

CLAIM

Creativity Labs Art-Inspired Methodological Manual



E-craft

Entrepreneurship, Creativity,
and Arts for Future Teaching

<https://e-craftproject.eu>

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E-craft

Entrepreneurship, Creativity, and Arts for Future Teaching

The project focuses on creativity, in its multiform artistic, visual and cultural expressions to innovate the teaching delivered in partner countries by introducing Game-based Learning solutions in assessment evaluating the creative and entrepreneurial potential of students.

E-craft | Entrepreneurship, Creativity, and Arts for Future Teaching

Specific objectives

A. To integrate and innovate the educational offer of humanistic and artistic craft schools of partner countries from a methodological point of view with the introduction of game-based learning solutions as an advanced assessment tool to create a selective and detailed evaluation process on the creative and entrepreneurial potential of students. To **integrate and innovate** from a content-didactic point of view by placing at the center of the learning program art-inspired paths and workshops of digital creativity and a spirit of initiative and entrepreneurship to conceive and communicate new businesses

B. To develop an entrepreneurial mind-set and a digital maturity in students of the IV and V years of Higher Secondary Institutes of IT, ES, PT and EL (17-19 years of age) to valorise the creativity and craftsmanship of young people by supporting their spirit of initiative and the will to put themselves to the test using the technologies of digital communication 4.0 to give vigour, attractiveness, innovation and originality to the artefacts they make, also from a business point of view

C. To promote digital integration in learning by adopting interactive and gamified training solutions in line with the evolution of technologies and multimedia languages, disconnected from constraints of places and times, to encourage smart e-learning processes.

Partners

Istituto di Istruzione Superiore Caselli – Italy | Leading partner

<https://istitutocaselli.edu.it/>

Istituto Tecnico Tecnologico Abate Zanetti – Italy

<https://www.abatezanetti.it/>

Colegio Caude – Spain

<https://colegiocaude.com/>

3o Geniko Lykeio Neas Filadelfeias – Greece

<http://3lyk-n-filad.att.sch.gr/wordpress/>

Escola Artística e Profissional Arvore – Portugal

<https://www.arvore.pt/>

CONFORM – Italy

<https://conform.it/en/>

Formación y Educacion Integral (FEI) – Spain

<https://feiformacion.com/>

AKMI – Greece

<https://akmi-international.com/>

Modatex – Portugal

<https://www.modatex.pt/>

ASECOM – Spain

<https://asecom.org/>

Kraken Lab – Italy

<https://www.krakenlab.it/>

CLAIM MANUAL STRUCTURE

PART A – CREATIVITY LAB

1. How to read CLAIM
2. What is a Creativity Lab
3. The Creativity Labs Principles

PART B – METHODOLOGIES AND TOOLS

Methodologies and tools that could help the Teacher build their own CREATIVE LAB.

1. Methodologies:
 - Project-Based Learning
 - Work based Learning
 - Experiential Learning
 - Flipped Classroom
 - Design Thinking
 - Collaborative Learning
2. Tools:
 - Canva
 - Google Drive
 - Adobe Illustrator
 - Edpuzzle
 - Serious Game
 - Graphics Software
 - Box
 - Lince

PART C – BEST PRACTICES

- a. Capodimonte – MUDI:
Educational Museum of Ceramics and Porcelain
- b. FEI – Learning Initiatives in Civic Environments
- c. Abate Zanetti – Nature and shapes of glass
- d. Colegio Caude – Elevator Pitch
- e. 3rd Geniko Lykeio “Miltos Kountouras” –
Collaborative interactive presentation

PART D – BUILD YOUR OWN CREATIVE LAB

CONCLUSION

PART A – CREATIVITY LAB

1. How to read CLAIM

CLAIM – Creativity Labs Art-Inspired Methodological Manual allow teachers to conduct art-inspired educational workshops to develop student’s creativity, inventiveness, entrepreneurship and digital communication. CLAIM applies to a new, active, participatory, laboratory teaching approach. At CLAIM, art is seen as a source of creativity and inspiration for new business and communication ideas.

The CLAIM Creativity Labs Art-Inspired Methodological Manual goals are:

- Transmit an active, participatory and laboratory teaching approach to all teachers;
- Promote skills like creativity, entrepreneurship and digital communication in students;
- Enhance methodological and technical/operational knowledge for pedagogical innovation based on experiential model applied to the development of art-inspired creativity;
- Help to identify and adopt the most suitable methodological solutions to facilitate students learning.

CLAIM advocate the teacher-student relationship as a preferable place for motivate learning, focus on training primary techniques for listening, managing negativity, and active and engaging methods for effective teaching.

CLAIM and it’s parts

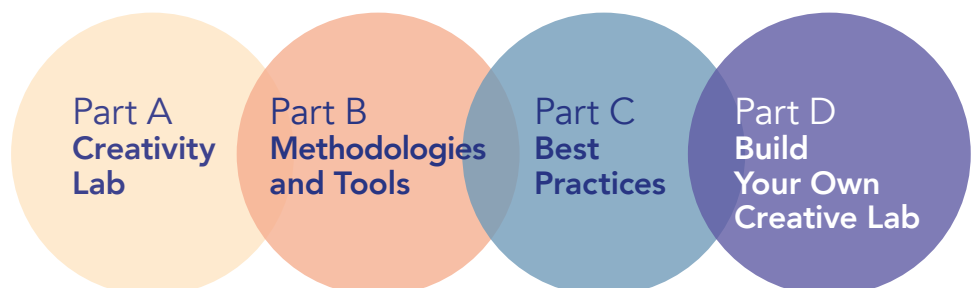
Part A – Creativity Lab

Part B – Methodologies and Tools

Part C – Best Practices

Part D – Build Your Own Creative Lab.

You can use CLAIM as a whole or just look for a good practice that suits to your context, since CLAIM offers you a tailored pathway that contribute to enhance student’s creativity.



2. What is a Creativity Lab?

Creativity Labs are rooted in constructionist principles, particularly those around creativity, making, and learning. It is a place where students will explore and expand their creative skills and practices.

A Creativity Lab is a hybrid educational space that combine art, culture, with entrepreneurial and communication skills, a place where teachers conduct art-inspired educational workshops developing their own creativity and inventiveness.

At a Creativity Lab teacher is a learning facilitator:

- Orienting all the process;
- Establishing a relationship based on negotiation;
- Active and participatory;
- Supportive as needed;
- Take action only when necessary.

At Creativity Lab students:

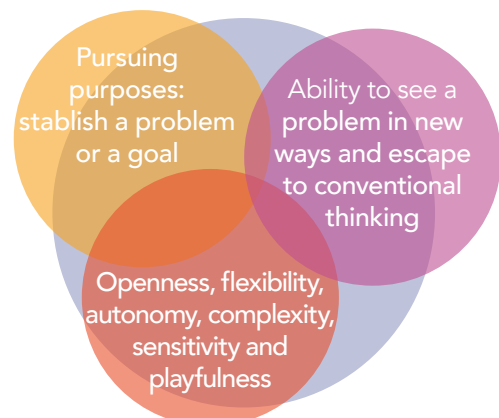
- Go beyond the observant role to an active and evolved one;
- Learn from art how to be an entrepreneur;
- Develop their decision making process by negotiating with peers and choosing pathways and materials;
- Be responsible for creating their work plan, build up the necessary timetable, defining the aims and step-by-step carry out their tasks.

At Creativity Lab students should:

- **Perceive** – Observing things around and make use of all senses;
- **Rethinking** – Asking questions to better understand problems;
- **Cultivating** – Share problems, ideas and be open to others;
- **Time** – Give time to incubate and integrate different ideas;
- **Meaning** – Experiment to combine alternative ideas.

Creativity Lab is an open place where you work with your community, inviting experts/professionals to the class, and explore different methodologies adapted to different students.

Understanding Creativity as



... a Creativity Lab should

- stimulate tolerance to ambiguity
- openness to experience
- independence of judgment
- curiosity
- unconventional values
- preference for challenge and complexity
- self-confidence
- risk-taking
- intrinsic motivation
- passionate involvement in tasks.

Creativity Lab promotes divergent thinking, by working with alternative solutions. When the student finds his/her passion and interest, an internal desire to do something arise, in this way, an intrinsic motivation is the major booster for engagement.

3. Creativity Labs Principles

- *Learning environment as a participatory one;*
- *Understanding teacher as a Facilitator;*
- *All the students are engaged;*
- *Involving at the same time experts and professionals in the classroom*

3.1 Creativity Lab Environment

- Predominance of a flexible, open, and improvised environment;
- Use materials/tools that are not too didactic: fabrics or objects from sports, music, fashion, military, etc.;
- Mistakes should be part of the learning environment;
- Engage students in hands-on, project-based learning experiences that support and reinforce academic content;
- Students have the right to fail;
- Throughout experiential learning, students connect to real-world problems;
- Invite new and diverse groups of speakers.

Enhance creativity

1. Define the aim/problem/goal:

- Creativity is only valuable in service of some goal, if you are searching for creative solutions, it's important that you frame;

2. Learn the rules before you set out to break them:

- Creativity takes deliberate practice and time;
- Work on weak areas;
- Seek out for feedback and continual improvement;
- Work for an intense knowledge on the subject.

3. Cross-Domains:

- Deep knowledge on a specific field is important but not enough;
- Breakthrough innovation happens when ideas came from more than one domain;
- Emphasize cross-functional teams;
- Broaden your search;
- Give freedom to create different combinations.

4. Endurance:

- Creativity is not something that comes easy, the more you work the better your work gets.

3.2 Teacher as a learning facilitator

Teacher will be the designer of the sociocultural conditions that allow compliance of educational objectives. Teacher role is understood as a guide, who observe, listen and talk to his students about what they are thinking. Personable, teacher engage their students with a smile, a laughter and a conversation.

1. Involve students to think critically and understand how the learning process works;
2. Be responsible for the agenda setting, guidance and emotional culture management;
3. Support every student so they can do their best;
4. Encourage the full participation by promoting mutual understanding and cultivating shared responsibility;
5. Show a genuine interest and willingness to work on the topic;
6. Consider and discuss different teaching approaches;
7. Imagine and invent new ways of approaching training topics;
8. Tailor the instructions and experiences;
9. Use specific and clear instructions;
10. Direct students to the resources;
11. Adapt contents of the CLAIM;
12. Ask open-ended questions that compel them toward reflecting upon the information they have.

Open ended questions:

- What are you currently working on? How is it going?
- This looks good. What are you going to do next?
- Why do you think that happened?
- What sort of thing did you take notes on?
- Have you thought about how you will write up this project/experiment?
- Were the results expected or unexpected? How so?
- Other people have said such-and-such. Do you agree?
- How do you think this fits in with the rest of the course?
- Are you happy with the result?
- What can you do in order to improve next time? What did you learn for a future occasion?
- Who or what could help you in your learning process. Can you try harder or a different approach?

Teacher tips



Introductory hooks: a personal anecdote connected to the subject, a brainteaser or a challenge question, a historical example or a multimedia source;



Share tasks, duties and responsibilities: suggest student to investigate one resource while you investigate another. Regroup and share findings. Search, select and choose information. Suggest "what if".



Engage with your students' interests.



Connect learning to the real world. "When am I ever going to use this?"



Motivate them to write their logbook.



Fill "dead time" asking students to: **reflect** on something, **discuss** with a partner, and then **share** with others.



Use group work and collaboration. Use your judgment and knowledge of who works well together when organizing group work.



Encourage students to **present and share** work regularly. Give them a regular opportunity to **share their thoughts and demonstrate learning in front of their peers.**



Read the room. Cut the activity in short pieces, clarify instructions or switch to a more student-centered activity for greater engagement. **Adapt, identify and consider** learners characterises.



Organize learning scenarios: **use mixed media:** video, audio, and digital resources.



Focus on discovery and inquiry. Let them discover learning for themselves and pursue the lines of inquiry that interest them.



Allow time to think. It leads to more considered responses and it makes the conversation accessible to those who do not have an instant answer.



Shake things up with new and novel activities from time to time.



Encourage friendly competition, using in-class games, quizzes, or gamified learning programs. Transform activities into games by including levels of difficulty, rewards, and competitive elements.



Stimulate intermediate and final results evaluation.

Get your students moving. Try to:



Have students come to the front and brainstorm together;



Have students split into groups or arrange themselves in different areas of the room;

Have students rotate through different stations around the room;



Take a stand: have students move to a particular area of the room to indicate their thoughts on an issue.



Active Listening

- Focus on having a good conversations/discussion and not on finding solutions.
- Try no to solve the problem prematurely.
- Use "I", short sentences, and ask listener to paraphrase you.
- Face the speaker and have eye contact.
- Do not interrupt.

Managing Negativity

- Look for signs of negativity and low levels of engagement: complaining, hopelessness, uncertainty and feelings of frustration or hostility;
- Have the talk: try to understand what is wrong, what is going on beneath the surface.
- Give voice to the frustrated or stressed, it will feel better if someone agrees with them.
- Bring specific behaviours to the talk; help them understand the direct impact of their actions.
- Allow time to respond. Communicate with a respectful tone.
- Help them process their feelings: listen and try to understand.
- Gossip are not productive.
- Create a plan to move to a more positive attitude.
- Use humour.

3.3 Student Engagement

Students form their own thoughts through self-exploration and dialogue. Engaged students are more focused, build stronger critical-

thinking skills, and authentically connect to their learning.

Promote students engagement

- Start from what learners already know;
- Create relations between their lives or interests and the topics of the proposed lesson;
- Involve learners actively in all activities, leave them room for expressing themselves;
- Learners cannot always be mentally available to deal with;
- Encourage them to ask questions.

Students are different in:

1. Curiosity
2. Open Minded
3. Interest and motivation
4. Engagement
5. Focus
6. Self-esteem

Develop a Growth Mindset in your students

- They can always improve their skills by making the necessary efforts;
- They can achieve anything with motivation and dedication;
- They should search for and embrace challenges to improve their performance and skills;
- Look at a bad result as their own responsibility and as a learning opportunity to do better next time;
- They only depend on themselves;
- They have to persistent and try to improve themselves on a daily basis.

PART B – COLLECTION OF METHODOLOGIES

Definition of Educational Methodologies: Educational methodologies refer to the various ways in which educators design, deliver, and assess learning experiences for their students. This includes the theories, principles, and strategies that guide the teaching and learning process. Examples of educational methodologies including project-based learning, work-based learning, experiential learning, flipped classroom, design thinking and collaborative learning.

PROJECT BASED LEARNING

WORK-BASED LEARNING

EXPERIENTIAL LEARNING

FLIPPED CLASSROOM

DESIGN THINKING

COLLABORATIVE LEARNING

| PROJECT BASED LEARNING | |
|-------------------------------|---|
| Element | Guiding questions |
| Definition | Project-Based Learning (PBL) is a teaching and learning methodology that involves students in a project that focuses on a topic, problem, or question over an extended period, culminating in a final product. |
| Objectives | <ul style="list-style-type: none"> - Identify and define problems, questions, and topics to investigate. - Research skills and strategies to analyse information. - Apply to critical thinking and problem-solving skills. - Collaborate effectively with peers. - Develop communication skills both oral and written. - Develop creativity and innovation. - Improve time management and self-assessment. |
| Teaching Approach | By creating authentic and meaningful learning experiences for students, projects are used as the central unit of teaching and learning where the main goal is to encourage student engagement. |
| Learning Outcomes | Promotion of the development of critical thinking, problem-solving, collaboration, communication skills, creativity, organization, and autonomy. |
| Assessment | A specific evaluation model can not be established for this methodology since the number of projects that can be carried out is enormous. A rubric will be created according to the characteristics of the project in order to obtain the most objective evaluation possible, following these items: creativity, communication, research, collaboration, knowledge, organization, quality, and impact. |
| Benefits | <ul style="list-style-type: none"> - Development of critical thinking, problem-solving, collaboration, communication, and creativity. - Promotion of the student engagement by making learning more relevant and meaningful. - Improvement in retention of knowledge. - Increasing motivation by giving them a purpose and by providing opportunities to make choices and take ownership of their work. |
| Potential Obstacles | <ul style="list-style-type: none"> - Lack of time: PBL may be time-consuming and it is difficult to fit a project into a tight curriculum. - Lack of resources: Projects may require resources that are not available in the classroom like materials or equipment. - Group dynamics: Collaborative projects may be difficult if group members do not work well together or if there is a lack of cooperation or communication. |
| Resources | Edutopia: Project-Based Learning: Edutopia Buck Institute for Education: What is Project-Based Learning?: PBL New Tech Network: Project-Based Learning: New tech network |



**Examples /
Case Studies**

- Biology: Research a local ecosystem and create a field guide for others to use.
- History: Research a significant event in their community and create a documentary to share with the class.
- Literature: Choose a book to read and analyze the themes and symbolism. They can then create a visual representation of the book in the form of a mural or collage.
- Math: Research and analyze the cost of living in different cities and create a budget for a hypothetical move.
- Art: Research a specific art movement and create a piece of artwork in that style.
- Social Studies: Research a current event and create a newspaper.
- Physics: Research a specific law and create a demonstration to explain it.
- Music: Research a specific genre of music and create a playlist with annotations explaining the history and significance of each song.
- Foreign Language: Research a specific culture and create a multimedia presentation to share with the class.
- Business: Research a local small business and create a marketing plan to promote it.

| WORK-BASED LEARNING | |
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| Element | Guiding questions |
| Definition | Work-based learning is an educational strategy that provides students with real-life work experiences where they can apply academic and technical skills and develop their employability. |
| Objectives | <ul style="list-style-type: none"> - Bring students closer to real professional life; - Experience the profession they are studying in a real company or experience; - Build student awareness of potential careers; - Facilitate student exploration of career opportunities. |
| Teaching Approach | An instructional strategy that enhances classroom learning by connecting it to the workplace. |
| Learning Outcomes | Work-based learning supports the development of both industry-specific technical skills and professional skills — such as communication, teamwork, and problem-solving abilities — that are valued by nearly all employers. |
| Assessment | On one hand, the challenge is to show the student how it really is what he is learning theoretically, there is a big difference between what is studied and what is practiced, and they can see if they like it and if it is what they expected. On the other hand, the student's ability to function in a real and professional environment. We took the students of a pattern and fashion course to a company where they could see the whole process of the garment. |
| Benefits | <p>Helps individuals to better understand the workplace culture and expectations and to acquire good work habits. The effects of sandwich training on trainee self-confidence, self-efficacy and motivation are well documented. It has also been shown to develop career awareness and management skills.</p> <ul style="list-style-type: none"> - Leads to higher engagement. - Improves collaboration skills. - Builds self-confidence. - Promotes higher learning retention. - Makes learning more fun and exciting. - Increases learners' motivation to learn. - Stretches creativity and innovation. - Improves critical thinking and problem-solving skills. |
| Potential Obstacles | A disadvantage is that some organisations do not have strategies that govern the duties and responsibilities that should be allocated to learners during work-based learning initiative. |
| Resources | <p>Work-based learning: benefits and obstacles - ETF - europa.eu https://www.etf.europa.eu/sites/default/files/m/576199725ED683BBC1257BE8005D-CF99_Work-based%20learning_Literature%20review.pdf</p> |



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| Examples / Case Studies | |
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| EXPERIENTIAL LEARNING | |
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| Element | Guiding questions |
| Definition | Learning begins with practice, starting from a real experience. Students learn by reworking some real experiences, from which they learn skills that they can apply to future experiences. This learning process, which is the basis of experiential teaching, is the development of those skills not acquired through study and technique. Students learn sharing experiences. "Learning by doing" is the key principle. |
| Objectives | Experiential learning is capable of facilitating learning, because it bases its approach not so much on content, but rather on the involvement of the person, through his experiences and skills. |
| Teaching Approach | The experiential methodology provides a laboratory teaching approach in which everything and everyone plays a central role: <ol style="list-style-type: none"> 1. The learning environment that must be equipped with all useful tools, including analogical and technological ones; 2. The teacher is perceived as a real guide, a "facilitator" who helps the group to establish the basic rules and shared objectives of both individual and collective learning. Teacher define what students should or should not do, what is realist and what is not. 3. Students have to be able to identify themselves as the main actors of this learning process. They can do that simply "living the experience". They will have to fail to learn. Failure is part of the process. |
| Learning Outcomes | <ol style="list-style-type: none"> 1. Allow students to face situations of uncertainty, in this way they can develop adaptive behaviors and improving, at the same time, the ability to manage their emotions in moments of greater psychological stress. 2. Develop problem-solving skills also through creativity. 3. Acquire self-awareness through self-observation and hetero-observation in order to redefine any inadequate attitudes and enhance constructive behaviors. |
| Assessment | <p>The challenge is to "get involved": each student, in fact, reflect on their own possibilities for improvement, starts a new cycle of learning based on experience.</p> <p>Context: Murano glass tradition</p> <p>Challenge: contemporary reinterpretation of the classic Venetian chandelier "Rezzonico"</p> <p>Time period: September 2022 – April 2023</p> <p>The class is divided into three different groups; each group proposes its own idea of chandelier revisited in a graphic key.</p> <p>Each group made one prototype, responding to the three different proposals.</p> <p>The glass master stimulates the students so that everyone expresses the maximum of their skills, imagination and creativity, without intervening either during the process of conception or realization.</p> <p>At the time of installation problems start. The students did not account the complexity of the structure and all the problems of the prototypes are revealed. At this point, students have to rethink and rework the drawings, to intervene on the mistakes made to correct them, and to create new prototypes. Always without the intervention of the Master who, however, follows them and assists them, from the beginning to the end of the project, stimulating them to continuous reflection on any critical issues. At the end, they made a new installation.</p> <p>The experience, in this way, becomes extremely interesting and exciting for students who, feeling directly involved in the process of making the chandelier, show themselves attentive, reflective, motivated and determined.</p> |

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| Benefits | <p>Possibility to learn through cognitive, sensory and emotional activities that see the involvement of the student in every phase of the process through</p> <ol style="list-style-type: none"> 1. Practice 2. Reflection 3. Transformation 4. Conceptualization 5. Experimentation 6. Justification 7. Push for change 8. Personal growth in a real context. |
| Potential Obstacles | <p>The fear to not be ready to what the teacher is demanding is certainly the main obstacle encountered by students. However, the possibility of being able to intervene on any mistakes made and to be able to count on the guidance of the teacher throughout the learning process stimulates students to do, to try, to get involved.</p> <p>Collective tension is another obstacle. The solution is to learn how to turn obstacles into opportunities. The sharing of everything that is perceived by students as an inability to do, then becomes a further experience on which they can reflect all together and, therefore, encouragement, solicitation and push to bring out imagination and creativity.</p> |
| Resources | <p>ParticipatoryLearningMethods_it. Sciencedirect.com</p> |

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| Examples / Case Studies | <p>“La natura e le forme del vetro” glass nature and shapes</p> |
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| FLIPPED CLASSROOM | |
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| Element | Guiding questions |
| Definition | Flipped classroom is a methodological approach to learn design and a model of blended learning. It is structured around the idea that lecture or direct instruction is not the best use of class time, instead students encounter information before class, freeing class time for activities that involve higher order thinking. With a flipped classroom, 'content delivery' may take a variety of forms, often featuring video lessons prepared by the teacher, although on-line collaborative discussions, digital research, and text readings may alternatively be used. |
| Objectives | It aims to increase student engagement and learning by having pupils complete readings at home and work on live problem-solving during class time. In this way, it is possible to differentiate instruction and design tailor made learning scenarios |
| Teaching Approach | The teacher is no more the sage on stage but rather the guide on the side. A teacher's interaction with students in a flipped classroom can be more personalized and less didactic, and students are actively involved in knowledge acquisition and construction as they participate in and evaluate their learning. Classroom organization patterns range from individual to pair and group work enabling peer learning, as well. |
| Learning Outcomes | Specifically, the flipped classroom approach creates meaningful learning opportunities that address Bloom's taxonomy in a differentiated manner as to the learning environment with the lower order objectives, knowledge and comprehension, being dealt with in an asynchronous self paced way and the higher order ones, application, analysis, synthesis and evaluation, being aimed at during synchronous in-class activities. In general this methodology addresses the challenges of teaching in the 21st century for life skills, communication, collaboration, creativity, critical thinking as well as critical digital literacy and skills. |
| Assessment | Flipped classroom is a systematic approach to blended learning for inclusion, peer learning, mastery learning, gamification, among other approaches, that allows for increased learner engagement. It has been successfully implemented in project based teaching and proved highly promising for optimising learning outcomes. Therefore, it is nowadays recommended for standard learning design. At the 3 GENIKO the flipped classroom approach is systematically implemented for the teaching of English as a foreign language and for cross-curricular projects, while learning scenarios have been designed and put in practice in the rationale of blended learning for inclusion, as well. |
| Benefits | There are numerous benefits including: <ul style="list-style-type: none"> - multisensory learning (oral, visual, audiovisual, hands on) - higher order thinking skills (problem-solving, critical thinking, creativity) - 21st century skills (the 5 Cs) and active citizenship - student-student and student-teacher interactions - learner autonomy and responsibility - digital skills and digital literacy - alternative learning and assessment of learning - instant feedback for teachers about learning outcomes that allows differentiation |

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| Potential Obstacles | <ul style="list-style-type: none"> - The digital gap - Lack of adequate digital infrastructure - Inadequately developed digital strategy at schools - Insufficient teacher digital competencies. |
| Resources | <ol style="list-style-type: none"> 1. Iacopo Falciani (2020). "Flipped classroom". Europass Teacher Academy. Retrieved 2022-12-16. 2. Fung., C.H. (2020). "How does flipping classroom foster the STEM education: A case study of the FPD model". <i>Technology, Knowledge and Learning</i>. 25 (3): 479–507. doi:10.1007/s10758-020-09443-9. S2CID 216249751 3. Vitta, Joseph P.; Al-Hoorie, Ali H. (2020). "The flipped classroom in second language learning: A meta-analysis". <i>Language Teaching Research</i>. Advance online publication. doi: 10.1177/1362168820981403. S2CID 234415591 |
| Examples / Case Studies | <p>There is actually no school subject or university course in which flipped classroom cannot be applied, from languages to science and technology. Perhaps the most recognizable contributor to the flipped classroom is Salman Khan. In 2004, Khan began recording videos at the request of a younger cousin he was tutoring because she felt that recorded lessons would let her skip segments she had mastered and replay parts that were troubling her. Salman Khan founded Khan Academy based on this model. For some, Khan Academy has become synonymous with the flipped classroom. For more, see Flipped Classroom in Wikipedia.</p> |

| DESIGN THINKING | |
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| Element | Guiding questions |
| Definition | <p>Design Thinking is based on the ability to be intuitive, to recognize models, develop and share ideas, on multidisciplinary and collaboration, which will guide teachers and students "design thinkers", through a path of discovery and emotional involvement. Aimed at increase the effectiveness of teaching/learning processes, promote the development of high skills, enhance individual talents and promote educational success, using the digital technologies made available.</p> <p>Previews a teaching in open classes, attentive to cooperative and group work, peer tutoring, learning by problems and projects. The help of ITCs used as tools, but also as project outcomes of the various paths, allows to develop innovative skills and methodologies in the construction of products/services that teachers and students share inside the school, integrating them into curricular teaching, and outside (other schools, other subjects), disseminating and promoting the models identified, the projects/products developed, and the good practices developed.</p> |
| Objectives | <p>Design Thinking is based on the ability to be intuitive, to recognize patterns, to develop ideas that have both emotional and functional meaning, to be able to express oneself by other means than just words or symbols, and on the concept of "working group" that creates a perfect intersection between technology, business and human values. The main distinctive features of the methodology are the human-centered approach, multidisciplinary and collaboration, creativity and propensity for "wild ideas" that allow to go beyond the limits of knowledge, for an innovative approach to teaching.</p> |
| Teaching Approach | <p>The Design Thinking process is an open classroom approach that brings new innovative teaching strategies and is divided into six steps:</p> <ul style="list-style-type: none"> - identify the opportunity, - design, - develop the prototype, - compare, - improve, disseminate - and finally present the project idea. <p>By adopting this approach in the classroom we finally want to decree the overcoming of the "filler and transmissive" school to make the object fascinating of discovery, so as to involve, motivate and guide students "design thinkers", towards personal educational success.</p> |
| Learning Outcomes | <p>Design Thinking aims to achieve the development of:</p> <ul style="list-style-type: none"> - creative and divergent thinking; - transversal skills such as knowing how to work in a group; - soft skills such as attitudes and empathy. |

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| <p>Assessment</p> | <p>The context, with which we initially came into contact, was presented as uneven and composed of students from somewhat diversified socio-cultural contexts. The first aspect we observed and on which we had to work was to favor and integrate the dialogue between salient and substantial differences among students. Trying to put the concept of inclusion in the foreground and favoring dialogue and communication between disparate realities. Only then did we focus on the transmission and deepening of technological resources and, through the creation of multidisciplinary groups, with the use of different tools and methodologies. We tried to introduce students to the heart of the project, moving on to the different phases of design thinking. Students are, therefore, invited to observe, listen and investigate a problem, analyzing it in all its aspects, doing research, interviews, learning as much as possible about the context in which they will intervene, before starting the search for possible solutions, comparing and analyzing the consequences. Subsequently, they will be able to move on to the realization of a prototype (a drawing, a digital presentation, an artistic project), carrying out tests and recording successes and failures, aware of the fact that "every mistake brings them closer to the solution". The period of time that concerns the entire process takes place from the beginning of the school year, until the conclusion (at least three months) of the realization phase of the product/service.</p> |
| <p>Benefits</p> | <p>Design Thinking represents an approach that researches and analyzes problems or challenges to overcome, intervening on the processes that influence the challenge in question, transforming constraints into opportunities to be seized and developing a group creative process that, if implemented correctly, leads to the identification of innovative solutions and ideas, of value and success.</p> <ul style="list-style-type: none"> - It implements the students ability to be intuitive; - Allows to recognize patterns and develop ideas, that have both emotional and functional meaning; - Express oneself by other means than just words or symbols; - Work with the concept of "working group" and therefore interface with a multidisciplinary climate; - Favor a dialogical aspect between different fields, creating a perfect intersection between technology, business and human values; - Fosters an inclusive, participatory climate that takes into account respect for diversity; - Enhances empathy understood as the ability to put oneself in the shoes of the other and identify with what the other thinks, feels and lives; - Stimulates divergent thinking; - Refine soft skills. |

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| <p>Potential Obstacles</p> | <p>Among the various potential obstacles that could be encountered in the implementation of this type of methodology, we can first of all clash with an idea of structured learning over time and which sees the latter as a systematic, set, serious process in which the concept of fun and creativity is still struggling to introduce itself as a central variable of the teaching-learning process. You can clash with a paradoxically suspicious attitude on the part of the student audience and beyond. So a first potential obstacle may have to do with the de-structuring of sedimented accumulations of consolidated habits of the school system that still struggles to consider learning as something that should go towards a spiral, a virtuous circle of play and fun that favors innovation and aims at constant improvement. Here the phases are imagine, create, play, share and reflect, start imagining again. Given a problem or a question, we explore the probable solutions, we confront each other, we proceed by trials, until we elaborate a possible solution, then starting again, without forgetting the playful dimension and entertainment.</p> <p>Moreover, among the potential obstacles that can be encountered, there is the difficulty in integrating the different knowledge, in an attempt to favor a multidisciplinary climate in which the different fields can contaminate each other, influence each other receiving equal dignity, each indispensable for the creation of the final goal, favoring a dialogical climate that passes through a transversal approach not only between students but also between teachers and institutions. Still, in a social climate more marked by competition rather than cooperation between hypothetical obstacles it may not be easy for students to really try to put themselves in the shoes of the other, because resistance could come to life in an unexpected and massive way, the commitment is to foster a cooperative and collaborative climate, implementing an attitude aimed at sharing and cooperation rather than competition, trying to overcome an egoic attitude and arrive at dialogue, integration and respect, where everyone is a fundamental and indispensable part of the whole process.</p> |
| <p>Resources</p> | <p>https://blog.osservatori.net/it_it/design-thinking-significato-importanza https://www.zerounoweb.it/cio-innovation/metodologie/design-thinking-definizione-esempi/ https://startupitalia.eu/53146-20160401-design-thinking-scuola https://missioneinsegnante.it/2022/04/04/design-thinking-a-scuola/economyup.it ● https://www.economyup.it https://startupitalia.eu/53146-20160401-design-thinking-scuola</p> |

Examples / Case Studies

Process of design/realization of a porcelain artifact: multidisciplinary groups of students begin to write the goddesses on the blackboard in complete freedom with respect to the creation of a porcelain artifact with an innovative design.

Ideas are written on the blackboard so everyone can read them, and not only concern the realization of the product but also its marketing and how to interact with new technologies. It is important to deepen the "exchange of ideas" necessary to understand what is and what is missing to develop a participatory and common solution.

From the ideas that emerged we move on to sketching: sketch made quickly with a marker on a piece of paper. In Design Thinking all this plays a central role because it provides a temporal and external memory for attempts at ideas and supports dialogue between those who "design" about problems and solutions.

In addition, the aspect of the sketch game increases the perceptual sensitivity in the elaboration of innovative ideas to reach problem solving.

To the same extent that sketching helps design thinkers think and come up with ideas, "prototyping fast" is another way to visualize and test new solutions. Since the designer never has enough information about a project and probably never the fundamental ones, fast prototyping allows you to test the details of a first product, their shapes and their nuances. Moreover, the fact that the materials for this type of prototyping are inexpensive and raw, introduces early in the perspective of failures, you immediately understand the "error". Learning and accepting these failures and mistakes are fundamental elements to be transferred to students. Design thinkers feel comfortable in uncertainty. In the classroom was found that groups of students who were initially afraid to use crude prototypes (fear of getting negative feedback from their teachers) became convinced, seeing the benefits of co-creation. The more complete a prototype is the less chance of ongoing feedback to "adjust the shot". Finally, the rule of tangibility educates students to give a concrete form to their ideas: "prototypes are means of communication" that will allow the interlocutor a pragmatic and expendable evaluation of the project idea.

In fact, an important part of the Design Thinking process is given by feedback. In this phase the teachers and all interested parties test the students' project expressing feedback about its usefulness on the market and its propensity for business. Students gather from experts an opinion on what works and what can be improved. Based on the feedback received, students are guided by their experts/teachers to make the project more and more perfectible, and once straightened the shot, with what they consider the best solution, they can launch it on the market and thus test its marketability.

The presentation of the project to the public represents the final phase of the Design Thinking process. The one in which the team of multidisciplinary students elects the most empathetic, most communicative person with a strong propensity for sociability, to best represent his pitch. Be exhaustive and persuasive in a few minutes in the hope of convincing the interlocutor to finance their project idea!

Effective collaboration and transversal thinking are among the most valuable resources for designing in a constantly changing present. Design Thinking is an approach that leads to the development of innovative solutions to complex problems, based on the activation of empathy and creativity. By adopting this approach in the classroom, we finally want to decree the overcoming of the "filler and transmissive" school to make the object of discovery fascinating, so as to involve, motivate and guide the "design thinkers" students, towards personal educational success.

| COLLABORATIVE LEARNING | |
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| Element | Guiding questions |
| Definition | Collaborative learning refers to an instruction method mixing students at different performance levels and usually from different subjects to work together toward a common goal. The students are organized in small groups. |
| Objectives | <ul style="list-style-type: none"> - Foster peer's and own learning. - Facilitate the exchange of ideas. - Promote critical thinking skills. - Develop communication skills both oral and written. - Contribute to solve sophisticated problems. - Assess the performance of other's tasks and self-assess you own performed ones. |
| Teaching Approach | The instruction approach used in collaborative learning methods focuses on grouping students for the purpose of achieving an academic goal. The main principle is that the success of single students contributes to facilitate the success of the group. |
| Learning Outcomes | <ul style="list-style-type: none"> - critical thinking skills - problem-solving skills - communication skills - organization and management skills. |
| Assessment | The assessment is integrated in the method. Students need to assess each other performance to fulfil the learning goal. Assessment strategy can be organized with a "divide and conquer" approach whereby, each student (or subgroup of students) can be entrusted a specific task, which need to build on or feed other student's (or subgroup of students) tasks. Thus assessment relies on the different tasks and also on the overall result of the entrusted problem. |
| Benefits | Evidence has been provided on: <ul style="list-style-type: none"> - Increase of the interest of the students, and therefore their motivation. - Promotion of critical thinking. - Facilitation of higher levels of thought. - Enabling retaining information longer than with individual work. - Assuming higher responsibility in the own learning. |
| Potential Obstacles | <ul style="list-style-type: none"> - Group aversion. When students develop group aversion their individual performance in the group suffers and in turn the group as a whole suffers. - Free riders: In order for cooperative learning to be fair the work load must be shared equally within the group. Some students may not contribute significantly but get the credit of the whole group. - Assessment challenges: Students often will assess their group positively in hopes that they will in return be assessed the same way, when self-assessment of the group is in place. Instructors may also find challenging to assess the contribution of each student to the global work. - Group dynamics: Collaborative tasks may be challenging if group members do not organised properly their common work. Conflicts may arise. |

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| <p>Resources</p> | <p>K12academics: Collaborative Learning: https://www.k12academics.com/Educational%20Practices/cooperative-learning</p> <p>Cornell University. Examples of Collaborative Learning or Group Work Activities. https://teaching.cornell.edu/resource/examples-collaborative-learning-or-group-work-activities</p> <p>Collaborative learning Project: http://www.collaborativelearning.org/</p> <p>University of Maryland: https://tltc.umd.edu/instructors/resources/collaborative-learning</p> <p>The Bell foundation. Great idea, collaborative activities: https://www.bell-foundation.org.uk/eal-programme/guidance/effective-teaching-of-eal-learners/great-ideas/collaborative-activities/</p> |
| <p>Examples / Case Studies</p> | <p>Collaborative learning has been implemented at FEI in connection with cycles from the VET cycles of 3D Animation and Audiovisual Design: Collaborative learning was applied in conjunction with other learning methodologies, in particular project-based learning and game-based learning with the approach of problem solving.</p> <p>The case illustrated in e-Craft is 3D recreation of Villarejo de Salvanes Castle, a local heritage protected site. This illustrative case was funded by the Erasmus + project LINCE: 2017-1-ES01-KA202-038724</p> |

PART B – COLLECTION OF TOOLS

Definition of tools: Educational tools are the physical or digital resources used by educators to facilitate learning. These can include textbooks, workbooks, audio and video resources, educational software, and various types of classroom technology such as interactive whiteboards and student response systems.

The fundamental difference between educational methodologies and educational tools is that methodologies are the guiding principles and strategies used to structure the learning experience, while tools are the resources used to implement those strategies. In other words, methodologies provide the framework for teaching and learning, while tools are how that framework is put into practice.

CANVA

GOOGLE DRIVE (GD)

ADOBE ILLUSTRATOR

EDPUZZLE VIDEOS

SERIOUS GAMES

GRAPHICS SOFTWARE

BOX

LINCE



CANVA

| Element | Guiding questions |
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| Short description of the tool | This graphic design platform offers a wide range of templates, design elements, and tools that enable users to easily create professional-looking designs even without prior design experience. It also has a stock of images, icons, and fonts that users can access. |
| Methodology | Canva is useful for a variety of educational methodologies, especially those which involve the use of technology and collaborative learning such as Project-Based Learning (PBL), Personalized Learning, Flipped Classroom, or Distance Learning. |
| Type | Canva may be used before a project starts by providing information, during the project using its multiple features, and after having finished the project to evaluate the final results. |
| Features | <ul style="list-style-type: none"> - Provides a vast library of pre-designed templates for various design types including social media posts, presentations, flyers, brochures, business cards, and invitations which can be downloaded in various formats including PDF, PNG, and JPG, and shared on social media or other digital platforms. - A wide range of design and customization tools including text, shapes, images, icons, and other graphic elements. - Collaboration with others by sharing designs and allowing multiple users to work on the same design simultaneously. |
| Benefits | Canva offers a wide range of tools for creating, editing, and organizing creations. |
| Limitations | <ul style="list-style-type: none"> - Limited vector capabilities to create complex illustrations or graphics. - Limited file types - Limited access to features without a paid subscription. |
| Cost | <ul style="list-style-type: none"> - Free Plan: it offers 250.000 templates and 5GB of cloud storage. - Canva Pro (\$12.99 per month): 75 million premium stock photos, videos, audio, graphics and 100GB of cloud storage. - Canva offers business and educational plans. Teachers are able to use the premium plan for free. |
| Accessibility | Accessibility in Canva |
| Integration | Engaging visual content for their assignments and subjects through presentations, posters, infographics, worksheets, and handouts, collaborative projects or digital portfolios can help students integrate. |
| Support / Resources | <p>Canva has its own resources and support:</p> <ul style="list-style-type: none"> - Canva Help Center - Training: Canva Design School and Canva courses - Canva YouTube Channel - Canva community and Canva blog - Social media: Facebook, Instagram, and Twitter. |



Useful tips/ Recommendations

- Before starting your design take some time to plan out what you want to create, consider the purpose of your design, your target audience, and the message you want to send.
 - Templates can save time and effort.
 - Color and typography are important elements as they can affect how your audience perceives your message.
 - Canva offers a collaboration feature that allows you to share designs with others and work on them together.
- Measurable effects:
- Higher engagement as it will be more relevant to your audience as your design will be visually appealing and easy to read.
 - You will be able to complete designs more quickly potentially increasing your productivity.
- Immeasurable effects:
- Confidence and satisfaction with your design as it will accurately represent your message.
 - Inspiration and creativity as templates can serve as a starting point for your own unique design ideas.
- Impact of good practice:
- Visual brand identity across marketing materials, social media posts, and other designs can be created.
 - Higher-quality designs are more visually appealing and engaging for your audience.
 - A powerful tool for unleashing creativity and exploring design ideas.
 - Through professional-looking designs the image of your project can improve.



| GOOGLE DRIVE (GD) | |
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| Element | Guiding questions |
| Short description of the tool | An online storage platform provided by Google that allows users to store and share files in the cloud which includes online productivity tools such as a word processor, spreadsheets or presentations. |
| Methodology | GD is useful for a variety of educational methodologies, especially those which involve the use of technology and collaborative learning such as Project-Based Learning (PBL), Personalized Learning, Flipped Classroom, or Distance Learning. |
| Type | GD may be used before a project starts by providing information, during the project using its multiple features and after having finished the project to evaluate the final results. |
| Features | <ul style="list-style-type: none"> - GD provides users with cloud storage allowing them to access from anywhere with an internet connection. Also, users can edit their files offline and any changes made will be synced when an internet connection is re-established. - Users can easily share files and folders with others. - GD allows real-time collaboration. - GD has mobile apps for iOS and Android devices, allowing users to access and edit their files anywhere. - GD has robust security measures in place to protect user data, including encryption, two-factor authentication, and advanced phishing protection. |
| Benefits | GD offers a wide range of tools for creating, editing, and organizing documents which enhances efficiency. |
| Limitations | <ul style="list-style-type: none"> - Storage limits. - Internet connection required. - Security concerns. |
| Cost | GD offers 15GB of free storage and the tools offered by GD are free to use, you only need to create a Google account. Also, Google offers business and educational plans. |
| Accessibility | Google Drive Accessibility |
| Integration | GD can improve collaboration, communication, organization, and assessment to help students integrate. |
| Support / Resources | GD has its own resources and support: <ul style="list-style-type: none"> - GD Help Center and GD User Guide - GD Youtube Channel - GD Learning Center and GD Webinars - GD community |

Useful tips/ Recommendations

- Create a logical structure for your files and folders to make it easier to find what you need. Use color coding, labels, and filters to help you stay organized.
- Use Google Drive's collaboration features to work with others in real time. This can improve communication, increase productivity and reduce errors.

Measurable effects:

- Increased efficiency and productivity due to better organization.
- Improved collaboration and communication leading to faster completion of tasks.

Immeasurable effects:

- Reduced stress and frustration due to a more organized and efficient workflow which improves job satisfaction and motivation.
- Increased creativity and innovation due to the ability to easily collaborate and share ideas.

Impact of good practice:

- Improved data backup and security practices can help prevent data loss and damage.
- GD allows for easy collaboration between students and teachers. Collaboration can result in better quality work, increased creativity, and more diverse perspectives.
- GD facilitates students the access to their work from anywhere and on any device. This feature allows for more flexibility in learning which can lead to improved engagement and motivation.
- Google Drive's organizational features can help students and teachers keep track of their work.
- Google is constantly improving and adding new features with the latest technology and innovations.



ADOBE ILLUSTRATOR

| Element | Guiding questions |
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| Short description of the tool | Adobe Illustrator is a software used for image processing and vector graphics that allows users to design any type of graphics intended for any use. |
| Methodology | Work-based learning |
| Type | During |
| Features | The key features of this tool are: ease of use, its versatility and its wide diffusion. |
| Benefits | Students can afford to make mistakes and try letting flow their creativity. The use of software instead of pen and paper mitigates the difficulties given by pure talent and allows greater immediacy and precision. |
| Limitations | The software is licensed and you must be familiar with vector graphics and basic computing. |
| Cost | 24,39€ per month |
| Accessibility | Accessibility includes features that help people with visual, hearing, speech, motor, cognitive, and mobile disabilities. As a result, it also includes the usability of assistive technologies such as screen readers and magnifying glasses with software. |
| Integration | This tool can be integrated into computer science and graphics lab classes to create real or fictitious projects, so that students gain experience. |
| Support / Resources | Adobe provides a user guide at the following link: https://helpx.adobe.com/it/illustrator/user-guide.html |
| Useful tips/ Recommendations | This tool allows students to increase their analytical capacity, understanding if the project is correct or not immediately. The use of the software improves the speed of thought and the readiness to respond to the error. |

| EDPUZZLE VIDEOS | |
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| Element | Guiding questions |
| Short description of the tool | Edpuzzle allows teachers to personalise videos and add interactive elements to ensure that students are watching actively. Videos can be assigned to students and their responses can be reviewed by teachers. In a few words, it is an online video editing and formative assessment tool that lets teachers cut, crop, and organize videos. It also allows teachers to create interactive online videos by embedding either open-ended or multiple-choice questions, audio notes, audio tracks, or comments on a video. |
| Methodology | This is an ideal tool for the blended learning approach and specifically the flipped classroom methodology because it caters for asynchronous, autonomous self paced learning. It provides learners with instant feedback and teachers with feedback on each learner's performance so they can design synchronous class activities with differentiation in mind. |
| Type | This tool is most suitable for flipped learning before class providing diagnostic and formative assessment. However, it can also be used after class for the creation of project products by students individually or in small teams. |
| Features | <ol style="list-style-type: none"> 1. Video editing features: crop, voice-overs, subtitles, audio notes and quizzes (open ended or multiple questions/comments at the same point in the video) 2. Access and organization features: folders, EDpuzzle Chrome extension to online videos 3. Classroom use: Live mode 4. Assessment features: instant feedback to students, reports to teachers, student projects 5. Teacher community features: school channel, free sharing |
| Benefits | <ol style="list-style-type: none"> 1. Teachers have easy access to pre-made videos with embedded questions shared by other professionals in the Edpuzzle platform. 2. The interactive elements of EDpuzzle make students accountable for watching the videos. 3. Teachers can check their progress in the Gradebook and use the data to differentiate tasks appropriately. |
| Limitations | <ol style="list-style-type: none"> 1. Each teacher can store up to 20 videos in their free account. 2. Students need to download the app on their smartphones |
| Cost | Edpuzzle is 100% free for teachers and students. With the free Basic Plan, you can store up to 20 videos in your account. For every teacher referring a colleague who creates an Edpuzzle account, both will receive space for three more lessons. When a school gets a Pro license, admins gain access to curated curriculum for PD and student certifications, the school gets dedicated support, training and coaching, and all the teachers receive unlimited storage space. |
| Accessibility | Edpuzzle's obligation to accessibility is guided by the leading global accessibility standards, including U.S. Section 508 and WGAC 2.0 (ISO/IEC 40500) |



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| Integration | Edpuzzle is readily integrated in Google Classroom and several LMS (Microsoft Teams, Clever, Canvas, Schoology, Blackboard, Brightspace etc) |
| Support / Resources | There are several resources for teacher support and networking presentations, webinars, graded self-paced courses in Edpuzzle use as well as in flipped learning, gamification, self-paced learning, diversity and inclusion and much more. |
| Useful tips/ Recommendations | Comparing Edpuzzle with its top alternatives, it scores higher in course tracking, course management and course authoring because of its ease of use, features and customer service. It is ideal for boosting learner autonomy and engagement as well as flipping the classroom. |



SERIOUS GAMES

| Element | Guiding questions |
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| Short description of the tool | <p>Serious games are referred to as entertaining tools with a purpose of education, where players cultivate their knowledge and practice their skills through overcoming numerous hindrances during gaming. They combine learning strategies, knowledge and structures, and game elements to teach specific skills, knowledge and attitudes. Note that serious games are not necessarily digital. They are a subgenre of serious storytelling, where storytelling is applied in educational environments with the added pedagogical value of fun and competition. The idea shares aspects with simulation, scenario based and experiential learning.</p> <p>Most education games use an approach called game-based learning that combines learning content with game design frameworks such as complex storytelling, rules, game mechanics, art design and interactivity to motivate learning through an engaging format.</p> |
| Methodology | <p>This tool is commonly accommodated within the spectrum of gamification and experiential learning. Nevertheless, it can prove useful in blended learning in the rationale of the flipped classroom, too. Learners can use it as a means for self-study in an asynchronous environment and/or as a collaborative synchronous activity in or out of the classroom.</p> |
| Type | <p>Serious games may fit in the flipped learning cycle as a pre-class activity for diagnostic assessment as well as for boosting motivation in the rationale of the experiential learning model PcaRD (Play, Curricular Activity, Reflection, and Discussion). However, they can also be integrated in the learning design as class activity for scaffolding and as an after-class activity for assessment.</p> |
| Features | <p>Among the most salient features of serious games are:</p> <ul style="list-style-type: none"> - serendipitous or incidental learning where students learn without insinuating a learning goal - in-game learning activities for more creative educational practice - scenario anchors for promoting understanding - collaborative simulation and reflection - promoting thinking skills, problem-solving and creativity |
| Benefits | <p>Enhanced learner engagement and motivation, active learning and self-directed learning that boosts autonomy, instant feedback, implicit learning that help improve attitudes, feedback loops and affective-effective learning that addresses the whole personality. For the teachers, serious games offer learning analytics, measurable outcomes, tracking and reporting for personalisation.</p> |
| Limitations | <p>There is the great challenge for educators attempting to design games tailor made for their classroom need and/or having to select appropriate games. In addition, it has been reported that students who are accustomed to playing games for entertainment will focus more on play rather than learning.</p> |



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| Cost | There are many possible and realistic applications for serious games in education that are freely available on the internet. Besides, there is some evidence that effective serious games can be developed at very little cost. |
| Accessibility | Currently few serious games include accessibility features, while accessibility should be considered at the beginning of the serious game design. However, serious efforts are being made to integrate accessibility features in existing serious games. Developers rely on assistive technologies through software and hardware to achieve greater accessibility in serious games. |
| Integration | The game-based learning materials could be used at the beginning of the unit to arouse students' learning motivation through giving them a quick holistic view of its content. At the end of the course, the teacher and students could then be encouraged to learn with a serious game together in the class to clarify the concepts again, and as a review of the whole lesson. |
| Support / Resources | Most serious games come with instruction manuals and customer service. However, being relatively new, their capabilities are still being investigated. |
| Useful tips/ Recommendations | There is a wide range of serious games available for education aimed at entrepreneurship. Their use allows students to develop skills mainly in terms of innovation, leadership, strategic thinking, problem solving, business launch and risk management. Understanding how a company works cannot be complete without trying to simulate what it is like to be an entrepreneur in real life. Serious games make it possible to apply concepts acquired in class into a virtual environment, while eliminating the risk factor. Check out the Serious Games Guide and the serious game for entrepreneurship here! ● |



GRAPHICS SOFTWARE

| Element | Guiding questions |
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| <p>Short description of the tool</p> | <p>Graphics software allows students to acquire technical and creative skills, to independently, manage the different design processes. It allows you to understand and apply the principles of composition and visual perception, know the most used techniques and technologies and choose them consciously. In addition, the student can learn to effectively use freehand drawing, new technologies and coordinate all the elements of a graphic-visual project from its design to its realization and publication. Through continuous practice and planning, the student can acquire his own creative methodology (design thinking). The activity is carried out inside a co-working space, equipped with specific workstations in which are used, in addition to software, graphics tablets and interactive touch screen monitors, offering simpler management and greater immediacy of use, thanks to the built-in features, maintaining great versatility thanks to the possibility of interfacing with tablets and computers. In the field of training, these tools stimulate learning because they integrate and enrich teaching with the use of images, photos, videos, which can help to deepen and explain notions and concepts. In other words, they are technological tools capable of transforming any subject into a multimedia experience, into a laboratory of creativity, into a collaborative and profitable environment, overcoming distances and going beyond the traditional frontal lesson. Thanks to these powerful tools, lessons enter a new dimension, made not only of words but also of sounds, colors, images, animations and interactivity. The 3D printer is a really powerful tool, because it offers the possibility to build (almost) anything on a school desk. The object created is stored in digital format and can thus be replicated, modified and shared with other classes and even with other schools, generating a wealth of knowledge that will not be lost. 3D printing makes learning active by providing students with direct experience and giving shape to their CAD projects and is also useful to the teacher, because it allows him to set up a "sample" of personalized teaching aids for his class to support teaching. Working with the 3D printer requires students to pay particular attention during all phases of work: an error in the design, in fact, involves the printing of a "wrong" object that does not meet the expected purposes, making it necessary to carry out an in-depth analysis phase and the consequent repetition of the design cycle. This type of approach allows gradual learning based on experience, error and information sharing: this is the well-known "tinkering" logic, a methodology that puts creativity and peer collaboration first.</p> |
| <p>Methodology</p> | <p>These tools are useful for the methodology of design thinking, a problem solving methodology, which is developed through a process focused on the person and on the resolution of complex problems, using a creative vision and management. The use of 3D printer and graphics software is optimally applicable to this type of methodology as they allow to experiment methods of interaction between digital tools and ideas that need new channels to be expressed and to capture attention. Making as "Do It Yourself", learning while building.</p> |

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| <p>Type</p> | <p>The short form of the design thinking process can be articulated in five steps or phases: empathize, define, ideate, prototype and test.</p> <p>Empathise - Learn and gather information about people and their problems, so you have enough data to identify their prospects</p> <p>Define - It is necessary to put together all the information acquired and analyze the data to obtain more insights. In this phase it is necessary to identify and define the common problems and experiences of users, trying to grasp the unmet needs.</p> <p>Designed - Brainstorming information from the previous phases with the aim of finding creative ideas and solutions for the analyzed problem.</p> <p>Prototype - Create a series of solutions to problems in the form of economic prototypes. The goal is to understand what works and what doesn't, thus allowing you to quickly improve the product based on the feedback received.</p> <p>Test - How and how well the product made solves the problem of users.</p> |
| <p>Features</p> | <p>Graphics software are extremely flexible programs for photography, technical drawing, video editing, prototyping of objects, digitized archiving of artifacts, creation of graphic content for the internet, to be chosen according to the type of project to be realized.</p> <p>It should be considered that graphics programs are strongly optimized and, therefore, do not require huge hardware resources to run smoothly, both on the workstations available in the school laboratories, and on the personal devices of the students at home. The external characteristics, referring to the quality of the software, as perceived by the student, are correctness, reliability, robustness, efficiency, usability, eco-compatibility, scalability.</p> <p>The 3D printer allows one-click networking, anytime, anywhere print control, massive patterns, cloud slicing, transfer speed, troubleshooting. The 3D printer is equipped with a flexible heated spring steel platform, which helps reduce model warping and improve its printing effect. The built-in LED light shows the printer's operating status more clearly. Fast hotend replacement reduces the problem of printer clogging and greatly reduces the difficulty of replacing accessories. In addition, it is equipped with a silent chip, which allows you to open the model with a single click, offering a silent printing environment. At the same time, the enhanced fan speed helps cool the model, improves the printing effect and reduces filament consumption.</p> |

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| <p>Benefits</p> | <p>The graphics software has the advantage of virtuously affecting learning, stimulating the student to greater creativity and deeper attention. In other words, it favors innovative approaches to learn by students, helping them during the cognitive path, as the active method of “learning by doing” is applied.</p> <ul style="list-style-type: none"> - Allows speed in the execution of the task. - Opportunity to store and store a large amount of data. - Reproducibility of the material that can be printed and copied indefinitely. - Reworkability or the infinite possibilities of self-correction and modification of the material produced. - Availability of materials; - Possibility of drawing on repertoires of images or symbols contained in libraries within the program itself or the wealth of materials that can be downloaded through the network, thus creating pattern repositories. <p>With augmented teaching, the teaching/learning model is therefore rethought and the inclusion of 3D printing in school programs becomes fundamental. Furthermore, 3D printing is confirmed to be an important tool for educational inclusion and can become a fundamental resource, also for students with special educational needs. Using a 3D printer, in fact, it is possible to create ad hoc teaching aids: students can collaborate in the design and directly help classmates who are in difficulty, thus making the teaching experience inclusive. Can help students to improve collaboration but also enhance storytelling and problem solving activities. Augmented teaching, in fact, develops in particular the skills of spatial reasoning and understanding. When you use a 3D printer, you have the option to print with an incredible selection of materials. Not only different types of plastic, but also metal, filaments loaded with carbon fiber and more. All of them have their own unique mix of properties, which means that if you need an item that is flexible, rigid, heat-resistant, or chemical-resistant, there are options available. 3D printing can turn a theoretical argument into something tangible.</p> |
| <p>Limitations</p> | <p>3D printers are very versatile when it comes to the types of parts they can produce. Depending on the specific 3D printing technology used, parts can be produced in a wide variety of geometries and sizes. However, even for the most advanced 3D printing technologies, geometric restrictions still exist. One of the most important limitations is the physical size of the part that can be printed. Although each printer has its own dimensional limitations, it is generally best to use an industrial printer for larger parts. In addition, one of the best solutions for manufacturing large 3D printed parts is to divide the parts into multiple components that can be printed separately and then assembled after printing is complete. In addition to construction size, another critical factor to consider when designing 3D printed parts is wall thickness. Each 3D printing technology has a minimum wall thickness that must be carefully adhered too to avoid failure of the piece. For most part designs, you can't 3D print very thin walls, unless they are wider than the minimum printable size for each 3D printing technology. Sometimes the software is less effective for addressing issues such as morphing-based optimization, surface machining for feature recognition, or even simply mesh generation.</p> <p>Software is continuously updated to expand its range of possibilities, with direct or contextual variational modeling that is able to modify locally without entering into the merits of the tree of operations.</p> |

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| Cost | The costs of 3D printers vary depending on the specific features and functions guaranteed by the various models of the instrument. The cost, therefore, can vary from three hundred to seven hundred euros depending on the size of the printing bed, the filament (bobina) and the resin (in the case where photopolymerization is used as a printing technology). Usually, the cost also includes teacher training; In this case, the cost of a training course of at least twelve hours must be provided in addition. The cost of the graphics software varies according to the type of subscription and the key validity, starting from 70 euros |
| Accessibility | Accessibility is allowed thanks to the creation of thematic classrooms that can accommodate classes and/or small groups of students, according to an hourly organization according to the teaching environment and the specific needs of the field of study. Integrated educational environments based on the methodology of experiential teaching and engaging activities, dedicated spaces, which, structured as modern STUDIES ROOMS, welcome the workstations of both a FABLAB and a VIRTUAL ATELIER. |
| Integration | These tools develop the active learning of students by facilitating collaboration and interaction between students and teachers; motivation to learn and emotional well-being; peer learning, problem solving and co-design; inclusion and personalization of teaching. They also contribute to developing/consolidating cognitive and metacognitive skills; social and emotional skills; practical and physical skills. |
| Support / Resources | The 3D printer comes with an instruction manual that covers everything related to the printer, from setup, calibration, slicing, printing and troubleshooting. The manual is available in several languages, you gradually learn how to best use the machine, there is also a glossary, since this technology brings with it a variety of terms and definitions of its own, which are important to know, and from there progress. Online knowledge platforms that are an extension of the manual with the latest updates. On youtube you can also access explanatory videos on the operation of the printer. Books and manuals of graphics software are available at a reduced price in all bookstores, with versions and guides also online |
| Useful tips/ Recommendations | The impact of a good practice is designed so that no one can feel different. The fundamental principle of Universal Design for Learning - UDL - is that there is no "average" student and that, on the contrary, each individual learns differently based on multiple factors: physical, emotional, behavioral, neurological and cultural. Introduce a more flexible teaching and assessment methods; create truly inclusive lessons adapted to all types of students starting from the classroom configuration. Students have the opportunity to have: multiple means of involvement, multiple means of expression and multiple means of representation. There are therefore immeasurable effects (increase in skills and academic success, strengthening of students' operational autonomy, reduction of the risk of early school leaving). Measurable effects are detected through the academic results of students (educational outcomes in the various disciplines, in the continuation of studies and up to insertion into the world of work) |



| BOX | |
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| Element | Guiding questions |
| Short description of the tool | <p>BOX is one of the many collaborative tools allowing file sharing in cloud. It allows to share files for the use of different collaborators providing a secure environment anywhere and from any kind of electronic device.</p> <p>Box is accessible from: www.box.com</p> <p>It provides solutions at different level both corporate and for individual users. The simplest solution is offered for free.</p> |
| Methodology | <p>Cloud file sharing tools can be applied to different learning methodologies. It is fundamental for collaborative learning, but also for project-based learning. It is also useful for methodologies that need the interaction of different stakeholders, like work-based learning, if between the school and the working center files need to be exchanged</p> |
| Type | <p>This tool encompasses all the phases of the learning.</p> <p>Before the class it may be useful for the teacher to make available specific resources for the students.</p> <p>During the learning phase in class the tool takes a major relevance, as then it is both teachers and students who can exchange files to reinforce the cooperation.</p> <p>After the period of classes the tool can be also useful to evaluate the learning outcomes, as the finalised works can stay in the BOX platform to be checked by the teacher</p> |
| Features | <ul style="list-style-type: none"> - It is an easy-to-use tool. - It provides a recovery environment to prevent file losses. - Access to the files from any place. - Security by creating and synchronizing backups. - It fosters collaboration between the users. - The possibility to use it with any kind of e-device. - Reduction of investments in physical equipment |
| Benefits | <p>Most of the related features are beneficial to use the tool in class. In particular, when applied to collaborative projects involving teams at different places or activities to be produced out of the class (for instance, cooperation with foreign schools, or collecting visual materials like photos), the virtual collaborative environment is practical to access in class to those materials produced remotely.</p> |
| Limitations | <p>As any other file exchange tool, the limitations concern the appropriate use by the collaborators. To mention the most significant ones:</p> <ul style="list-style-type: none"> - Adequate design of the structure where files will be stored: folders organized per topic, group of students, etc - Management of the uploaded files, including guidelines of the formats, sizes and rights of use of the different files - Frequent maintenance actions like cleaning unneeded files and backing up the most relevant ones. |

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| Cost | The tool includes a version for free use with a limited storage space and a paid version with additional storage capacities |
| Accessibility | <ul style="list-style-type: none"> - The tool can be accessed by any kind of electronic device - The tool can be accessed from anywhere - To access it for the first time, you need to register with a personal email |
| Integration | <p>Cloud file sharing tools are addressed to help collaborative learning, not necessarily to be part of the instruction. They do not require much more competences than using a typical file explorer. Yet, many schools and specially many universities use currently Google and Microsoft learning environments. In the case of Google, Drive would be a similar tool to BOX integrated in Google learning environment.</p> <p>The advantage of BOX, for collaborative learning purposes, is that it is not restricted to a specific environment. For instance, two schools collaborating in the same project can use their own learning environments and share files in BOX.</p> |
| Support / Resources | <p>BOX Is provided with a lot of resources even for the free version. They are accessible online and include, among other:</p> <ul style="list-style-type: none"> resource and knowledge centres - a community of users - a support centres - recorded webinars - demos |
| Useful tips/ Recommendations | <p>For small collaborative activities involving a few partners and a reasonable number of students, BOX can be a useful tool.</p> <p>It is highly recommended that the management of the collaborative space falls on the school, supervised by the teachers in charge.</p> |

| LINCE | |
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| Element | Guiding questions |
| Short description of the tool | <p>LINCE methodological guide is a product of the Erasmus+ funded project LINCE, promoted by FEI and implemented between 2017 and 2019 by partners in Spain, Italy in Poland. It bears the reference: 2017-1-ES01-KA202-038724</p> <p>It illustrates a collaborative learning methodology put in practice by the partners to implement the project.</p> <p>This guide can be downloaded from: https://erasmus-plus.ec.europa.eu/projects/search/details/2017-1-ES01-KA202-038724</p> <p>It provides lessons learnt that could be applied to other school contexts. It combines both collaborative, project-based and game-based methods.</p> |
| Methodology | <p>LINCE guide can be applied in different contexts and to different fields in school. The principles are rooted in collaborative learning, project-based learning and game-based learning. The starting point is to define a common goal to be achieved by the students in the form of a tangible product. LINCE explored the field of results connected to civic institutions, in particular museums and local heritage sites</p> |
| Type | <p>This tool encompasses all the phases of the learning.</p> <p>Before the class it may be useful for the teacher to define the learning objectives and specify the final goal of the project. The guide suggests that the students get in touch with the final beneficiaries, and that the own students define how to approach the intended result.</p> <p>The guide illustrates as well with examples different challenges faced during project implementation, in particular during the work in the classroom where the reality to be analysed can exceed those competences expected for the specific learning level.</p> <p>The guide makes reference as well to the last phases of the learning process where evaluation, recognition of the outcomes, and reflection on the lessons learnt are key elements for the success of the collaborative learning method.</p> |
| Features | <ul style="list-style-type: none"> - It is a tool created by teachers and students for teachers and students. - It provides multiple practical examples. - It is sequentially structured to cover all phases of the collaborative learning process. - It has been validated by representatives of different education levels. |
| Benefits | <p>Most of the related features are beneficial to use the tool in class. The examples can be adapted to different disciplines and education levels.</p> <p>It addresses key challenges encountered during the implementation of a real project. Thus, it is not just a theoretical document, but a document based on the practice of both teachers and students.</p> <p>The method has been adopted in different courses of FEI and other sister schools.</p> |

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| Limitations | <p>The guide refers to specific practical cases in technical studies for audiovisual creation and design. It requires therefore the effort to adapt it to other realities, if intended to be applied in other fields.</p> <p>The implementation of the method and the creation of the tool was sponsored and counted with funds from the European Union. There are phases of the project (the concept, the onsite visits, extra support from the teachers) that may require additional funds for full application of the method.</p> <p>The collaboration described in the guide is both of transnational nature and involved cooperation with local stakeholders as well, in this case municipalities. The cooperation agreements may be difficult to achieve for schools initiating this kind of methodologies.</p> |
| Cost | <p>The tool is offered for free as one of the products funded by the Erasmus + Programme</p> |
| Accessibility | <p>The tool is fully accessible with no restrictions at: https://erasmus-plus.ec.europa.eu/projects/search/details/2017-1-ES01-KA202-038724</p> |
| Integration | <p>The tool can be integrated as part of the curriculum if so wished. It is already part of the methodological resources of FEI and other sister schools.</p> |
| Support / Resources | <p>The guide is presented as is. It does not envisage further upgrades. However, it is accompanied by the rest of the products of the Lince project that can be accessed from the same link that gives access to the Guide.</p> |
| Useful tips/ Recommendations | <p>As indicated before the Guide encompasses all the phases of the learning method, however to adapt it fully to other realities is worth considering the limitations mentioned above. In particular it may be needed to achieve preliminary agreements with other schools and civic stakeholders that can provide a further motivation to the specific goal of each particular case. The guide is oriented to practical real cases.</p> |

PART C – COLLECTION OF GOOD PRACTICES

MUDI

Educational Museum of Ceramics and Porcelain
of Capodimonte

LEARNING INITIATIVES IN CIVIC ENVIRON- MENTS

NATURE AND SHAPES OF GLASS

ELEVATOR PITCH

COLLABORATIVE INTERACTIVE PRESENTATION

| MUDI // Educational Museum of Ceramics and Porcelain of Capodimonte | | |
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| Element | Guiding questions | |
| Type of technique or method | The model of the Caselli Institute is that of School-Factory-Museum and assumes an important social role for the resumption of productive activities of the territory, for training and inclusion, the recovery of dispersion (also active courses for adults) to offer opportunities to needs, bringing them in high-profile international contexts and determining a cul- | tural growth of the context through a system based on design thinking. Both in training and production processes, the possibilities of the material are explored through technique, experience and ingenuity, the management model is, in fact, that of design thinking. |
| Short description of the technique or method | The design thinking method is based on research understood as a practice supported by the study, comparison and exchange of knowledge and is central to the teaching action. The MUDI is an open and dynamic educational and training structure, intended for all those who cultivate interest in this universe: simple experts, artisans, designers, historians, teachers and, above all, it is intended for the students of the Institute. A place of communication and exhibition of artifacts not only and not necessarily of "art", but significant of the transformations of taste, of the de- | velopments of techniques and technologies, of operating and production systems. Not a set of objects to be preserved and displayed, but an exhibition in progress that develops gradually and updates continuously, whose mission is aimed at educating and forming taste, to appreciate the dexterity and perfection of doing "in a workmanlike manner". A dynamic exposure constantly updated hand in hand with acquisitions and with the changing scenarios of use and customs, with the changing of the market. |
| Target audience | The MUDI is not only a museum of internal utility, but integrated into the Neapolitan Museum System, which exhibits products, tools, models, shapes, work tools and educational panels to the public. A physical space that | collects not only the history but also the most significant experiments produced as part of the School's training activities, open to anyone who wants to visit it. |
| Thematic Area | Architecture and entrepreneurship are the main thematic areas of our good practice. The school, in fact, was not only born as the only center in Italy institutionally responsible for the preparation of qualified personnel | and technicians specialized in the ceramics and porcelain sector, but also with a specific mission: to promote, study and protect the ceramic tradition of the territory by relaunching, in particular, the production of porcelain. |
| Introduction | The challenge faced, starting from 2017, was to create a new school structure, more articulated and consistent that allowed the organization of laboratories for manual skills and research better equipped, as well as teaching and collaboration, as "experts", illustrious masters and designers. The presence of university professors, experts and researchers in vast scientific fields of interest has been | encouraged. In this renewed context, the institute consolidated its configuration within a few years. In addition to the training activities characteristic of the School, the participation and organization of events and exhibitions in Italy and abroad and international awards have been added for the external verification of the esiti and for the recognition of the path of quality and excellence. |

MUDI // Educational Museum of Ceramics and Porcelain of Capodimonte

| Element | Guiding questions | |
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| <p>Where the good practice takes place (Description of organization)</p> | <p>The school offers opportunities for personal and professional growth to students to look out and relate to the contemporary market. Students study and collaborate with big names in the design world, with companies and schools in Italy and in the world, for example in China or Denmark. Students are also supported thanks to the income from production or participation in public tenders, they are followed even after the course of study with a job placement work in synergy with the companies in the sector that in turn are helped by offering specialized internal skills, structures and tools through the project of the Civic Oven, projects to be developed together and the possibility of having spaces to convey their productions with exhibitions, fairs and participation in partnerships and projects.</p> | <p>Scholarships from partner associations (e.g. Fondazione Cologni) and entrepreneurs have been allocated to young people who come from disadvantaged and deprived contexts both culturally and economically to promote their educational integration and training with the provision of economic support. In this way we support the recovery of the productive activities of the sector, generating a virtuous circle between training and work, updating skills and renewing the human resources made available to companies, to prevent the ancient shops from dying, re-launching the image of Capodimonte porcelain internationally, recovering the interest of the market, safeguarding and enhancing the tradition of the place and a history that lasts from the '700.</p> |
| <p>Context</p> | <p>The Istituto ad Indirizzo Raro Caselli and the Real Fabbrica di Capodimonte have conquered the role of animation center of a network so structured and functional as to be able to start and promote, already in the short term, virtuous processes of training, deepening of research, innovation and development</p> | <p>of products, collaboration with the art world, with galleries and artists, specialization of skills, to boost the ceramic production chain, starting from young people in training and intervening in a broad and significant way on the redevelopment of the economic and social fabric.</p> |
| <p>Objective</p> | <p>The aim, of fundamental importance, is to orient the taste of the public, that of artisans and students, on transformations, to orient to understand also the design management strategies at a tactical and operational level and to:</p> <ul style="list-style-type: none"> - identify market opportunities in relation to trends; | <ul style="list-style-type: none"> - translate trends into innovative products and services; - position itself on the market at the design level; - adopt a correct brand communication; - better understand the contents and methods of expressing, through the new, the values of past traditions. |
| <p>The description of the technique or method</p> | <p>For the realization of a program flow process, the Institute's stable plant is flanked by a function gram composed of internal and external figures according to the Design Thinking Model with teams composed of different functions (according to the nature of the project) and any key extra-company actors (customers, suppliers, partners, etc.) under the guidance of a "Project Leader". The organizational articulation is in area groups</p> | <p>(basic cultural, technical, professional and transversal), constituted as working groups, in which each teacher participates with the contribution of their professional skills, of a disciplinary and methodological nature. The organizational structure also includes a Technical Scientific Committee, with advisory and proposal functions, aimed at creating training alliances in the territory with the world of work, professions and research.</p> |

MUDI // Educational Museum of Ceramics and Porcelain of Capodimonte

| Element | Guiding questions |
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Benefits of the technique or method The concrete impact of good practice and its benefits, measurable with distance results (ratio of graduate students – insertion into the world of work and / or continuation of studies), are: Proactive dissemination of a culture of innovation; Competence for life: creativity, communication, responsibility, etc.; Increase in the potential of work and entrepreneurship; Social innovation for the improvement of the community and the territory; Positioning for European programmes.

Success Factors A necessary condition for good practice to be replicated is to rethink the organization of learning spaces and environments, be available for change, pay constant attention to the quality of one’s educational and training offer, using techniques, methodologies, procedures, organizational and operational models that respond to the principles of efficiency and effectiveness and aimed at continuous improvement. Each school must define its own cultural and design identity, in order to provide its users with a quality service. This commitment involves significant changes in the exercise of the professional profile of all school operators who become decision-makers open to dialogue and negotiation with students, families and the territory, but who must also be able to reach a synthesis of the different instances, arriving at a valid training proposal aimed at the development of the person. It is necessary, therefore, to open oneself to research and comparison, giving rise to a dense network of relationships indispensable for reaching a synthesis from which all the subjects, who have helped to define it, feel represented and linked.

Constraints The real challenge concerned the ability of the school system to keep pace with social change, the contribution that school education can give to the construction of active and aware citizens, the connection between school culture and individual and social needs: in practice, the connection between school and reality. It is also true that change is inherent in human experience; The educational task is to govern change in the light of an existential project and the values that inspire it. The educational practices have involved attention and commitment on the part of the various subjects with support functions and targeted intervention, with a view to a shared and responsible involvement. The work of promotion, mediation and implementation of specific activities was the prerogative of the school Director who, through the involvement of the entire school organization, guaranteed the success of the training and growth of all students, without exception. It was a real process of inclusion of the various individual needs, focused on the educational project to be built, however, in collaboration with all the actors of the school community seen as an educating and inclusive community. The implementation of teaching practices and strategies have been addressed with objective feedback through the interpretation, explanation, understanding and scientific re-elaboration of the same.

Lessons learned Key messages and lessons learned include: **RELATIONSHIP WITH THE EXTERNAL SYSTEM:** the school is an institution in relation to the socio-economic context and the territory in which it operates; **ORGANIZATIONAL CONFIGURATION:** an autonomous socio-organizational system configured according to the network model; **KNOWLEDGE MANAGEMENT:** the school is a place of knowledge creation, where one learns the management of the wealth of knowledge essential for the growth and development of a free individual. Teachers, in the first instance, must move in the field using reliable, transferable, and expendable knowledge in operational policies; In essence, it’s like they’re doing field research. The teaching activity certainly has a strong social impact and, therefore, also in the educational field, this activity must pass through a complete explanation of its value and scientific assumptions, of the methodologies and criteria used

MUDI // Educational Museum of Ceramics and Porcelain of Capodimonte

| Element | Guiding questions |
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| | <p>and must follow well-defined procedures, to present itself transparent to external evaluation, allowing forms of comparison of the results obtained with other teaching methodologies and, therefore, favor the capitalization of the results.</p> |
| <p>Sustainability</p> | <p>It is necessary to put in place a set of elements that represent qualifying aspects of good practices for education for sustainable development: transferability, relevance, capacity building, user friendly practices, innovation, partial versus global approach.</p> <p>In the didactic activities the focus is on the construction of skills and the learning process, developing not only technical skills but communication and problem-solving skills. Students become protagonists of the learning process and of the interaction between universities and civil society. New project working methodologies characterize teaching as well as attention to information and communication technologies. Cross-cutting aspects such as networking skills and interdisciplinarity were also considered. Partnerships and networks can be established between universities, between them and civil society or businesses. The level of integration can range from the exchange of experiences to the sharing of knowledge to the joint pursuit of common goals. Among the partnerships, it is important to highlight the relationships that can be established between universities and local communities, for example by highlighting the role that sustainable campuses can have to improve the quality of life of the urban neighborhoods in which the university is located or the importance of extra-curricular activities carried out by students in favor of local communities.</p> |
| <p>Transferability</p> | <p>The elements that can be replicated in other contexts through a systemic approach are:</p> <ul style="list-style-type: none"> - Didactic-innovative material for learning problem-solving, creativity and innovation; - Integrated physical-virtual environment for the conception and implementation of projects; <ul style="list-style-type: none"> - Space that unites the school and the territory with the different communities; - Active, experiential and self-organized learning; - Training of teachers and animators throughout the territory; - Involvement of all local stakeholders |
| <p>Conclusion</p> | <p>The Giovanni Caselli Institute is heritage, an asset to be valued and relaunched according to the ancient tradition of Bourbon manufacturing which is currently matched by a production reality with numerous companies that still produce porcelain also for the foreign market, where the name of Capodimonte is synonymous with quality Italian ceramics, with a high driving power for all national production, contributing more to the phenomenon of "Made in Italy". Here the usefulness of good practice is precisely that of formare and support a new generation of masters of art, to promote and protect the great Italian heritage of culture, beauty and know-how, even in other contexts. The impact is that of a project that can tell the most emblematic stories of the territories and traditions, innovations and awards that make Italy similar to a great forge of beauty, replicable also in other training sectors.</p> |



| Learning Initiatives in Civic Environments | | |
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| Element | Guiding questions | |
| Type of technique or method | Collaborative learning, in conjunction with project-based learning and game-based learning. | |
| Short description of the technique or method | Method was structured in two parts related to solving specific problems. 1st part: Modelling and Texturing Villarejo de Salvanés castle. | 2nd part: 3D game recreation of Villarejo de Salvanés castle. The two parts of the initiative followed group collaborative activities. |
| Target audience | The method was addressed to students of the last course in the VET cycles of 3D animation and audiovisual design. | |
| Thematic Area | The thematic area is local heritage preservation, including subjects of art, design and digital resources creation. | |
| Introduction | The initiative arose from the cooperation with the municipality of Villarejo de Salvanés, which wanted to bring closer to the citizens a piece of preserved local heritage: the castle set on this town in the East of Madrid. The task was entrusted to several groups of students from the CampusFP network, a net- | work of VET centres supported by FEI. This task was approached as a graded collaborative learning project associated to the final course of the VET cycles of 3D animation and audiovisual design. Some fifty students took part working on the different components of the project. |
| Where the good practice takes place (Description of organization) | The promoter of the initiative was FEI, through is vocational training in Getafe, Spain. Another VETs centre of the CampusFP network placed in different municipalities Madrid cooperated in the initiative (Humanes, Arganda and Leganés). The project was sponsored by the Municipality of Villarejo de Salvanés, through the local | development agency ARACOVE. This initiative was implemented with the support of the European Commission with funds from the Erasmus+ project LINCE (Learning Initiatives in Civic Environments), with reference: 2017-1-ES01-KA202-038724 LINCE project encompassed three similar initiatives in Spain, Italy and Poland |
| Context | This experimental initiative was born with the idea to contribute to the development of relationships between VET centers and institutions that promote the employability of students who are studying VET cycles. During the first year, the students of Campus FP were commissioned to recreate a historical-artistic complex framed in the Madrid town of Villarejo de Salvanés. This complex | was made up of a castle with its most defining elements: tower, defensive wall, battlements, parade ground, etc. To carry out the initiative, the students had the advice of historians and other external sources who provided the documentation to date all the objects that could be used in said environment. |

Learning Initiatives in Civic Environments

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Objective The main objective of this project was the collaborative creation of tangible semi-professional audiovisual products by VET students, contributing to the grading of their Final Project and which were subsequently disseminated as open resources at a European level to credit their competences for employment purposes

The description of the technique or method The students began the collaborative process of cataloguing, sketching, and conceptualizing all the necessary elements. They prepared an action plan divided into two phases: three-dimensional modelling and texturing. Once the work plan was set up by the students, the teachers coordinated the harmonization of tasks that defined the work of the five VET centers involved. This implied the creation of the subgroups and the specific task division among them, as a basis of common discussions between teachers and students.
The main activities of the work plan were:

Phase 1
Project planning
Environment recreation
Modelling and texturing of historical objects
Creation of a catalog of 3D models

Phase2
Project planning
Conception of an audiovisual game
Combining the models created in phase 1 in the plot of the game
Interactive video game programming

The work plan was implemented in two years from the end of 2017 to the end of 2019.

Benefits of the technique or method Qualitative indicators
1.- We increased the quality of our VET programmes bringing them closer to the students' interests and to the possibility to get a job once they are completed.
2.-We promoted entrepreneurial skills with our collaborative learning approach to enable the students to reflect on the possibilities to build up their own jobs
3.- We strengthened the relationship between VET programmes and civil society institutions, in particular at regional level, and we fostered local development
3.- We attracted new students to the VET system by adapting the methodology of the instruction to more tangible learning outcomes from the perspective of the students

Quantitative indicators
1.- More than 500 VET students were involved in the initiative in Spain as direct actors or benefitting from the results in subsequent courses.
2.-30 civil society institutions involved in LINCE project during the phases of conception, implementation and dissemination.
3.- 5 VET centres have received LINCE collaborative learning methodology for testing and at promotional events

Success Factors In line with the challenges of the collaborative learning method, the following factors contributed to overcome them and bring the experience into success:
The motivational effect has been achieved by the incorporation of two innovative aspects:
1.- To link the students' project to Civil Society institutions, providing this way a stronger value where the benefits expected are not only addressed to the learning process of the students, but also to the society in general.
2.- To add, through the power of digital tools, a transnational value where the students have been able to cooperate with students in other two European countries, sharing their experiences and seeing recognized the effort of their work.
The partnership gathered a lot of experience in promoting self-employment measures for VET students, which backed up the work of the teachers involved in the initiative facilitating the access to external resources.
The support of the European Commission both with funding and with the endorsement of the project provided both teachers and students with the recognition to be involved in a meaningful activity on which significant resources were deployed.

Learning Initiatives in Civic Environments

| Element | Guiding questions | |
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| Constraints | <p>The students, in the beginning, experienced moments of bewilderment. The treatment of historical information, the research process and the choice of designs, gave rise to many doubts and insecurities, which they overcame with dedication, and the development of problem-solving skills.</p> <p>Teachers, who accompanied the students in this work, supported the creative decisions, advised the best solutions and collaborated so that the realization was successful. All this, without undermining the instruction of the modules that make up the course of the 3D Animation VET Cycle. Extra dedication was also the key solution found by the teachers.</p> | <p>The project was stopped from time to time due to administrative aspects related to the supporting institutions, or bad weather on the days where pictures should be captured on the spot. This circumstances arising in real situations were also a source of uneasiness between the students, who needed to adapt to changing plans.</p> <p>In the second phase, a good deal of time was devoted to adapt the scope of the final products (the video games) to the level of knowledge and competences required in the instruction plan. Both teachers and students needed to find adequate solutions.</p> |
| Lessons learned | <p>Collaborative learning provided a learning experience beyond the initial expectation of teachers and students. Being immersed in a project with a tangible goal to be shown to other people (even at international level) was a strong source of motivation.</p> <p>Students reported to be used to deliver works "according to the book", whereas working on real scenarios triggered much more complex situations not to be found in any book (incom-</p> | <p>plete data, different approaches to the same problem, the need to search for additional information...).</p> <p>The importance of recognition of the skills gained was another of the lessons put forward by the students. They felt proud to present their products to other students a bigger audiences. In particular, they felt more secure when writing their CVs or approaching a company to seek for a job.</p> |
| Sustainability | <p>The approach to the sustainability of the initiative was approached from the following angles:</p> <p>1.- Visibility. In order to be sustainable the initiative needs to be known. For this purpose, the final results were shared not only through official channels (like the Erasmus + platform), but also on more general purpose channels like Youtube, and the own books or social networks of the students.</p> <p>2.- Involvement of a critical mass of practitioners. One of the key efforts of FEI, as promoter of the initiative, was to extend it to the net-</p> | <p>work of VET centers it belongs to.</p> <p>3.- Civil support. The relevance of the collaborative work gains with the impact it makes on the society. Both citizens, teachers and students got to know other realities on account of the project. The model can be transferred this way to other similar realities</p> <p>4.- Benchmarking success. Successful experiences are usually recognised externally when properly promoted. The experience triggered the possibility to find funding for a second leg, based on the obtained results.</p> |
| Transferability | <p>Transferability was a key cornerstone of the sustainability of the initiative. Both the method and the results were transferred to other Vocational Training schools. Transferability is not restricted by the target level of education. It can be perfectly adapted to school education or higher education. As referred in the section</p> | <p>on difficulties, one of the main challenges is to adapt the goal of the collaborative project to level of knowledge and competences sought at a particular level of education.</p> |

Learning Initiatives in Civic Environments

| Element | Guiding questions |
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| Conclusion | <p>Collaborative learning in a real environment opens up many possibilities for students:</p> <ul style="list-style-type: none"> - Because it constitutes a potential source of future employability, with great capacity for expansion. - Because the students involved are direct protagonists of a process and a real work methodology, which marks a point of inflection in their learning process. <p>- Because this way of doing things is used in the professional environment, and at this moment of learning it allows identifying strengths and weaknesses, relying on resources, coordinating actions, managing time, etc.</p> <p>- Because it allows the student to improve management and organization skills, define responsibilities and functions within the group, and because it supports their personal training</p> |
| Related resources that have been developed | <p>All the official products of the project can be fetched from here: https://erasmus-plus.ec.europa.eu/projects/search/details/2017-1-ES01-KA202-038724.</p> |
| Language(s) | Spanish, Italian, Polish and English. (but not all resources in all languages) |

Guidelines for transferring to primary/secondary education

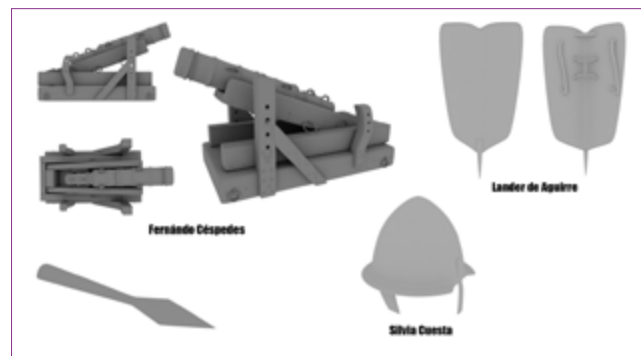
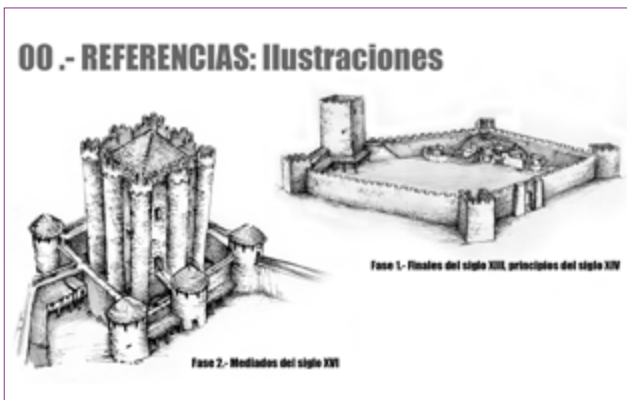
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| Transfer possibilities to primary/secondary school environment | <p>This initiative was developed in the context of VET initial cycles and, thus, it can be directly transferred to the secondary school environment.</p> <p>Regarding primary school, the key factor is to find tangible results that can adapt to the level of knowledge and competences sought for particular subjects of this education level. The main challenged have been defined in this document. They relate to:</p> | <ol style="list-style-type: none"> 1.- The facility the appropriate group dynamics, supporting those students that may be reluctant to actively participate. 2.- To redefine the role of the teacher as facilitator, ready to intervene to solve conflicts and to guide the actions when the group may be blocked. 3.- To find an adequate surrounding environment, with the cooperation of civil institutions that may encourage the students to think about the project results as something with a real impact for others. |
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Summary

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| Please provide an extensive summary of the technique/method | <p>Learning Initiatives in Civic Environments is an illustrative example of Collaborative learning, in conjunction with project-based learning and game-based learning.</p> <p>It was implemented by E-CRAFT partner organisation FEI, with the support of the Erasmus + project between the years 2017-2019. The method was addressed to students of the last course in the VET cycles of 3D animation and audiovisual design, on the theme of local heritage preservation, including subjects of art, design and digital resources creation.</p> <p>The initiative arose from FEI cooperation with the municipality of Villarejo de Salvanés,</p> | <p>which wanted to bring closer to the citizens a piece of preserved local heritage: the castle set on this town in the East of Madrid.</p> <p>By match-making the goal of this municipality with the knowledge and competences required in the referred VET cycles, the students accomplished learning tasks geared to tangible products: a catalog of 3D models plus a virtual game recreating those models in 3D.</p> <p>Some 50 students from different VET centres were directly involved in all the phases of the initiative, which has been transferred already to more than 500.</p> |
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| Nature And Shapes Of Glass | |
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| Element | Guiding questions |
| Type of technique or method | Experiential Learning or Learning by doing |
| Short description of the technique or method | Learning process that underlies teaching experiential. Students learn by re-elaborate some real experiences, and apply them to future experiences. |
| Target audience | Students between 16-19 years old |
| Thematic Area | Art and design |
| Introduction | <p>The project has the aim to know the nature and complexity of glass, exploring its material through practice; use the skills acquired in the educational path through graphic tools; develop the idea and realize the project in the glass laboratories.</p> <p>Context and starting point: Knowing the history through the Murano glass tradition, the art of the masters and the technical transmission of knowledge.</p> <p>Challenge: reinterpret in a contemporary way the classic Venetian chandelier "Rezzonico". Get involved, be able to rework ideas and consolidated forms into something new, also confronting established artists who have made the same path.</p> |
| Where the good practice takes place (Description of organization) | <p>Partners in the context of the tradition and production fabric of Murano are glass masters of new generation, with an entrepreneurial approach.</p> <p>The Institutions are Promovetro Consortium, Fondazione Musei Civici. They collaborate, disseminate, participate in projects and works.</p> |
| Context | <p>The idea of experiential practice comes from the artistic glass laboratory. It with, specific subjects, provide the students the basics of design and drawing.</p> <p>Teachers of technical and artistic subjects interact with proposals that are learned through discussions and reflections.</p> <p>The problems that emerge are sometimes related to the impossibility of realizing the idea presented, (for example the complexity of the structure), the lack of adequate time and the difficulty of being able to reconcile laboratory activities with curricular subjects.</p> |
| Objective | <p>Unlike classic and traditional learning methodologies, Experiential Learning is a teaching methodology capable of facilitating learning. By virtue of this, the main objective of our project is to develop creativity in the artistic and glass sector, enhance the skills of the students and their artistic skills and potential through direct experience and teamwork, according to future growth in work and entrepreneurial spirit.</p> |

Nature And Shapes Of Glass

| Element | Guiding questions |
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| The description of the technique or method | <p>The students designed a work using the knowledge and skills acquired during the years of attendance of the school (glass processing, chemical-physical characteristics of the material, hand or digital graphic processing).</p> <p>Stages of work: From a first brainstorming to the consultation of historical photos and archival materials up to freehand or computer (digital) drawing. Development of one's own idea, planning in the work phases assisted by laboratory teachers as facilitators, realization and finishing of the pieces, assembly of the installation, presentation of the works at the end of the year. At this point, students have to rethink and rework the designs, correct their mistakes, and to create new prototypes if is needed. They do it without the intervention of the Master who, however, follows and assists them to a new installation. In this way, the experience becomes extremely interesting and exciting for students who, feeling directly involved in the process of making the chandelier, they are attentive, thoughtful, motivated and determined.</p> |
| Benefits of the technique or method | <p>The participation in the project is the fulcrum of the training activity of the Abate Zanetti Institute. Students of the various classes learn through cognitive, sensory and emotional activities thank to laboratory practice. This activity enhance student personal growth, and their entrepreneurial spirit.</p> |
| Success Factors | <p>The success factor is possible thanks to a school path of gradual growth during which, the technical skills acquired and the knowledge of the materials favor the autonomy and artistic maturity of the students. They are inspired by the geocultural context that favor the dialogue with the reality of glass in a continuous and fruitful exchange between institutions such as Confartigianato and Promovetro or possible exhibitions at the Fondazione Musei Civici.</p> |
| Constraints | <p>During the application of good practice, issues emerged. For example, the difficulty in realizing one's own ideas or problems that arise during the project realization. To these critical issues we tried to respond with reflection, re-elaboration and intervention on the errors committed in the execution.</p> |
| Lessons learned | <p>The importance of getting out of the logic of frontal teaching and theoretical lessons to open up to the educational exchange in practical experience, enhancing creative potential. Students experience their willingness to find, as many solutions as possible that can integrate practicality in processing, simplicity and aesthetics, committing themselves to reason and propose choices that are correct and feasible, encouraging themselves and overcoming fears and insecurities, sharing their ideas with the class group and stimulating peer comparison in relation to active listening. From the respective feedbacks, emerge new ideas, stimuli, desire to do, to compete and achieve the set goals.</p> |
| Sustainability | <p>The elements to be put in place concern the resources of the school, any sponsors or scholarships, paths for transversal skills and orientation. (PCTO)</p> |

Nature And Shapes Of Glass

| Element | Guiding questions |
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| Transferability | Teamwork, time building, creative experiences with the possibility of achieving a goal and the creation of a product to be exhibited, promoted. |
| Conclusion | The positive impact of this good practice led young students with transversal skills (digital and communication and marketing) to deal with a concrete job. They follow a path that also bring them into the future work. |
| Related resources that have been developed | Videos of glass masters and laboratory techniques, manuals created in the school, illustrated texts of design, history and glass art in the library, school website. |
| Language(s) | Italian and English. |

Guidelines for transferring to primary/secondary education

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| Transfer possibilities to primary/secondary school environment | The experience of the good practice of the Abate Zanetti Institute can be transferred to other schools as long as there is a design cooperation of artistic subjects, creating laboratory paths in which the students with their individuality, work in groups, and they are assigned with a task by reviewing their project on various occasions, repeating experiences and correcting their mistakes. |
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Summary

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| Please provide an extensive summary of the technique/method | <p>The project is part of the general project of the PTOF The nature and forms of glass that originates from the first knowledge of the subject to arrive at a realization of conceptual works. Idea: start from a classic chandelier and revisit it in a modern and more artistic (therefore symbolic and conceptual) way in the form of an installation.</p> <p>Phase 1: dialogue between tutors and students in an extemporaneous form. In this phase ideas, imagination, creativity and desire to get involved are stimulated;</p> <p>Phase 2: interventions to mitigate some ideas that are impossible to realize. Correction consist in compromises that do not distort the initial project, or betray their idea of initial creation;</p> <p>Phase 3: resolution through a reworking that may differ from the initial idea without however distorting the aesthetics that remains the total prerogative of the students.</p> <p>When the realization of the project begins, the class is divided into three working groups.</p> | <p>Each one have to develop a different project in a graphic key inspired by the elements of nature and particularly innovative forms. This first step is entirely dedicated to freehand drawing/sketching and, subsequently, on a (digital) computer.</p> <p>Each group describes its own drawing by showing it to the tutor and classmates.</p> <p>The reflection phase is started, during which ample space is reserved for previous experiences, the possibilities of carrying out the work and the expected results.</p> <p>The actual construction phase start, which ends with assembly and installation.</p> <p>The teacher is a tutor and the students work in the field, improving from time to time and learning from their mistakes.</p> <p>The techniques adopted are glass foiling, blowing and sculpture in the furnace.</p> <p>The duration of the project reflects the school year. The process of maturation and experiential growth begins already in the laboratories of the early years and begins with the processing of lampworking where, in miniature, forms of glass fusion are developed with which fusions are experimented at different temperatures and cooking curves.</p> |
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| Elevator Pitch | |
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| Element | Guiding questions |
| Type of technique or method | An elevator pitch is an educational communication technique used in the entrepreneurial and business environment to convey an idea, project, or business effectively in a short period of time. |
| Short description of the technique or method | This technique aims to capture the attention of the person with whom you are speaking, create interest and curiosity about the project and generate a positive impression. Therefore, the "elevator pitch" focuses on developing communication and persuasion skills to get the audience interested in the project and potentially become a customer, investor or ally. |
| Target audience | This communicative technique is aimed at a potential audience that is likely to be interested in the project. |
| Thematic Area | An elevator pitch can be used for any educational area as long as it meets the requirement of being a persuasive speech. |
| Introduction | It should be noted that CAUDE is a school. Therefore, the use of the elevator pitch, in this case, focuses on improving the communication skills of the students, their argumentative ability, and their creativity. |
| Where the good practice takes place (Description of organization) | Just teachers and students are involved in it in an educational environment. |
| Context | The students will not only improve their communication skills, creativity, and argumentation but also learn the content since they will have to research and know everything related to the context of the topic chosen for the elevator pitch in an educational environment. |
| Objective | The aim is to speak effectively to a potential audience that is likely to be interested in a project in the current educational project. |
| The description of the technique or method | First, the topic will be chosen and then, as a group, the students in the class will start a brainstorming session to leverage their creativity and imagination. Then, the students must prepare a script for the speech and a draft of the performance taking into consideration everything they will need. In the group, different roles can be established such as grammar and spelling correctors, context and audience checkers, directors, scriptwriters, spokespersons, editors, etc. |
| Benefits of the technique or method | <p>Measurable effects</p> <ul style="list-style-type: none"> - A memorable, clear and concise pitch can help spread the word about your idea. <p>Immeasurable effects</p> <ul style="list-style-type: none"> - Practicing and delivering an elevator pitch can help build confidence in communicating ideas. - The process of crafting an elevator pitch can <p>help identify potential opportunities for ideas or projects.</p> <p>Impact of good practice</p> <ul style="list-style-type: none"> - By practicing and delivering an elevator pitch, communication can be improved effectively and efficiently. It also develops creative thinking and encourages innovation by challenging to think outside the box. |

| Elevator Pitch | |
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| Element | Guiding questions |
| Success Factors | <ul style="list-style-type: none"> - Sharing the message on social networks is particularly important for students who need some feedback and assessment. - A quiet and peaceful setting can help individuals to be focused on and communicate their message clearly. The use of technology or visual aids can help to enhance the effectiveness of the pitch. |
| Constraints | <ul style="list-style-type: none"> - The primary challenge of an elevator pitch is that it must be delivered in a very short amount of time: no more than a minute. - Crafting an effective elevator pitch requires the speaker to communicate their message clearly and concisely, which can be challenging, particularly if the message is complex or technical. The speaker must make a lasting impression to be distinguished from others. - Many people may feel nervous or anxious when delivering an elevator pitch particularly if they are speaking in front of an audience. |
| Lessons learned | <ul style="list-style-type: none"> - Keep it concise - Focus on the problem - Know your audience - Be passionate and enthusiastic - Practice and gain confidence - Be open to feedback |
| Sustainability | <ul style="list-style-type: none"> - The elevator pitch should be inclusive and sensitive to social and cultural differences. - The organization should consider the environmental impact of delivering the pitch by using sustainable materials and reducing energy consumption during the delivery process, and minimizing waste. |
| Transferability | <p>Several elements from the elevator pitch technique can be transferred to other contexts:</p> <ul style="list-style-type: none"> - In an elevator pitch the speaker must be concise and clear about their message to communicate complex concepts in a way that is easily understandable. - To grab the listener's attention during an elevator pitch the speaker needs to be engaging and dynamic using various techniques such as multimedia presentations, group activities, and storytelling. - In an elevator pitch the speaker needs to understand their audience and tailor their message accordingly. - In an elevator pitch, the speaker focuses on the benefits of their product or idea. - In an elevator pitch, the speaker typically ends with a call to action, urging the listener to take a specific action. |
| Conclusion | <p>The good practice of an elevator pitch can have a significant impact on individuals and multiple organizations, helping them to communicate more effectively, develop important skills, and create new opportunities.</p> |
| Related resources that have been developed | <ul style="list-style-type: none"> - Elevator Pitch Handbook - The Art of the Elevator Pitch: Udemu online course - Elevator Pitch Examples - Pitch creator - For Spanish speakers, there is an amazing example developed by EduCaixa: EduCaixa Pitch but there are other examples such as The Elevator Speech in English. |
| Language(s) | All languages, depending on the target audience. |

Guidelines for transferring to primary/secondary education

Transfer possibilities to primary/secondary school environment

Introducing the practice of an elevator pitch to a primary school class could be a challenge as it requires a high level of communication skills and advanced language use. However, the original idea of the elevator pitch could be adapted to a shorter speech for younger children. Regarding secondary school, the practice of an elevator pitch can be transferred through the following steps:

- Starting by introducing the concept of an elevator pitch to the class is necessary.
- Providing examples of elevator pitches.
- Students should brainstorm for their own elevator pitch idea.
- Once students have developed their ideas, they are able to start creating their pitches under guidance.

Summary

Please provide an extensive summary of the technique/method

An elevator pitch is an educational communication technique which can also be used in the entrepreneurial and business environment to convey an idea, project, or business effectively in a short period of time.

This technique aims to capture the attention of the person with whom you are speaking, create interest and curiosity about the project and generate a positive impression. Therefore, the "elevator pitch" focuses on developing communication and persuasion skills to get the audience interested in the project and potentially become a customer or investor in the future.

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| Collaborative interactive presentation / A product presenting the process and the outcomes | | |
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| Element | Guiding questions | |
| Type of technique or method | Within the scope of the methodology of flipped classroom and project based learning, we can use the technique of collabora- | tively creating an interactive presentation of the learning process and outputs. |
| Short description of the technique or method | Student presentations that are collaboratively created at the end of a learning scenario are an excellent tool for peer learning and assessment. If they are made interactive, they serve the goals of the blended learning approach; especially in the rationale of the flipped classroom. After synchronous work in the class- | room students collaborate asynchronously to create interactive online presentations of the thematic content of the learning unit and their learning paths. The outputs of each team can be peer assessed and the feedback can serve for improvement. |
| Target audience | This technique is addressed to learners of all ages in active learning environments using technology and group work. | |
| Thematic Area | Young entrepreneurship | |
| Introduction | This technique is commonly used as the final activity in a flipped learning cycle as a collaborative task that leads to the final peer assessment. After asynchronous self-study about entrepreneurship and synchronous group work on experiential (such as serious games) and inquiry based activities (web quest and interviews) in and out of the classroom, learners were assigned the task of incorporating the newly acquired theoretical knowledge as well as their research findings in an interactive | presentation collaborating (a)synchronously online. With this practice we hoped to facilitate the learners to better understand the nature of entrepreneurship, motivation, skills and the steps that a startup should take in Greece in a peer learning process, to boost their creativity and communication skills. Moreover, they benefited from the peer assessment activity that followed enhancing their critical thinking skills. |
| Where the good practice takes place (Description of organization) | This activity took place at home and at school while its content was drawn from interaction with real life entrepreneurs within the local community. The students presented their interviews with the local entrepreneurs and the insights into starting a business in Greece by collaboratively creating an interactive presentation. | |
| Context | The students participating in this activity were involved in an Erasmus + KA229 school partnership aiming at developing sustainable entrepreneurship in their region and had to design virtual enterprises for sustainable tourism as realistically as possible. | |
| Objective | The main aim of this technique is to transfer the learning from the previous activities (Acquisition, Inquiry, Discussion, Practice) into the phase of collaborative production. The objectives are: <ul style="list-style-type: none"> - to boost higher order thinking skills and creativity - to enhance learner autonomy and metacognition - to foster synchronous and asynchronous collaboration - to boost digital skills - to provide the teacher with formative feedback | |

Collaborative interactive presentation / A product presenting the process and the outcomes

| Element | Guiding questions | |
|---|---|---|
| The description of the technique or method | <p>The idea for collaborative presentations stems from the methodology of project based learning but is widespread across all learner centered approaches. In the context of the flipped classroom approach it is an integral part of the learning design at the end of the cycle as the final output. The flow of activities that lead to this is as follows:</p> <ul style="list-style-type: none"> - before class: asynchronous acquisition with online tools/resources - during class: group work on differentiated tasks for inquiry and practice, interviews, discussion, problem solving, simulation | <ul style="list-style-type: none"> - after class: synchronous and asynchronous collaboration in preparation of the interactive presentation as the final product - during class: presentation and peer assessment <p>For the purpose of the implementation of this technique in the learning scenario on young entrepreneurship in Greece, the students interviewed real life entrepreneurs from the local community with questions that arose from the theoretical background.</p> |
| Benefits of the technique or method | <p>This technique commonly involves four to five groups of students in an average classroom and can be implemented across the curriculum to boost active learning and increase performance. In our case, there was a project class of 23 students who benefited from it and scored high at the final assessment quiz.</p> | <p>Creating collaborative interactive presentations of the learning processes and content is really beneficial for students as regards the goals of education in the 21st century (the 4 Cs) and digital competencies. This is a good practice that has been successfully transferred from the project class to the foreign language classes.</p> |
| Success Factors | <p>Within the context of secondary education this technique can be implemented as the final activity of learning scenarios across the curriculum for alternative assessment provided that teachers are willing to adopt innovative ways of teaching and assessment such as the flipped classroom approach, the experiential learning approach and the project based learning approach.</p> | |
| Constraints | <p>The only challenge is always the digital gap which can be addressed if the teachers are willing to provide the less privileged students with computer time and technical support at school as well as encourage peer digital support before the stage of collaborative production of the interactive presentation.</p> | |
| Lessons learned | <p>Some students may at first be rather reluctant to cooperate and insist on working individually but asynchronous cooperation is a flexible solution. Plus, they come to enjoy developing their creativity using digital tools and appreciate the experience. Peer assessment is also smoothly introduced into the classroom routine when it starts in this way.</p> | |
| Sustainability | <p>This practice is by its nature economically and environmentally sustainable because it relies on free digital resources. The interactive presentations are not printed out but remain digitally available for sharing and dissemination within the school community and as sustainable resources for new learning beyond.</p> | <p>The social gap in the students' access to digital resources can be tackled by the teacher/facilitator who will offer access to the school digital resources and organise peer technical support. Institutionally, it is essential to disseminate the practice across the teachers' communities of practice.</p> |

Collaborative interactive presentation / A product presenting the process and the outcomes

| Element | Guiding questions |
|---|---|
| Transferability | Collaborative inquiry based learning commonly leads to group presentations which tend to be interactive for economy and attractiveness. With most updated curricula promoting 21st century skills and digital competencies it is all the more likely to transfer the technique of collaborative interactive presentations into school environments. |
| Conclusion | This practice enhances learner engagement, creativity and collaboration. It also provides teachers with useful feedback about learning outcomes and develops metacognition. |
| Related resources that have been developed | The interactive presentation was created on the app Prezi, which was then free for use. A learning scenario in the rationale of blended learning/flipped classroom including this technique was designed with the help of the app LEARNING DESIGNER. |

Guidelines for transferring to primary/secondary education

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| Transfer possibilities to primary/secondary school environment | This practice is drawn from project work at the 3. GENIKO LYKEIO in the context of an Erasmus project on Environmental and Cultural Sustainability via Entrepreneurship. It can easily be transferred to the regular classroom work at primary and secondary schools on condition that teachers promote learner centered and blended learning approaches. |
| Language(s) | English |

Summary

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| Please provide an extensive summary of the technique/method | <p>Collaboratively creating interactive presentations of learning content and process is a good practice compatible with most of the contemporary learning methodologies, especially the active learning, project based learning, experiential learning and flipped classroom model of the blended learning approach.</p> <p>According to the Conversational Framework of Diana Laurillard, there are six types of learning that need to be balanced in learning design: Acquisition, Inquiry, Discussion, Practice, Collaboration and Production. The technique of collaborative creating interactive presentations meets the needs of Collaboration and Production. It is accommodated within the flipped learning design in the last two phases; the synchronous and asynchronous collaboration for the preparation of the presentations by the student groups and the display of the presentations in class followed by peer assessment.</p> <p>The benefits of this practice for the learners include their empowerment as active learners, their familiarisation with digital tools for interactivity, the increased opportunities for collaboration, the enhancement of their thinking skills and creativity as well as their acquaintance with peer assessment. The constraints associated with this practice depend on the school climate and its fostering of innovation. Teachers who embrace learner centered approaches will easily address the challenges of the digital gap by facilitating the less privileged students' access to the school digital resources.</p> <p>This technique has been successfully implemented in an upper secondary school project and investigating young entrepreneurship in various ways in the rationale of the flipped classroom approach. The students were assigned asynchronous self paced acquisition tasks before coming to class to discuss and investigate several aspects of entrepreneurship via serious game simulations and</p> |
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interviews with real life local entrepreneurs. Here is a sample of their work on Prezi!
They collaborated after class to create interactive presentations on entrepreneurship in Greece and continued in class with peer assessment of their presentations.

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PART D – “BUILD YOUR OWN CREATIVE LAB”

A. DEVELOPMENT PHASE

1. Define the objectives of the CLAIM LAB: The first step in preparing an experiential creativity lab is to define the specific objectives of the lab. These objectives should be aligned with the learning outcomes of the curriculum and should focus on developing creativity, critical thinking, and problem-solving skills in students. Specifically to write the objectives:

- Identify the subject or topic: Determine the subject or topic that the experiential lab will focus on. It could be a specific scientific concept, a technological skill, a creative art form, or any other area of interest.
- Determine the desired learning outcomes: Consider what you want the high school students to achieve through the experiential lab. What skills, knowledge, or understanding do you want them to gain? Examples of learning outcomes could include improving critical thinking skills, developing problem-solving abilities, enhancing creativity, fostering teamwork and collaboration, or acquiring practical skills related to a specific subject.

The difference between learning outcomes and objectives

Learning outcomes are broad statements that describe the overall knowledge, skills, attitudes, or behaviors that learners are expected to attain as a result of a learning experience. They are often formulated in general terms and focus on the big-picture goals of learning.

Learning outcomes are typically stated from the perspective of what learners will be able to do or achieve after completing a learning experience, and they are often used to guide curriculum development, program evaluation, and assessment.

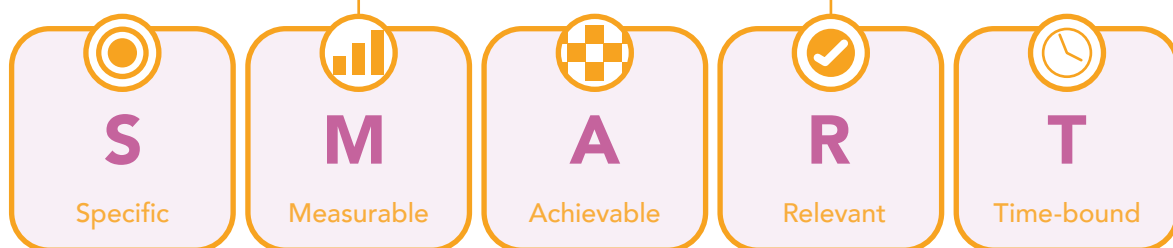
On the other hand, learning objectives are specific, measurable, and often more detailed statements that outline the specific knowledge, skills, or behaviors that learners are expected to demonstrate during or after a learning experience. Learning objectives are typically written in clear and concise language and are used to guide the design of instructional materials, assessments, and activities. Learning objectives are often stated in terms of what learners will be able to do, know, or understand, and they are used to guide the instructional process and ensure that learners are progressing towards achieving the desired outcomes.

Tips for designing the learning objectives for your creativity lab:

- **Consider the student’s perspective:** Think about the students’ needs, interests, and motivations. What would be engaging and meaningful for them? How can the experiential lab be designed to cater to their learning styles and preferences? Consider the age, grade level, and prior knowledge of the students to ensure that the objectives are appropriate and aligned with their developmental stage.
- **Align with curriculum standards:** Review the relevant curriculum standards or guidelines for high school education in your region or district. Ensure that the objectives of the experiential lab align with these standards to ensure that the lab is integrated into the curriculum and supports the overall educational goals of the school.
- **Consider real-world relevance:** Experiential labs are often designed to provide students with real-world experiences and connections. Consider how the lab objectives can be aligned with real-world applications, challenges, or issues, to make the learning experience authentic and relevant to the students’ lives.
- **Set SMART objectives:** Ensure that the objectives are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART). This means that the objectives should be clear, quantifiable, realistic, aligned with the purpose of the lab, and have a timeline for completion.

Ensure that the objective is measurable so that you can assess whether it has been achieved or not. Use quantitative or qualitative criteria to determinate success. How will I measure assess if the learning objective has been met?

Ensure that the objective is aligned with the overall learning goals and outcomes of your course or curriculum. Is the objective aligned with the larger learning goals and relevant to my students needs?



Clearly state what you want your students to learn or achieve in clear and precise terms. Avoid vague or general language. Ask yourself: **What exactly do I want my students to know or be able to do?**

Ensure that the objective is aligned with the overall learning goals and outcomes of your course or curriculum. **Is the objective aligned with the larger learning goals and relevant to my students needs?**

Set a timeframe or deadline for achieving the objective. This provides a sense of urgency and helps you and your students stay focused. Ask yourself: **When do I expect my students to achieve this objective?**

Here's an example of a SMART lesson objective:

Objective: By the end of the lesson, students will be able to solve five algebraic equations using the quadratic formula (Specific, Measurable, Achievable, Relevant, Time-bound).

- **Collaborate with stakeholders:** Involve other stakeholders such as fellow teachers, school administrators, and students themselves in the process of defining the objectives. This can help ensure that the objectives are well-rounded, inclusive, and meet the needs of all relevant parties.

2. Choose Methodology and Tools: As evident from the previous sections there is a plethora of methodologies to choose from. When creating your CLAIM lab you can choose one or more methodology to apply.

3. Design the Activities: Once the objectives have been defined, the next step is to plan the curriculum for the lab. This should include designing activities and projects that will engage students in experiential learning and encourage them to explore their creativity.

4. Identify resources/ materials needed: The next stage is to identify the resources required to implement the lab. This could include materials, equipment, technology, and space. It is important to ensure that the resources are accessible and affordable.

5. Train facilitators: The success of an experiential creativity lab depends on the facilitators who will be guiding the students through the activities. It is important to train the facilitators in experiential learning techniques, creativity, and problem-solving, communication and interaction.

B. IMPLEMENTATION PHASE

Implement the lab: Once the curriculum has been planned, resources identified, and facilitators trained, it is time to implement the lab. The lab should be designed to be interactive, hands-on, and engaging, and should provide opportunities for students to work collaboratively.

C. EVALUATION PHASE

Evaluate the lab: The final stage is to evaluate the lab to determine its effectiveness in achieving the learning objectives. Feedback from students, facilitators, and other stakeholders should be collected and analyzed to identify areas for improvement. Evaluate the impact at: academic success; students behavior; motiva



CLAIM LAB

LESSON PLAN

DATE:

TITLE:

OBJECTIVES

DESIRED LEARNING OUTCOMES

METHODOLOGY

TOOLS

DURATION



MATERIALS/RESOURCES

ASSESSMENT

OTHER TASKS

SPECIFIC INSTRUCTIONS

