gets either engrossed by the story and is highly motivated to get to the bottom of things or they might lose interest, therefore it's really important to have a catchy plot line that will win learners' attention from the very beginning. The backstory represents storytelling which is aimed at immersing the learner(s) into the breakout scenario and to motivate them to solve the mystery/ challenge/ issue/ conflict on which the breakout is focused. There is a number of ways in which the storytelling could be presented – it could be under the form of a short paragraph, it could be an audio, a video, an image or a series of images (Kroski, E., 2020).

- **LOCKS.** Similar to escape rooms, digital breakouts also contain a number of locks which typically are in a form and must be answered correctly to unlock the next clue (or set of clues) (The Learning hypothesis, 2020) or to go to the next level of the breakout. Locks could consist of letters, numbers, word(s), colours, dates, directions (like up, down, right, left), etc.

-

- **RIDDLES/ PUZZLES/ CHALLENGES**. Depending on the learning objectives these puzzles/ challenges could be image-based puzzles or riddles, specific riddles, games, apps, quizzes, inquiry-based tasks, research-based challenges, etc. These elements help to keep the learner motivated and engaged throughout the breakout and also support the learning process on the specific theme of the breakout. Usually upon solving a certain puzzle and/or riddle or completing a challenge, the participants discover clues which keeps their interest high and motivates them for further steps of the breakout.

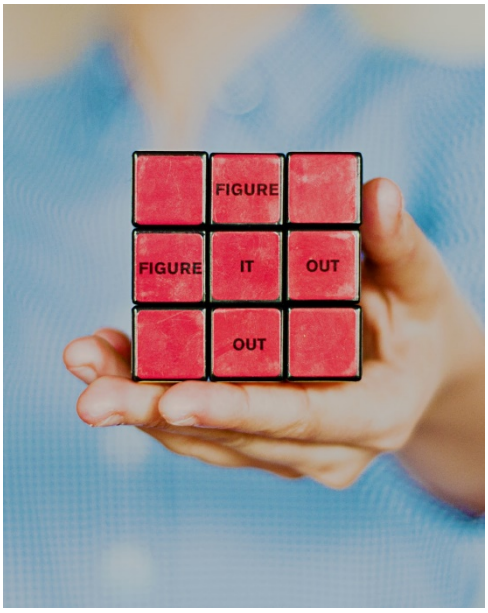


Photo by Karla Hernandez on Unsplash

- **LOCATION/ SETTING**. As mentioned earlier, instead of real room with clues and games, digital breakouts are hosted on a webpage, therefore by location

it's meant the virtual environment which hosts all of the aforementioned components of the breakout e.g. backstory under the form of text, image or video; lock forms; riddles , games, puzzles, images and links. This virtual location is usually a free (in some cases could be paid) webpage or interactive document like Google forms or similar.

- **RESOLUTION.** When players manage to "escape" from physical escape rooms, usually apart from the reward of breaking out of the room, they do group pictures with labels like "We did it!" "We broke out!", etc. In digital breakouts, this is usually replaced by a congratulating note or image or by winning some kind of virtual achievements like digital badges given to the successful players who managed to get to the bottom of the breakout.
- **TIME LIMIT** (Optional): In some breakouts there may be a time limit set in order to create a sense of urgency to complete tasks/challenges (Dirks, St., 2020). Setting a time limit could stimulate learners to stay more focused and concentrated throughout the breakout completion and promote their time management skills, but it could also create stress which is why time limits need to be realistic for the tasks stipulated.

1.3. Why Digital Breakouts?

Digital Breakouts are a flexible and easy to create and use online equivalent of the traditional escape rooms. The same as conventional escape rooms, digital breakouts gained big popularity among educators in recent years due to a number of benefits they have:

- **They are easy to organize.** Digital breakouts are much easier to set up – all that is needed is a single webpage and/or some free web tools to host the breakout. The most commonly used settings for digital breakouts are Google forms, Google Site, also Google Drawing, Google Slides and many others. Moreover, as they are hosted on the web and aren't bind to a physical place (like conventional escape rooms), they can be done from anywhere, at any time, the only requirement is to have a device connected to the Internet and willingness to solve the breakout!

- **Multifaceted activities**. Depending on its learning objectives, a digital breakout can involve a plethora of different activities aimed at boosting a number of skills such as creative thinking, problem-solving, teamwork, etc. They can also promote gaining new knowledge depending on the topic of the breakout – like history, geography, mathematics, entrepreneurship, business. The learning objectives are achieved thanks to the activities stipulated in the breakout which are usually unlocking locks which could be numbers, letters, dates, etc.; solving riddles and puzzles; playing games; completing quizzes and many more brain stimulating activities;

- **No limitations for number of participants/learners.** Unlike conventional escape rooms where usually only several people can enter one room due to

limitations of the venue, digital breakouts have no such limitations – it all depends on the design of the breakout and the learning outcomes pursued; it could be designed for a single player or for a group of people or several groups/teams.

- **High level of engagement on the part of learners/participants**. Compared to traditional teaching methods, digital breakouts are in line with the constructivist theory where the learner is the central and active part in the learning process. The breakout plot line and the way it's build under the form of clues, puzzles, games, locks, etc. makes the learner interested and immersed in the activity and motivates him/her to want to get to the end of the breakout and thus learning in the process without even realizing it.

1.4. Why using Digital Breakouts for teaching purposes?

Digital breakouts could be defined as a constructivist approach to education as they are participatory, co-operative, immersive and promote active learning (Sampson, R., 2019). The constructivist learning theory puts the learner in the center of the learning process meaning that learners are rather the active part than just a passive receiver of information provided by the educator. The trainer/educator/teacher in a constructivist classroom plays the role of a facilitator instead of instructor, they provide guidance instead of "must follow" instructions to complete tasks. It could be argued that digital breakouts are in line with all three pillars of the constructivism theory:

- According to cognitive constructivism based on the work of Jean Piaget, "knowledge is something that is actively constructed by learners based on their existing cognitive structures. Therefore, learning is relative to their stage of cognitive development". (GSI Teaching and Resource Center (2015, p.5)). Piaget argues that the learner spends more time independently engaged in activities based on discovery whereas in Vîgotski's perspective (social constructivism), the teacher should encourage driven/oriented participation, cooperative learning exercises in which learners are encouraged to help each other, structure the learning activity, provide support or training adjusted to the student's current skills and monitor his progress, focusing more on mental activity. (Trif, L., 2015, p.1). As mentioned earlier digital breakouts are promoting learning through discovery and experience both individually and in groups depending on the learning goals of the breakout therefore they combine elements of both theories - social and cognitive constructivism.
- According to social constructivism which was developed by Lev Vygotsky, learning is a collaborative process, and knowledge develops from individuals' interactions with their culture and society. (Vygotsky, 1978, p. 57). Here the main idea is that learning is more social activity and that learners learn more efficiently when collaborating with others who have wider or different range of knowledge and skills than the learner himself. The peer collaboration helps

the learner to see different perspectives and thus they are able to widen their learning boundaries and learn more than they would be able to learn individually. Therefore, digital breakouts designed for groups rely also on the theory of social constructivism.

- According to radical constructivism which is associated with Ernst von Glasersfeld , all knowledge is constructed rather than perceived through senses and is built on the foundations of pre-existing knowledge of the learner(s) (McLeod, 2019). Therefore, even going through one and the same breakout, at the end learners might end up with different perceptions of what they've learned because the knowledge acquired in the process builds upon their pre-existing one which is not the same for all learners.

Taking into account the aforementioned, using digital breakouts for teaching purposes can create a several types of benefits for the learners as follows:

- **Intellectual benefits**: these represent enriched knowledge on a certain topic/ field and boosted skills. Both skills and knowledge depend on the variety of tasks, challenges, puzzles, riddles included in a breakout. Usually, among the most common skills that digital breakouts promote are: problem-solving, critical and creative thinking, time management as some times learners need to complete challenges in a certain timeframe; deductive thinking; memorizing; logical reasoning; research skills, etc.
- **Emotional benefits:** in line with the constructivism theory, teaching through digital breakouts involves the learner(s) searching for clues, solving puzzles and riddles, they learn through experience which creates a positive memory from the learning process and thus more long-lasting results compared to traditional classroom teaching methods. Apart from positive memories and emotions, learning through digital breakouts creates sense of personal agency and achievement as students have ownership of their learning, having the active role in the process;
- **Social benefits:** Depending on the tasks and challenges foreseen in a digital breakout, it could promote teamwork, coordination and collaboration, leadership, etc. As mentioned earlier completing challenge/activity/task could be individual or it might require team effort depending on the design and the learning objectives defined for the respective breakout.

Further reading & Useful links

Description	Link
Library Technology Reports (vol. 56, no. 3), How to Create Free Digital Breakouts for Libraries," by Ellyssa Kroski The journal provides a comprehensive explanation of what a digital breakout is and how can one develop and evaluate	"How to Create Free Digital Breakouts for Libraries"

a breakout for teaching purposes.	
Student Created Digital Breakout Journal Represent a guideline explaining different elements of a digital breakout and how one can create them.	Student Created Digital Breakout Journal
Digital Breakouts User Guide A comprehensive guide to building one's own Digital Breakout	Digital Breakouts User Guide
Using Digital Breakout to teach required skills An article explaining what a digital breakout is and what skills one can teach by using them for teaching purposes.	Using Digital Breakout to teach required skills

Unit 2: The XCAPE Digital Breakouts

The XCAPE Digital Breakouts	Duration
Learning objectives: ☑ To present the structure of the XCAPE digital breakouts based on the four levels of difficulty; ☑ To thoroughly present all 32 digital breakouts developed on the topics of Critical and creative thinking and Entrepreneurship. ☑ To acquaint the reader with the expected learning outcomes at each of the levels of difficulty in both thematic fields.	2.5 hours (150 minutes)
Planning and practical tips It is recommendable to carefully read the text of this learning unit which will take you not more than 30 minutes depending on the individual reading pace. Upon completion of this learning unit it is recommendable to log in to the XCAPE learning portal (https://xcape.online/ie/learning-portal/) and review the digital breakouts available there, this may take between 1 and 2 hours depending on how many breakouts you decide to check. Thus depending on the learning outcomes you would like to achieve with potential learners, you will be able to combine different digital breakouts into a comprehensive entrepreneurship programme. You will find more tips on how to do that in learning unit 4 "Scenarios for teaching/learning activities with the XCAPE digital breakout resources" of this handbook.	

2.1. Structure of the XCAPE digital breakout resources

Each of the XCAPE digital breakouts consists of backstory that is presented in a video and several challenges depending on the level of difficulty. In the process of completing the challenges there are locks, puzzles, games, riddles which keep the learner engaged and motivated to complete the breakout.
The breakouts are online and accessible from all devices through the XCAPE online learning portal: https://xcape.online/ie/learning-portal/ .

The XCAPE digital breakouts are ranked in 4 levels based on the difficulty of the tasks and activities as well as the number of challenges they contain. To get a better idea of the difference between levels check out Table 1.

Table 1. Levels of difficulty of the XCAPE digital breakouts

No.	Level	Contents
1	**Introductory**	A digital breakout at this level would contain a minimum of 2 simple challenges – answering direct questions that are prompted by the video file.
2	**Intermediate**	Contains a minimum of 3 more complex challenges – answering questions in Google Forms that require some independent research
3	**Advanced**	Includes a minimum of 4 more sophisticated challenges – answering questions in the Google Forms that require some independent research and some brainstorming or collaborating with peers.
4	**Expert**	A digital breakout at this level has a minimum of 5 challenges – answering questions in Google Forms that require some independent research and collaboration to develop a project or idea and present the final product using Google Slides presentation, etc.

Some of the breakouts are connected and follow one storyline throughout different levels of difficulty, other breakouts have individual backstory at each level and aren't connected.

The XCAPE digital breakout are focused in two thematic fields – 1) Critical and creative thinking and 2) Entrepreneurship. The full set of breakouts is presented in the next sections of the handbook.

2.2. Digital breakouts focused on Critical and creative thinking.

Critical thinking refers to the process of active, persistent and careful evaluation of a belief, statement, claim or information that we read or hear. This process seeks to

evaluate the validity, accuracy and truthfulness of certain belief/ statement/ information by asking questions, analyzing information, making judgements about ideas and conditions that support beliefs and statements; breaking problems/issues down to their most basic parts.
Creative thinking, on the other hand, refers to the process of generating new ideas, looking at existing problems from a fresh and new perspective to identify new solutions. Creative thinking involves searching for meaningful new connections by generating many unusual, original, and varied possibilities, as well as details that expand or enrich possibilities. (Slatta R., W, 2020).

Photo by Sharon McCutcheon from Pexels

Photo by Rodolfo Clix from Pexels

Taking into account the aforementioned, these two types of thinking go hand by hand as for instance creative thinking tries to create something new, many new unusual possibilities, whereas critical thinking aims to validate something that already exists. When one seeks to solve a problem it is not enough to just have many ideas on how to do it, he or she also needs to have the skills to critically evaluate the applicability of these ideas. In order to better illustrate the differences between critical and creative thinking check out table 2 below.

Table 2. Key differences between critical and creative thinking

Critical thinking	Creative thinking
Analytical	Generative
Convergent	Divergent
Left brain	Right brain
Logical	Intuitive
Sequential	Imaginative
Reasoning	Speculating
Reality based	Fantasy based
Vertical	Lateral
Probability	Possibility
Judgmental	Non-judgmental
Verbal	Visual

Hypothesis testing	Hypothesis forming
Closed-ended	Open-ended
Pattern users	Pattern seekers
Yes but	Yes and
Linear	Associative

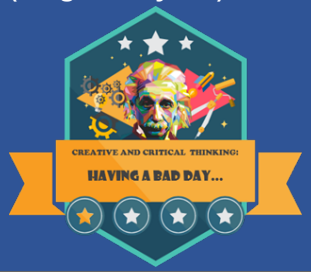
Source: Adapted from Critical Thinking vs. Creative Thinking, available at: https://thepeakperformancecenter.com/educational-learning/thinking/critical-thinking/critical-thinking-vs-creative-thinking/

Based on the analysis of the two types of thinking, it could be concluded digital breakouts are activities which boost critical and creative thinking due to the following reasons:

- Firstly, in order to solve puzzles/riddles and to complete challenges, learners need to be able to research, systemize and objectively analyze information; to question everything and ask why certain information is being given to them (is present in the brekout backstory) and evaluate it;
- Secondly, at the same time in order to complete challenges, learners also need to think outside of the box and be able to brainstorm ideas of possible solutions to riddles/ puzzles or locks which is where creative thinking fits the picture.
- Thirdly, digital breakouts include a variety of activities both individual and/or collaborative which require logical reasoning, analysis but also creativity, tolerance towards ambiguity, brainstorming and using ones imagination. Thus, digital breakouts ensure constant transition from critical to creative thinking in order to complete different challenges.

The XCAPE Digital Breakout resources contain a total of 16 breakout challenges aimed at promoting critical and creative thinking among learners which are characterized by four levels of difficulty: 4 breakouts at introductory level, 4 at intermediate, 4 at advanced and 4 at expert level. In the table below you can review useful information about the backstory (whether it's single or common story) and the learning outcomes of each of the breakouts in this thematic field:

Table 3. Digital Breakouts focused on critical and creative thinking

	Breakout name/ badge awarded	Level	Learning outcomes			Note	Badge awarding criteria
			Knowledge	Skills	Attitudes		
1	**Thinking on your Feet… (Common storyline)** 	Introductory	Basic knowledge using problem solving using critical and creative thinking	- Apply critical thinking to evaluate a simple problem - Apply digital skills to complete a set of challenges online - Complete simple research tasks online to find the answers to challenges.	- Awareness of creative thinking in action - Awareness of what it means to think critically	The storyline of the breakout continues in another breakout at intermediate level with growing difficulty.	To be awarded this badge, learners will need to apply their creative thinking skills to improve their image (as a bad day) and to write a short story about why bad days, aren't really so bad after all!
2	**Having A Bad Day… (Single storyline)** 	Introductory	- Basic knowledge of creative thinking - Basic knowledge of visualising the future	- Apply creative thinking to think of a new solution - Apply digital skills to complete a set of challenges online	- Awareness of creative thinking in action	This breakout has a single storyline, it doesn't continue in next breakouts.	To be awarded this badge, learners will need to apply their creative thinking skills to improve their image (as a bad day) and to write a short story about why bad days, aren't really so bad after all!

3	**Exploring Skills I (Common storyline)** 	Introductory	Basic knowledge using problem solving using critical and creative thinking	- Apply critical thinking to evaluate a simple problem - Apply digital skills to complete a set of challenges online - Complete simple research tasks online to find the answers to challenges.	- Awareness of creative thinking in action - Awareness of what it means to think critically	The storyline of the breakout continues in another breakout at intermediate level with growing difficulty.	To be awarded this badge, learners will need to use their creative and critical thinking skills to solve a series of riddles and puzzles related to the city of Nicosia.
4	**Lucky L. & the infinite decimal (Common storyline)** 	Introductory	Basic knowledge of critical and creative thinking.	- Apply critical and creative thinking to evaluate a simple problem; - Complete simple research tasks online to find the answers to challenges.	- Awareness of critical and creative thinking in action.	The storyline of the breakout is connected with “Lucky L. & the hidden Canary Island” breakout (intermediate level).	To be awarded this badge, learners need to have good knowledge of history of mathematics and geography and use their critical and creative thinking skills to guess a special date in the world of mathematics and a famous Spanish island.
5	**Thinking on your Feet… (Common storyline)** 	Intermediate	Basic knowledge of simple tests and techniques for developing creative and critical thinking skills	- Analyse different ideas to find a suitable solution. - Apply creative and critical thinking to understand the task at hand. - Unpack the specifics of a problem.	- Awareness of how to critically evaluate information that is presented to them. - Awareness of how to analyse problems from different angles. - Awareness of how problems can be unpacked for better understanding.	The storyline of the breakout continues in another breakout at advanced level with growing difficulty.	To be awarded this badge, learners will be challenged to find the number of kilometers they will have to journey to plot their escape, decipher a code, solve their first riddle!

6	**Exploring Skills II (Common storyline)** 	Intermediate	Basic knowledge of simple tests and techniques for developing creative and critical thinking skills	- Analyse different ideas to find a suitable solution. - Apply creative and critical thinking to understand the task at hand. - Unpack the specifics of a problem.	- Awareness of how to critically evaluate information that is presented to them. - Awareness of how to analyse problems from different angles. - Awareness of how problems can be unpacked for better understanding.	The storyline of the breakout continues in another breakout at intermediate level.	To be awarded this badge, learners will have to use their creative and critical thinking skills to orientate themselves in the old city of Nicosia.
7	**Exploring Skills III (Common storyline)** 	Intermediate	Basic knowledge of simple tests and techniques for developing creative and critical thinking skills	- Analyse different ideas to find a suitable solution. - Apply creative and critical thinking to understand the task at hand. - Unpack the specifics of a problem.	- Awareness of how to critically evaluate information that is presented to them. - Awareness of how to analyse problems from different angles. - Awareness of how problems can be unpacked for better understanding.	The storyline of the breakout continues in another breakout at advanced level with growing difficulty.	To be awarded this badge, learners will have to use their creative and critical thinking skills to identify a famous modern sculpture and its creator in the city of Nicosia.
8	**Lucky L. & the hidden Canary Island (Common storyline)** 	Intermediate	- Basic knowledge of simple tests and techniques for developing creative and critical thinking skills; - Basic knowledge using problem solving.	- Apply creative and critical thinking to think fast in a situation and to figure out a solution; - Apply creative and critical thinking to think fast in a situation and to figure out a solution; - Apply digital skills to complete a set of challenges online.	- Awareness of how to analyse problems from different angles. - Awareness of how to critically evaluate information that is presented; - Proactiveness to seek possibilities, consider alternatives and acting on intuition.	This breakout is the continuation of Lucky L. & the infinite decimal, however it is characterized by higher level of difficulty. It continues at advanced level.	In order to win this badge, learners will have to identify the GPS coordinates of a specific place, to find a creative way to start a fire and to guess the name of a famous town.

9	**Thinking on your Feet… (Common storyline)** 	Advanced	Theoretical knowledge of how creative and critical thinking can be applied to a defined task.	- Apply thinking skills to solve a simple riddle. - Examine a problem from different perspectives. - Practice creative thinking in a given context. - Practice critical thinking to solve a challenge.	Appreciation of how creative and critical thinking can be developed by solving puzzles and riddles.	The storyline of the breakout continues in another breakout at expert level with growing difficulty.	To be awarded this badge, learners will be asked to explore the star signs and find the zodiac with the clue, solve their second riddle, find a digital code to unlock a box and seek the missing words!
10	**Exploring Skills IV (Common storyline)** 	Advanced	- Basic knowledge of simple tests and techniques for developing creative and critical thinking skills	- Analyse different ideas to find a suitable solution. - Apply creative and critical thinking to understand the task at hand. - Unpack the specifics of a problem.	- Awareness of how to critically evaluate information that is presented to them. - Awareness of how to analyse problems from different angles. - Awareness of how problems can be unpacked for better understanding.	The storyline of the breakout continues in another breakout at expert level with growing difficulty.	To be awarded this badge learners will have to use their creative and critical thinking skills to orientate themselves in the old city of Nicosia and discover its ancient history.
11	**Lucky L. & the Blue City (Common storyline)** 	Advanced	Theoretical knowledge of how creative and critical thinking can be applied to complete a given task.	- Apply creative and critical thinking to understand the task at hand. - Apply thinking skills to solve a riddle or challenge; - Practice critical and creative thinking to solve a complex challenges.	Understanding of how creative and critical thinking can be developed and used by solving puzzles, riddles and other digital challenges.	This breakout is the continuation of Lucky L. & the hidden Canary Island, however it is characterized by higher level of difficulty. It continues at advanced level.	To be awarded this special badge, learners will have to use their critical and creative thinking skills to carry out the following challenges: solve several riddles; decipher a code; put the pieces of a beautiful puzzle together and guess the name of a small Bulgarian village.

12	**Lucky L. & the Ancient Village (Common Storyline)** 	Advanced	Theoretical knowledge of how creative and critical thinking can be applied to complete a given task.	- Apply creative and critical thinking to understand the task at hand. - Apply thinking skills to solve a riddle or challenge; - Practice creative writing by completing a given task; - Practice critical thinking in order to separate important from unimportant information; - Practice critical and creative thinking to solve a complex challenges.	Understanding of how creative and critical thinking can be developed and used by solving puzzles, riddles and other digital challenges.	This breakout is the continuation of Lucky L. & the Blue City with the same level of difficulty. It continues at expert level.	To earn an expert level badge, learners will have to go through the following challenges: Guess the name of a famous Bulgarian writer and then solve a riddle in order to enter his house. The learner needs to show their critical and creative thinking potential by listing some facts about the village in which the breakout is taking place and decipher a code in order to figure out the next stop of Lucky L's adventure.
13	**Thinking on your Feet… (Common storyline)** 	Expert	Theoretical knowledge of how critical and creative thinking can be combined to solve real-world challenges.	- Apply thinking skills to real-world problems. - Combine critical and creative to solve a more complex riddle.	Appreciation of how thinking skills can be applied to problems around us.	The final and most complex breakout of this backstory.	To be awarded this most prestigious badge, the learner will be challenged to crack the code to find out the destination of their train, interpret a message in Morse code, discover the name of a train station and a boulevard, and solve their most challenging riddle yet!

14	**Exploring Skills (Common storyline)** 	Expert	- Basic knowledge of simple tests and techniques for developing creative and critical thinking skills	- Analyse different ideas to find a suitable solution. - Apply creative and critical thinking to understand the task at hand. - Unpack the specifics of a problem.	-Awareness of how to critically evaluate information that is presented to them. - Awareness of how to analyse problems from different angles. - Awareness of how problems can be unpacked for better understanding.	The final and most complex breakout of this backstory.	To be awarded this most prestigious badge, learners will have to solve a series of challenging riddles to discover where the treasure is.
15	**Stuck in Fake News… (Single storyline)** 	Expert	- Theoretical knowledge of how creative and critical thinking can be combined to solve real-world problems. - Theoretical knowledge of how to combine thinking approaches.	- Apply thinking skills to real-world problems. - Combine different approaches and resources to fully develop an idea.	- Refine thinking processes - Appreciation of how thinking skills can be applied to problems around us.	This breakout has a single storyline, it doesn't continue in next breakouts.	To be awarded this badge, learners will need to apply their critical thinking skills to match the different forms and formats of fake news media with their definition, identify examples of click-bait from a range of headlines provided, find the 7 hidden terms in a word search, and spend some time checking the facts!

16	**Lucky L. in the Land of Fire & Ice (Common storyline)** 	**Expert**	Theoretical knowledge of: - how creative and critical thinking can be applied to complete a given complex task. - how to use in practice different thinking approaches.	- Apply critical and creative thinking skills to solve a complex riddle or challenge; - Analyse, find and combine different approaches and resources to find a suitable solution of problems.	- Understanding of how creative and critical thinking can be applied to real-world problems. - Awareness of how to critically evaluate the information presented.	This breakout is the continuation of Lucky L. & the Ancient Village and it's the most difficult one from the "Lucky L." storyline.	To be awarded this most prestigious badge, learners will need to apply their critical and creative thinking skills to solve a code and several riddles which will lead them to the final steps where they need to list some ideas on how creative blocks can be overcome and prepare a creativity tip sheet. Upon completion of these challenges the treasure of this expert breakout will be revealed and learners will win the badge for the most complex breakout of the Lucky L storyline.

2.3. Digital breakouts focused on Entrepreneurship

In the narrow sense, entrepreneurship is often associated with starting a business or businesses and taking the entire financial risk with the hope of creating value and profit. However, in the broader sense entrepreneurship is not only a way of showing professional initiative. It is a state of mind and spirit, attitudes and actions, namely to search and see opportunities, to put them into practice, the end result of which is improvement.

According to the international working group on entrepreneurial learning in Geneva on 18 January 2012 entrepreneurial spirit is a "… sense of initiative and entrepreneurship refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives." (SözenIs, F., 2015).

Entrepreneurship and entrepreneurial mindset is considered a key competence promoting active citizenship, social inclusion and employability. The XCAPE digital breakouts focused on entrepreneurship aim to promote entrepreneurial culture and develop the necessary skills, attitudes and behaviours among young people by engaging them in various challenges requiring planning, research, time management, creative and critical thinking, collaboration with others and turning their ideas into action.

In this thematic field you will find a total of 16 digital breakouts aimed at promoting learners' entrepreneurial mindset. Similar to the other thematic field, there are 4 breakouts at each of the four levels of difficulty – introductory, intermediate, advanced, expert. In the table below you can review useful information about the backstory and the learning outcomes of each of the breakouts on the topic of entrepreneurship:

Photo by Riccardo Annandale on Unsplash

Table 4. Digital Breakouts focused on entrepreneurship

	Breakout name/ badge awarded	Level	Learning outcomes			Note	Badge awarding criteria
			Knowledge	Skills	Attitudes		
1	**Start-up contest** 	Introductory	-Develop theoretical knowledge about essential qualities of an entrepreneurial person. -Develop theoretical knowledge about classical economy theories	-Apply thinking skills to real-world problems. -Apply new ideas, methods and ways of thinking	-Awareness the function of the entrepreneur in the successful, commercial application of innovations - Awareness of task planning processes and the role of motivation.	This breakout has a single storyline, it doesn't continue in next breakouts.	A student awarded this badge must complete the following tasks: Solve the word game and identify the characteristics of the entrepreneur. Solve the puzzle of key trends and concepts in economic theories. Solve the video puzzle about understanding the role of motivation in the process of achieving goals.
2	**The CEO Mindset** 	Introductory	Basic knowledge of what entrepreneurship is - Basic knowledge of the skills and attitudes to be entrepreneurial	Apply reasoning skills to solve simple puzzles	Openness to learning more about what it takes to be entrepreneurial	This breakout has a single storyline, it doesn't continue in next breakouts.	Learners must complete the following tasks to receive the badge: understand the main entrepreneurial skills, competences and personality traits of successful entrepreneurs through the completion of the video quizzes.
3	**Travel (common storyline)** 	Introductory	Basic knowledge of: - what entrepreneurship is. - the skills and attitudes required to be 'entrepreneurial' - how to be 'entrepreneurial' in every-day life - case studies of young entrepreneurs	- Apply reasoning skills to solve a simple puzzle. - Identify examples of where individuals have spotted an opportunity.	- Openness to learning more about what it takes to be entrepreneurial. - Awareness of entrepreneurial individuals in the media. - Awareness of entrepreneurial individuals in their local area.	The storyline of the breakout continues in another breakout at intermediate level with growing difficulty.	A student awarded this badge must complete the following tasks applying his Entrepreneurial Spirit: Know how to find a distance between two places. Understand which subjects will benefit the environment when travelling.

4	**Volcano (Common storyline)** 	Introductory	Basic knowledge of: - what entrepreneurship is. - the skills and attitudes required to be 'entrepreneurial' - how to be 'entrepreneurial' in every-day life - case studies of young entrepreneurs	- Apply reasoning skills to solve a simple puzzle. - Identify examples of where individuals have spotted an opportunity.	- Openness to learning more about what it takes to be entrepreneurial. - Awareness of entrepreneurial individuals in the media. - Awareness of entrepreneurial individuals in their local area.	The storyline of the breakout continues in another breakout at expert level with growing difficulty.	A student awarded this badge must complete the following tasks applying his Entrepreneurial Spirit: Find a way to identify important skills for entrepreneurs by reading magazine. Knowing which social media is of important to different target groups. Being able to support this knowledge by reasoning.
5	**Tales of a Business** 	Intermediate	Basic knowledge of: - Ways to develop an entrepreneurial outlook - Values of entrepreneurship	Complete independent research online	Openness to work individually, on their own initiative Appreciation of an entrepreneurial outlook	This breakout has a single storyline, it doesn't continue in next breakouts.	Learners must complete the following tasks to receive the badge: understand how storytelling can be used to present the added value of a business through the completion of video quizzes. Be able to critically reflect and analyse the case studies of famous brands that use storytelling to engage consumers with their businesses.
6	**Riding the Elevator of Success** 	Intermediate	Basic knowledge of: - Ways to develop an entrepreneurial outlook - Values of entrepreneurship	Complete independent research online	- Openness to work individually, on their own initiative - Appreciation of an entrepreneurial outlook	This breakout has a single storyline, it doesn't continue in next breakouts.	Learners must complete the following tasks to receive the badge: understand the concept, characteristics and main benefits of the elevator pitch to present the added value of a business, and understand social etiquette while presenting an elevator pitch for potential investors, through the completion of the videos quizzes.

7	**Escaping the rat race** 	Intermediate	- Factual knowledge about the impact of opportunity taking on a personal level, in a group and on the surrounding community - Theoretical knowledge of the effect of entrepreneurial actions on the target community	- Define open-ended problems both personally and in a group - Apply different techniques to generate alternative solutions by using the available resources	- Awareness of different techniques of generating solutions - Awareness of need for developing personal skills and competences	This breakout has a single storyline, it doesn't continue in next breakouts.	A student awarded this badge must complete the following tasks: The learner must complete a task related to the assessment of his / her current position in the career path. Do an exercise in SWOT analysis. Know the chronological case in the process of changing jobs.
8	**Travel (Common storyline)** 	Intermediate	Basic knowledge of: - what it means to be entrepreneurial. - ways to develop an entrepreneurial outlook. - values of entrepreneurship	- Identify opportunities on a personal level. - Self-assess their own level of entrepreneurial competence. - Identify qualities and values in themselves. - Complete independent research online.	- Openness to work individually, on their own initiative. - Appreciation of an entrepreneurial outlook.	The storyline of the breakout continues in another breakout at advanced level with growing difficulty.	A student awarded this badge must complete the following tasks applying his Entrepreneurial Spirit: - Showing creativity in giving a name to an entrepreneur company. - Being able to find the CO2 emissions for certain period and compare to another. - Identifying themes that are important for companies that chose to be sustainable. Identify target group for a company from words where letters are mixed together.

9	**Travel (Common storyline)** 	**Advanced**	Basic knowledge of: - networking; - making decisions; - evaluating risks; - self-motivation. Theoretical knowledge of: - the opportunities open to entrepreneurs how to identify an opportunity. - risk in entrepreneurship - motivation and self-awareness.	- Identify local entrepreneurs. - Identify what it means to be a successful entrepreneur - Spot opportunities on a local level. - Self-assess their own intrinsic and extrinsic motivations. - Practice self-awareness in relation to their entrepreneurial competence. - Estimate risk in a given scenario. - Apply digital skills to complete more complex online tasks.	- Openness to collaborate with peers - Openness to work collaboratively as part of a team. - Appreciation of the benefits of group work.	The storyline of the breakout continues in another breakout at expert level with growing difficulty.	A student awarded this badge must complete the following tasks applying his Entrepreneurial Spirit: - Being able to find the best candidates for company that are hiring. - Showing creativity in finding the best motto for a company. - Knowing the four “P’s” used in marketing. - Knowing why carbon offsetting is a good strategy for companies in the world. - Being able to advice customers how the can reduce their carbon footprint.

10	**The Risk** 	Advanced	- Theoretical knowledge of key concepts and economic mechanisms - Factual knowledge the interrelations between supply and demand	- Describe different analytical approaches to identify entrepreneurial opportunities - Identify needs and challenges that need to be met - Size the opportunities to respond to challenges and create value for others	- Awareness of the different needs of various people - Appreciation of the potential an idea has for creating value	This breakout has a single storyline, it doesn't continue in next breakouts.	A student awarded this badge must complete the following tasks: - Solve the puzzle and demonstrate the knowledge of the macroeconomic concept of economic growth. - Demonstrate an understanding of the laws of supply and demand, and the factors that shape both of these economic phenomena.
11	**Running hurdles** 	Advanced	- Define key elements of business plan. - Describe the role of strategic planning in developing own business. - Develop theoretical knowledge about funding the enterprise.	- Apply thinking skills to real-world problems. - Combine different approaches for developing own brand.	- Ability to optimize work activities within the team. - Ability to self-reflect on their own performance. - Awareness of stress related risks for an entrepreneur.	This breakout has a single storyline, it doesn't continue in next breakouts.	A student awarded this badge must complete the following tasks: - Get to know the elements of a business plan and their chronological order. Find in a puzzle various financing opportunities for a new company. - Become familiar with the techniques of stress management and learn the basics of effective business management. - Get to know the elements shaping the visual identification and brand communication strategies.

12	**The Money Maker** 	**Advanced**	- Basic knowledge of: - Making decisions; - Evaluating risks.	- Estimate risk in a given scenario	- Openness to collaborate with peers	This breakout has a single storyline, it doesn't continue in next breakouts.	Learners must complete the following tasks to receive the badge: understand the concept, characteristics and benefits of developing financial literacy skills; know the differences between the wide range of costs of managing a business, through the completion of the video quizzes.
13	**Get your Business ON** 	**Expert**	- Knowledge of: - Making complex decisions; - Bringing an idea to action; - Project management.	- Visualise future scenarios to increase motivation; - Develop a plan to bring an idea to action; - Manage the process of developing the project.	- Leadership in a team setting - Collaboration	This breakout has a single storyline, it doesn't continue in next breakouts.	Learners must complete the following tasks to receive the badge: understand the concept and characteristics of a business plan; be able to analyse real examples of business plans through the completion of the case study quizzes; understand the concept, characteristics and benefits of a SWOT analysis through the completion of the challenge quizzes.

14	**The five entrepreneurs escape room** 	**Expert**	Theoretical knowledge of: - making complex decisions. - inspiring and mobilizing others to support an idea. - key macroeconomic terms. - bringing an idea to action. - project management. - self-management.	- Visualise future scenarios to increase motivation. - Identify opportunities. - Set personal and professional goals. - Develop a plan to bring an idea to action. - Manage the process of developing the project.	- Leadership in a team setting - Collaboration - Appreciation of innovation in conducting business processes.	This breakout has a single storyline, it doesn't continue in next breakouts.	In order to obtain this badge, the student must complete the following tasks: - Solve a logic problem in the calculation sheet. - Decipher a cryptogram and reflect on the issue of innovation in business. - Find a solution for couple of games: A game related to the basic terms used in economics such as: monopoly, oligopoly, exchange, patents, income and commodity; A game of matching entrepreneurial concepts with their examples. Finally, demonstrate his knowledge of terms related to business and startups.

15	**Travel (Common storyline)** 	Expert	Theoretical knowledge of: - making complex decisions. - inspiring and mobilizing others to support an idea. - leadership. - bringing an idea to action. - project management. - self-management.	- Visualise future scenarios to increase motivation. - Identify opportunities. - Set personal and professional goals. - Apply communication skills to motivate others. - Develop a plan to bring an idea to action. - Manage the process of developing the project.	- Leadership in a team setting - Collaboration - Appreciation of what motivates oneself and others.	This is the final and most complex breakout of the "Travel" storyline.	A student awarded this badge must complete the following tasks applying his Entrepreneurial Spirit: - Finding out which is the biggest challenge for social entrepreneurs, by watching a video on the subject. - Find a way to identify greetings in different languages. - Knowing how to figure out important professional and personal goals. - Knowing about different sources of renewable energy. - Using keywords to figure out a name of document in computer. - Understanding the importance of problem-solving skill.
16	**Volcano (Common storyline)** 	Expert	Theoretical knowledge of: - making complex decisions. - inspiring and mobilizing others to support an idea. - leadership. - bringing an idea to action. - project management. - self-management.	- Visualise future scenarios to increase motivation. - Identify opportunities. - Set personal and professional goals. - Apply communication skills to motivate others. - Develop a plan to bring an idea to action. - Manage the process of developing the project.	- Leadership in a team setting - Collaboration - Appreciation of what motivates oneself and others.	This is the final and most complex breakout of the "Volcano" storyline.	A student awarded this badge must complete the following tasks applying his Entrepreneurial Spirit: - Have the ability to arrange a puzzle. - Understanding the SMART management strategy. Have the creativity to find a catching name for a product or service. - Explain which the most important elements of leadership are. - Finding a word hidden in a sentence.

Unit 3: Methodological approaches for working in dynamic online learning environments

Methodological approaches for working in dynamic online environments	Duration
Learning objectives: ☑ Identify the main characteristics of online education settings; ☑ Understand the main benefits of online learning; ☑ Know how to navigate in the XCAPE Online Learning Portal; ☑ Understand the role and responsibilities of educators and VET; professionals while working in online learning environments.	Total duration: 3hours (180 min)
The training session of Unit 3 will be delivered according to the following steps: ☐ *Presentation of the learning agenda* The trainer presents the learning agenda for the face-to-face session of Unit 3 and answers to potential questions of the participants about the organisation of the training and the activities to be developed. ☐ *Introductory presentation of the specifics of online learning environments* The trainer starts by questioning the participants if they have ever been involved in a course and/or educational activity online as tutors or learners, and if so, if there was an online learning platform available. After a short brainstorming discussion, the trainer will present the main features of e-learning platforms, which is available in the Unit 3 PowerPoint presentation. ***Activity 1: XCAPE Online Learning Portal*** Learners will be divided into small groups with and it will be asked to access the XCAPE Online Portal from their smartphones, computers and/or tablets. Each group will answer the following questions: • Which are the benefits of the XCAPE Online Learning Portal for VET tutors and learners? • Which are the main features of the XCAPE Online Learning Portal for VET tutors and learners? • Does the XCAPE Online Portal provide an engaging learning experience? Each group will select one representative that will be responsible for sharing their answers to the classroom.	15 minutes 20 minutes 20 minutes

☐ Presentation of the benefits of online learning The trainer will present the benefits of online learning available in the Unit 3 PowerPoint presentation. Then, the trainer should question trainees if the benefits of online learning presented are related to the XCAPE Online Learning Portal, in order to promote brainstorming and group discussion.	25 minutes
☐ Presentation of the risks and safeguard against possible negative factors associated with online learning Then, the trainer presents the risks and safeguard against possible negative factors associated with online learning available in the Unit 3 PowerPoint presentation. Then the trainer will introduce activity 2 as follows:	20 minutes
Activity 2: Principles for using and safeguarding students' personal information[1] The trainer will present the following set of sentences related to the safeguard of student's personal information and will ask learners if such principles are true or false. The trainer can use Kahoot[2] or Quizziz[3] to develop an engaging game-based learning experience. *Principles for using and safeguarding students' personal information:* 1. Student data should be used to further and support student learning and success. 2. Student data are most powerful when used for continuous improvement and personalising student learning. 3. Student data should be used to inform and not replace the professional judgment of educators 4. Everyone who has access to students' personal information should be trained and know how to effectively and ethically use it.	20 minutes
Activity 3: Review EdTech software and programmes The trainer will divide learners into small groups and ask them to search one educational technology software and/or programme and analyse them based on the following questions[4]: 1. Will student's data only be used for educational purposes? 2. What educational benefits do you perceive the student receiving from this product? 3. What are the risks? 4. Does the product require adult consent?	25 minutes

[1] Retrieved from: Huang, R.H., Liu, D.J., Zhu, L.X., Chen, H.Y., Yang, J.F., Tlili, A., Fang, H.G. & Wang, S.F. (2020). *Personal Data and Privacy Protection in Online Learning: Guidance for Students, Teachers and Parents*. Beijing: Smart Learning Institute of Beijing Normal University

[2] https://kahoot.com

[3] https://quizizz.com/

[4] Retrieved from: iKeepSafe (n.d.). *Data Privacy in Education: An iKeepSafe Educator Training Course*. Washington DC: iKeepSafe Coalition

Then, the trainer will request that each group select one representative in order to present their answers to the whole classroom. ***Activity 4: The Role of VET professionals that work in online learning environments*** The trainer will ask learners the main roles and responsibilities of VET professionals while working in online learning environments. The trainer can use https://www.mentimeter.com/ **or** https://padlet.com/ to allow learners to write their answers and to visually present all classroom ideas. ☐ **Summary and conclusion** The trainer starts to ask to the classroom what they have learned, in order to foster discussion and to understand if there are any misunderstood terms or concepts. The trainer can also use https://www.mentimeter.com/ to allow learners to write the key-ideas that they have learned during this section, in order to visually present each other's ideas.	25 minutes 10 minutes

3.1 Specifics of dynamic online learning environments

E-learning (or online learning) is a method of teaching and learning remotely through mobile devices and Internet. It operates through technical platforms that allow the access and management of training content, which are known as Learning Management System (LMS), such as Moodle or Cornerstone, among many others. Most of these platforms work through a browser, allowing access from different computers, tablets or smartphones. Some of the main features of the e-learning platforms are:

- Storage of content in different formats (including video lessons, e-books, webinars, etc.);
- Provision of assignments for learners;
- Collaborative forums for discussion;
- Virtual libraries;
- Chat.

It is important to emphasise that one of the main components of a successful e-learning environment is the provision of an engaging learning experience. Therefore, educators must take up a creative approach towards learning. Assessment strategies, such as quizzes combined with a culture of fun learning and application of knowledge through interactive activities, are always successful with learners of diverse demographics. Adding these components to your training strategy will not

only enhance the engagement metrics but it will also raise the success rate of the learning experience (Tiwary, 2020).

3.2 Benefits of online learning

- **Flexibility for self-paced learning**: For many learners, the primary benefit of online learning involves scheduling flexibility.
- **Better content retention**: Nowadays, learners prefer bite-sized, interactive content. The more engaging the content is, the better the learners will remember information. If they enjoy learning, they will be able to recall the content and apply such knowledge in everyday life (Puri, 2018).
- **Makes interaction easier**: Whether through emails, chats, discussion forums or other online tools used, interaction between learners is encouraged and communication with the trainers is facilitated so that the whole process is always on track.
- **Online learning brings a shift in the paradigm of teaching and learning with constructivism**
  Constructivism states that (Doolittle, 1991 quoted by Carwile, 2007):
  - Learning involves active cognitive processing;
  - Learning is adaptive;
  - Learning involves both social/cultural and individual processes.

E-learning and the constructivist approach

Table 5. Difference between traditional and constructivist education approach

	Approaches of Learning	
	Traditional	Constructivist
Teacher/educator/trainer	Content provider	Content facilitator
Learner	Passive recipient	Active participant
Knowledge	Fixed	Fluid
Organisation of learning	Structured	Open
Communication	Unidirectional	Multidirectional
Primary resource	Text-based	Multiple sources
Method	Lecture	Active process
Media	Printed	Blended
Format	Structured and individualised	Adaptive and collaborative
Activities	Goal-oriented	Problem-centered
Focus of Learning	Knowledge and understanding	Application, analysis, synthesis and evaluation
Assessment	Recall	Alternative assessments

Source: Reid-Martinez & Grooms, 2018

3.3. Risks and safeguard against possible negative factors associated with online learning

In order to facilitate educators to quickly select various learning tools for a smooth online teaching, learning tools are divided into eight categories as follows (Huang et al., 2020):

- Tools for resource-producing, including PPT recording software, video production and multimedia learning resources producing, etc.;
- Tools for synchronous live teaching, including software on interactive teaching, remote offline, and online courses;
- Tools for asynchronous teaching, including all types of online teaching platforms at national and regional, as well as those launched by universities and enterprises;
- Tools for self-regulated learning, including learning apps for all subjects;
- Tools for knowledge construction, including cognitive tools, collaborative editing tools, virtual simulation tools, etc.;
- Tools for learning analytics, including apps, websites, and interactive class software supporting data analysis;
- Tools for practice and evaluation, including all types of tools suitable for conducting practice and the evaluation of learning results;
- Tools for resources and class management, including all types of tools which are suitable for the effective organisation of online learning with abundant learning resources, a large number of students and learning tasks.

With the massive adoption of digital technologies by the educational community, it is crucial to be aware of best practices in terms of cyber security and what preventive actions are the most effective in mitigating cyberthreats. The main threats and risks associated with online learning are (Sharma & Kaforma, 2012):

- Confidentiality violation;
- Integrity violation;
- Malicious programmes;
- Traffic analysis.

Personal data that can be recorded during online learning platforms that might reveal aspects of learners' private life: images of participants and their surroundings; voice and verbal statements of participants; statements of participants in messaging conversations and in forums; image, sound and statements of other people who are in the same space as the participants; documents shared by participants through the platforms. Furthermore, it's important to note that the use of communication platforms that do not guarantee the security of communications or whose misconfiguration results in unauthorised disclosure or access may jeopardise the confidentiality of data.

Internet security no longer only depends on how we, as digital citizens, manage our own security risks, but is also about making sure that our actions and behaviour do not put others at risk (Richardson & Milovidov, 2019). Therefore, educators should be properly informed about the use of different online learning platforms and software. They should be able to identify the right settings to ensure that there are no risks to users' privacy. The platforms chosen must have well-defined purposes that are compatible with distance learning and should only collect and process data strictly necessary for the specified purpose.

3.4 The role of VET professionals when working in dynamic online environments

When working in dynamic online environments, VET professionals should:

- Know the academic and professional background of their learners. Other important aspects to be known by the VET tutor are ICT literacy and level of knowledge in communication tools; aspirations, fears and/or expectations towards learning; autonomy and resistance to isolation.
- Have an in-depth knowledge of the course content and correctly apply the most appropriate pedagogical methods and techniques to promote the acquisition of knowledge, skills and attitudes of their learners.
- Have the ability to anticipate technical problems related to distance learning. They should provide concrete solutions to solve possible access problems or with the required plug-ins for specific stages of the online course. In order to prevent possible technical questions, it is advisable to prepare a list of frequently asked questions and share it with the learners.
- Act as a facilitator of knowledge, instead of being the main source of knowledge. VET tutors should develop a personalised training path to each learner, in order to optimize their learning process. It is up to VET tutors to monitor their learners' progress, evaluate the results obtained according to the defined learning outcomes and suggest strategies to improve their performance.

Photo by Julia M Cameron from Pexels

Further Readings & Useful links

Description	Link
OECD (2017). The OECD Handbook for Innovative Learning Environments. Paris: OECD Publishing.	Click **here** to read the handbook.
Chen, Y. & He, U. (2013). Security Risks and Protection in Online Learning: A Survey. International Review of Research in Open and Distance Learning, 14(5), pp. 108-127	Click **here** to read the paper.
Kaspersky (2020). Digital Education: The cyber risks of the online classroom. Website.	Click **here** to read the article.
Orchinson, M. & Rigg, K. (2020). Data protection and privacy implications of online and remote learning. Website.	Click **here** to read the article.
Youtube video. GDPR explained: How the new data protection act could change your life.	Click **here** to watch the video.

Unit 4: Scenarios for teaching/learning activities with the XCAPE digital breakout resources

Scenarios for teaching/learning activities with the XCAPE digital breakout resources	Duration
Learning objectives: ☑ Understand the role of pedagogical innovation for the development of 21st century skills; ☑ Understand the concept and characteristics of challenge-based learning; ☑ Understand the connection between challenge-based learning and Digital Breakouts ☑ Understand how to apply the XCAPE Digital Breakouts in face-to-face and/or traditional classroom environments ☑ Understand how to apply the XCAPE Digital breakouts in online learning environments	Total duration: 2 hours (120 minutes)
The training session of Unit 4 will be delivered according to the following steps: ☐ *Presentation of the learning agenda* The trainer presents the learning agenda for the face-to-face session of Unit 4 and answers to potential questions of trainees about the organisation of the training and the activities to be developed. • Understanding pedagogical innovation	15 minutes

The trainer starts by giving a brief presentation of the characteristics of pedagogical innovation and the concept, characteristics and implementation strategies of challenge-based learning activities. • XCAPE Digital Breakouts: from theory to practice ***Activity 1: How to implement the XCAPE Digital Breakouts in face-to-face and online learning environments*** Learners will be divided in small groups and it will be asked to do a brief roleplay. One group of learners will represent the facilitator/teacher/educator, and the other groups will represent the classroom (students). The group representing the educators will ask the other groups, which represent the students, to complete a Digital Breakout challenge of XCAPE, by using the tips that were presented at the beginning of the session (and which are indicated in the core contents of this unit). *This activity can be done either to test the implementation of Digital Breakouts in face-to-face or in online learning.* ☐ **Summary and conclusion** The trainer starts to ask to the classroom what they have learned, in order to foster discussion and to understand if there are any misunderstood terms or concepts. The trainer can also use https://www.mentimeter.com/ to allow learners to write the key-ideas that they have learned during this section, in order to visually present each other's ideas.	35 minutes 60 minutes 10 minutes

4.1. Understanding pedagogical innovation

Pedagogical innovation processes demand more flexible methods of teaching, which can be adapted to heterogeneity of students, their characteristics and needs and which involve them in the production of knowledge. In pedagogical innovation processes, it is crucial to innovate not only in teaching strategies, but also in evaluation strategies. Training and evaluation should be seen as complementary approaches to the promotion of learning, and the planning of teaching also presupposes the planning of methods of evaluating its effectiveness (Cabral & Alves, 2018).

Challenge-based learning (CBL)

Challenge-based Learning provides an efficient and effective framework for learning while solving real-world Challenges. It builds on the foundation of experiential learning and leans heavily on the wisdom of a long history of progressive ideas (Nichols, Cator & Torres, 2016). In challenge-based, technology is used to communicate, research, organise and create information, but also to allow learners to own their learning experience (Nichols, Cator & Torres, 2016). The combination of

technology offers students further out-of-class experiences, which makes knowledge more interesting and democratic.

Issues to consider in the implementation of challenge-based learning activities (Universidade de Aveiro, 2019):

- CBL requires a high level of autonomy and careful preparation;
- It requires a high level of commitment by students, a clear formulation of expectations and open discussions during the activity;
- Ensuring that students come from different disciplinary areas can be difficult, given the structure of some programmes. However, having external partners from a different area is one way to ensure multidisciplinarity;
- The communication strategy between all those involved must be clear;
- It is important to define the desired learning outcomes for the learners.

4.2.Using the XCAPE digital breakout resources in teaching/learning activities

Scenario 1: Steps to implement the XCAPE Digital Breakouts in face-to-face and/or traditional classroom environments

1. Form team groups

Although the Digital Breakouts can be done individually, it is desirable that they should be done in small groups, in order to encourage creative thinking, problem solving, social interaction and assertive communication. Whenever possible, student teams should be made up of students from various backgrounds and levels and should consider working in groups of four of five. Student teams can be formed in a variety of ways[5]:

• student teams can be predetermined based on project needs and individual competencies
• student teams can be organised based on students' preferences
• student teams can be self-organised.

2. XCAPE Digital Breakout Resources Topic Selection

The XCAPE Digital Breakout Resources address the topics of Critical and Creative Thinking, and Entrepreneurial Spirit. You should give each group the opportunity to choose the topic on which they want to work. Since the digital breakouts are available at different levels, each group should start to complete the challenges at introductory level in order to allow a logical sequence of knowledge.

Nevertheless, if you want to work in a specific competence of the EntreComp framework, you can access the XCAPE Digital Breakouts list and analyse which are the challenges that are most suitable to the desired learning objectives. According to McCallum et al. (2016), depending on how EntreComp is used, it is reasonable to expect that emphasis be placed on some competences more than others, or that the model is adapted with less competences prioritized.

3. Guidelines for teamwork

[5]Centre of Expertise in Learning and Teaching (CELT) of the University of Twente (n.d.). Challenge-based Learning. *Website*. Available at: https://www.utwente.nl/en/ces/celt/toolboxes/Challenge%20Based%20Learning/Challenge%20Based%20Learning/

As the educator, teacher and/or VET professional, you should act as the mediator and facilitator of the learning process, therefore, you should provide guidelines for how to divide the work and give students tools to make meaningful contributions to the success of the team.

4. Guidelines for the use of technology

It's important to provide clear guidelines for the use of laptops and smartphones to solve the digital breakouts, and also about technical specifications for videos, web material, among others.

Ideas to turn the implementation of Digital Breakouts into an even more fun and dynamic learning experience[6]:

- **Reflection prompts:** You can encourage your learners to capture their reflections throughout the process. Reflections can be captured via text, audio recording, or video recording.
- **Technology guide:** The technology guide can be used for learners to know how technology can be used during the implementation of the Digital Breakouts.
- **Team contract:** A team contract can be used as a document that they understand the responsibilities of working in a team, their individual roles and due dates.

Photo by Brooke Lark on Unsplash

Scenario 2: Steps to implement the XCAPE Digital Breakouts in Online learning environments

It's important to note that using the Digital Breakouts in a fully online learning can reduce the impact of learning in teams, in terms of students learning to work through team difficulties and conflicts in the way required by face-to-face problem-based

[6] Adapted from: Apple (2010). *Challenge Based Learning: A Classroom Guide*. https://images.apple.com/education/docs/CBL_Classroom_Guide_Jan_2011.pdf

learning (Savin-Baden, 2007). However, with the access of the XCAPE online learning portal, you - as the learning facilitator - will have a critical role in terms of helping to facilitate communication, problem inquiry and metacognition. You can also foster online communication in online forums with your students.

You can implement the XCAPE Digital Breakouts in virtual classes and/or meetings. You can assign the Digital breakouts to your students and work together to solve the challenges, provide extra instruction on the specific content of the digital breakouts and the technological aspect as well[7]. In order to monitor the progress of the digital breakouts, the XCAPE online learning portal will give you the opportunity to track your students' performance.

If your students are not experienced with digital breakouts, consider split them in groups of two or three people into different meeting rooms at the videoconference platform Zoom. Then, choose small assignments with a predictable timing. Once students get more comfortable, you can scale up the size of the groups and launch the implementation of the XCAPE's digital breakouts.

How to manage the implementation of Digital Breakouts in the Zoom Breakout Rooms[8]:

i. Send students to the breakout rooms;
ii. Bring students back from breakout rooms to the central room;
iii. Send a message to all students during a breakout;
iv. Give directions to students as to what they should do and how long (in some platforms, messages only show briefly);
v. Send instructions to the zoom breakout rooms;
vi. Send a message to a specific zoom breakout room;
vii. Visit breakout rooms;
viii. Pre-load room assignments.

.

Important Notes

- It's important to emphasise that the XCAPE Digital Breakouts can be incorporated in existing courses. When including challenges into existing courses, it is important to keep the learning objectives flexible, as students will make their own choices and manage their learning process themselves. As teacher, educator and/or VET provider, you will act as facilitator when the students will be working on their challenges.
- The Digital Breakouts can also be implemented as extra-curricular and/or in non-formal education settings.
- Even if the Digital Breakouts are implemented in a face-to-face and/or classroom environment, ideally the learning environment should include computers, rich media creation tools, the Internet, and mobile devices to access information, content, and communication. If the implementation of the Digital Breakouts extends beyond a simple school day, a collaborative virtual workspace available might be helpful.[9]

[7] Adapted from: Staying Cool in the Library (2020). *Digital Breakouts and Distance Learning*. https://www.stayingcoolinthelibrary.us/digital-breakouts-and-distance-learning/

[8] Adapted from Babaian, T. & Schiano, B. (2020). *Energize Your Online Course with Group Work: A How-To Guide for Making the Most of Digital Breakout Rooms*. Website. Available at: https://hbsp.harvard.edu/inspiring-minds/energize-your-online-course-with-group-work

[9] Adapted from Nichols, M., Kator, K. & Torres, M. (2016). Challenge Based Learner User Guide. Redwood City, CA: Digital Promise

Further reading & Useful links

Description	Link
Membrillio-Hernández, J. (2019). Challenge-based learning. Website.	Click here to check website.
World Economic Forum (2020). Schools of the Future: Defining New Models of Education for the Fourth Industrial Revolution. Cologny/Geneva: WEF.	Click here to access the report.
Youtube Video. Challenge-based learning: an overview.	Click here to watch the video.

Unit 5: Digital Breakouts development & Evaluation

Methodological approaches for working in dynamic online environments	Duration
Learning objectives: ☑ Understand the design process of digital breakouts in educational settings; ☑ Be able to integrate a narrative for the digital breakout challenges; ☑ Understand the importance of playtesting; ☑ Understand how to evaluate digital breakouts.	Total of 2 hours (120 min)
The training session of Unit 5 will be delivered according to the following steps: ☐ ***Presentation of the learning agenda*** The trainer presents the learning agenda for the face-to-face session of Unit 5 and answers to potential questions of trainees about the organisation of the training and the activities to be developed.	15 minutes
☐ **Presentation of the concept and characteristic of Digital Breakouts** Then, trainer will present the concept and characteristics of Digital Breakouts which are available in the Unit 5 PowerPoint Presentation. At the end of the presentation, the trainer should ask learners if they have any questions and/or doubts regarding the concept and characteristics of Digital Breakouts.	20 minutes
☐ **Presentation of the development of the gameplay** The trainer will present the types of puzzles and games that can be used for the development of the Digital Breakouts, and the platforms to embed games and puzzles to the Digital Breakouts, which are available in the Unit 5 PowerPoint presentation.	25 minutes

Activity 1: Development of a Digital Breakout Learners will be divided into small groups with and it will be asked to each group to develop one digital breakout with two challenges each on google forms. The trainer will randomly determine which skills, levels, types of puzzles and platforms each group will develop the digital breakout challenges. • COMPETENCE: Entrepreneurial or Creative Thinking (one competence per group); • LEVEL: Introductory, Intermediate, Advanced or Expert (one level per group); • TYPES OF PUZZLES: text-based puzzles, number-based puzzles, images and photos, online puzzles and navigation puzzles (two or three puzzles per group); • PLATFORMS TO EMBED IN THE DIGITAL BREAKOUTS: Canva, Padlet or Quizizz (one or two platforms per group). Each group will select one representative that will be responsible for sharing their digital breakouts to the classroom.	30 minutes
☐ **Presentation of assessment strategies of the Digital Breakouts** The trainer will present different assessment strategies of the Digital Breakouts, which are available in the Unit 5 PowerPoint presentation. At the end of the presentation, the trainer should ask learners if they have any questions and/or doubts regarding the assessment strategies of the Digital Breakouts.	20 minutes
☐ **Summary and conclusion** The trainer starts to ask to the classroom what they have learned, in order to foster discussion and to understand if there are any misunderstood terms or concepts. The trainer can also use https://www.mentimeter.com/ to allow learners to write the key-ideas that they have learned during this section, in order to visually present each other's ideas.	10 minutes

5.1 What are Digital Breakouts?

Digital Breakouts are a modified version of escape rooms and are used primarily in educational settings to teach content as well as other skills like creative thinking, problem-solving, collaboration, among others. These Breakouts challenge learners to "break out" while working with content and are composed of digital-based clues that players will find and record on an answer sheet. Digital Breakouts encourage (Coleman, n.d.):

- Collaboration;
- Critical thinking;
- Inquiry-based learning;
- An engaging learning experience.

5.2 The development of the gameplay

The easiest way to design simple digital breakouts is through the use of google forms in which here there are links to different elements of learning and a form where learners can enter their responses (Lambert, 2018). There is no associated cost in using google forms, online videos (e.g. youtube) can be incorporated, and response validation can be used to ensure that the correct answer is present before moving on to the next section. Pictures, videos, and a background image can be added to enhance the breakout challenges (Vergne et al., 2020).

Types of puzzles and games that you can use for the development of the Digital Breakouts

- ☑ ***Text-based***: You can put text directly on the main page of your Google Site or create a Google Doc and link that to the main page. You can crosswords, word-searches, words written backwards, text written in foreign languages, anagrams, among others.
  Additional tip: You can also create fake emails, fake text message conversations, fake concert tickets or airplane tickets, fake store receipts, fake newspaper articles, or fake signs, ransom notes, or diplomas.
- ☑ ***Numbers****:* basic math such as, addition, subtraction, multiplication and division, statistics, counting words to find a number, etc.
- ☑ ***Images and photos****:* naming flags, counting items in a picture, describing famous locations, etc.
- ☑ ***Videos:*** you can use video content to present puzzles, showing mysterious objects or famous locations, also sounds and music, etc.
- ☑ ***Online puzzles****:* crossword puzzles, word search puzzles, jigsaw puzzles, patterns and sequences puzzles, etc.
- ☑ ***Navigation puzzles*****:** calculating distances and finding locations using google maps, etc.

Platforms to embed games and puzzles to the Digital Breakouts

a. **Padlet** - https://padlet.com

Padlet is an application that creates an online bulletin board that you can use to display information for any topic. You can use a Padlet to collaborate in collecting ideas, brainstorming, collect webquest links and information to share with learners. Some examples to use a Padlet are:

- Gather learner responses and feedback;
- Gather information about prior knowledge about a specific topic;
- Do a “exit ticket” asking what did they learn at the end of each challenge.

b. **Canva** https://www.canva.com
Canva is a powerful tool for designing visuals. It features numerous templates and an exhaustingly long library of photos, vectors, icons, and stock images. You can design engaging infographics, diagrams, charts and graphs, badges, among others. Furthermore, Canvas has a special section for educators, which you can find here: https://www.canva.com/education/

Photo by cottonbro from Pexels

c. **Quizizz:** https://quizizz.com
Quizizz is an online quiz platform that allows players to use their own devices to answer multiple choice questions. With Quizizz you can create gamified quizzes, lessons, presentations, and flashcards for learners. Quizizz also adds to the fun using meme generators that can be created.

d. **LearningApps:** https://learningapps.org/
LearningApps.org is a free online tool that allows educators to design a plethora of interactive learning activities such as: word grids, crosswords, voting, ordering, group puzzles, audio/video with notices, quizzes, etc. (Dyer, 2020). The platform offers both standard and more interactive templates for creations and adaption of different learning tasks and activities depending on the teaching purpose and approach.

5.3 Evaluation of the Digital Breakouts

You can evaluate the digital breakouts developed in terms of usability and ability to reach the learning outcomes set for each digital breakout. Several methods of assessment can be used, including pre-and/or post-game surveys for educators, VET providers, and students, and also focus groups for the educators, VET providers and students (post- game) (Coffman-Wolph, 2018). Use the feedback from the participants to adjust the content of the Digital Breakouts if needed. This is a good opportunity to use iterative design and development or action-led development to help refine your experiences (Coventry University, n.d.).

You can also use Open Badges for the evaluation of learning. Open Badges allow the validation of competences, interests and achievements that includes metadata for further access and review. As the system is based on an open standard, winners can combine several medals from different broadcasters to tell the full story of their achievements, both online and offline. These medals can be displayed whenever the winners desire to have them displayed on the web, and share them for employment, education or lifelong learning purposes.

Badges are viewed as examples of micro-credentials, representing discrete skills sets that can be grouped to form a larger or macro-credential (Oliver,2016 quoted by Chakroun & James, 2015). The same authors refer that an important feature of digital badges is the claim that generic skills, also referred to as 21st century skills, soft skills, and more recently also linked to the notion of global Digital Repositories and citizenship education (Chakroun & James, 2015).

Open Badges matter to students and educators when they (Grant, 2016):

- Represent learner autonomy;
- Recognise skills that are not traditionally measured;
- Align with common standards and competencies;
- Are recognised as meaningful and consequential by external partners;
- Provide educators and employers with a quick and visual way to understand the skillset of potential students and/or applicants.

You can use the Open Badges Infrastructure (OBI) to build your own badges. It is a standard that has been designed to support a broad range of different badge issuers and allow any user to earn badges across different issuers, web sites and experiences, then combine them into a single collection tied to their identity (Sengupta, n.d.).

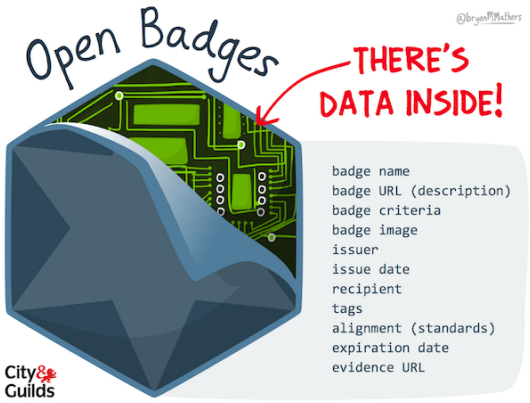


Image 1: Structure of an Open Badge
Source: Henson (2017)

A Digital Badge contains an online record of (a) an achievement, (b) the work required for the achievement, (c) evidence of such work, and (d) information about the organisation, individual or entity that issued the badge (Lemoine and Richardson, 2015 quoted by Chakroun. & James, 2015).

Further Readings & Useful links

Description	Link
Youtube Video. Virtual Escape Rooms using Zoom and Google Forms.	Click here to watch the video.
Youtube Video: Google Slides Bitmoji Escape Room	Click here to watch

Tutorial.	the video.
UNESCO IITE (2020). Open badges: new opportunities to recognize and validate achievements digitally.	Click here to read the article.
Youtube Video. DigitalMe Badge Design Canvas.	Click here to watch the video.
Youtube Video. Open badges | Joyce Seitzinger | TEDxRosalindParkED	Click here to watch the video.

References

Unit 1: Digital Breakouts concept

- Dirks, St., (2020). Breaking Out of the Ordinary: How to Create and Incorporate Breakouts. Follett Community. [online]. Available at: https://www.follettcommunity.com/s/article/breaking-out-of-the-ordinary-how-to-create-and-incorporate-breakouts
- Jiménez, C., Arís, N., Magreñán Ruiz, A., Orcos, L., (2020). "Digital Escape Room, Using Genial.Ly and a Breakout to Learn Algebra at Secondary Education Level in Spain". *Education Sciences* [e-journal], 2020, 10, 271; DOI: 10.3390/educsci10100271
- Kroski, E. (2020). "How to Create Free Digital Breakouts for Libraries," Library Technology Reports (vol. 56, no. 3). DOI: https://doi.org/10.5860/ltr.56n3
- McLeod, S., (2019) .Constructivism as a theory for teaching and learning. Available at: https://www.simplypsychology.org/constructivism.html
- Sampson, R., (2019). Escaping the archive: utilising escape room games in a constructivist approach to showcasing archives and special collections. *Spark: UAL Creative Teaching and Learning Journal* [e-journal]. Vol 4, No 1 (2019). Available at: https://sparkjournal.arts.ac.uk/index.php/spark/article/view/118/194
- The Learning Hypothesis, (2020). Digital Escape Room. [online]. Available at: https://learninghypothesis.com/digital-escape-rooms/
- Trif, L. (2015). Training models of social constructivism. Teaching based on developing a scaffold. *Procedia - Social and Behavioral Sciences* [e-journal] 180 (2015) pp. 978 – 983
- Vygotsky, L. S., (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.

Unit 2. The XCAPE Digital Breakouts

- Slatta R., W, (2020). The Synergy of Creative and Critical Thinking. Available at: https://faculty.chass.ncsu.edu/slatta/hi216/cc.htm

- Sözen, F., (2015). Is an entrepreneurial mindset something you can teach and learn?. Junior Achievement Europe. Available at: http://www.jaeurope.org/blog/350-ee-hub-eu/8-is-an-entrepreneurial-mindset-something-you-can-teach-and-learn.html
- The Peak Performance Center, (2020). Critical Thinking vs. Creative Thinking, available at: https://thepeakperformancecenter.com/educational-learning/thinking/critical-thinking/critical-thinking-vs-creative-thinking/

Unit 3. Methodological approaches for working in dynamic online learning environments

- Carwile, J. (2007). A Constructivist Approach to Online Teaching and Learning. *Inquiry,* 12(1), pp. 68-73
- Huang, R.H., Liu, D.J., Zhu, L.X., Chen, H.Y., Yang, J.F., Tlili, A., Fang, H.G. & Wang, S.F. (2020). *Personal Data and Privacy Protection in Online Learning: Guidance for Students, Teachers and Parent*s. Beijing: Smart Learning Institute of Beijing Normal University
- Puri, S. (2018). 5 Advantages of E-learning. *Website*. Retrieved from: https://trainingindustry.com/articles/e-learning/5-advantages-of-e-learning/
- Reid-Martinez, K. & Grooms, L. D. (2018). Online Learning Propelled by Constructivism. In Khosrow-Pour, M. (Ed.). *Encyclopedia of Information Science and Technology, Fourth Edition*. Hershey PA: IGI Global
- Richardson, J. & Milovidov, E. (2019). *Digital Citizenship Education Handbook.* Strasbourg: Council of Europe
- Sharma, D. & Karforma, S. (2012). Risks and Remedies in E-Learning Systems. *International Journal of Network Security & Its Applications*, 4 (1), pp. 51-59
- Tiwary, A. V. (2020). The Importance of a Proper Learning Environment of eLearning. *Website*. Retrieved from: https://elearningindustry.com/importance-proper-elearning-environment

Unit 4: Scenarios for teaching/learning activities with the XCAPE digital breakout resources

- Cabral, I. & Alves, J. M. (2018). Para um modelo Integrado de Inovação pedagógica e melhoria das aprendizagens. In Cabral., I. & Alves, J.M. (Org). *Inovação Pedagógica e Mudança Educativa: da teoria à(s) prática(s).* Porto: Faculdade de Psicologia e Ciências da Educação da Universidade do Porto
- Nichols, M., Cator, K. &Torres, M. (2016). *Challenge Based Learner User Guide*. Redwood City, CA: Digital Promise.
- Savin-Baden, M. (2007). A *Practical Guide to Problem-Based Learning Online*. London: Routledge

- Universidade de Aveiro (2019). CBL@UA. *Website*. Retrieved from: https://www.ua.pt/pt/inovacaopedagogica/challenge-based-learning

Unit 5: Digital Breakouts development & Evaluation

- Clarke, S.; Peel, D. J.; Arnab, S.; Morini, L.; Keegan, H. & Wood, O. (2017). escapED: A Framework for Creating Educational Escape Rooms and Interactive Games for Higher/Further Education. *International Journal of Serious Games*, 4(3), pp. 73-86
- Coffman-Wolph, S.; Gray, K. & Pool, M. (2018). Designing an Escape Room Game to Develop Problem Solving and Spatial Reasoning Skills. *SEE IL-IN Section Conference*. West Lafayette, Indiana: Purdue e-Pubs
- Coleman, S. (n.d.). Create your Own Digital Breakouts: Using Google Apps for Education. *Website*. Retrieved from: https://www.smore.com/ypuqq-create-your-own-digital-breakouts
- Coventry University (n.d.). Design your own Educational Escape Room. *Website.* Retrieved from: https://archive.dmll.org.uk/resources/tools/teaching-and-learning/educational-escape-room/
- Lambert, A. (2018). Digital Breakouts. *Website.* Retrieved from: https://heartandart.ca/?p=6269
- Vergne, M. J.; Smith, J. D. & Bowen, R. S. (2020). Escape the (Remote) Classroom: An Online Escape Room for Remote Learning. *Journal of Chemical Education*, 97(9), pp. 2845–2848
- Dyer, A. (2020). LearningApps.org – A Tool to Engage. Retrieved from: https://fltmag.com/learningapps-a-tool-to-engage/