European Commission

Creativity – a transversal skill for lifelong learning. An overview of existing concepts and practices

Final report – Annex II
Inventory of initiatives

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Contents

List of abbreviations

CPSI	Creative problem-solving institute
CCT	Critical and creative thinking
DeSeCo	Definition and selection of competencies
DigComp	The European Digital Competence Framework for Citizens
ECEC	Early childhood education and care
EntreComp	The European Entrepreneurship Competence Framework
ERI-Net	Asia-Pacific Education Research Institutes Networks
EU	European union
ICT	Information and communication technology
JRC	Joint Research Centre
HE	Higher education
LifeComp	The European Framework for the Personal, Social, and Learning to Learn Key Competence
MENA	Middle East and North-Africa
MOOC	Massive open online course
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
O*NET	Occupational Information Network
P21	Partnership for the 21st Century Learning
PISA	Programme for International Student Assessment
STEM	Science, technology, engineering and mathematics
TTCT	Torrance tests of creative thinking
UNICEF	United Nations Children's Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational education and training
WEF	World Economic Forum

Introduction

The purpose of the inventory was to reveal practices that had been used to promote creativity as a transversal skill. These include initiatives that vary in terms of design, conceptualisation of creativity and methodological approach.

To identify relevant practices, an online survey of experts and educators was carried out, and a comprehensive desk research was conducted. As a result, 34 practices were selected for a more detailed review. The selection process was guided by the principles outlined below:

- Focusing on initiatives that have been adopted since 2010;
- Focusing on initiatives that have been implemented in Europe;
- Focusing on initiatives implemented in vocational education and training, higher education and/or non-formal learning (e.g. adult education and training) sectors;
- Including initiatives that link creativity with the digital, entrepreneurship and/or life key competences;
- Including initiatives launched in the fields of social action, youth work and/or sustainability;
- Including initiatives which are well documented.

For each selected initiative, information was gathered on such aspects as objectives, timeframe, target group(s), geographical scope, sector(s), level(s) and settings of education and training covered, level of implementation, key actors involved and their roles, funding arrangements, key activities/measures, definition of creativity, pedagogical approaches and methods promoted, assessment approaches and methods promoted, outputs, outcomes, impacts, and lessons learned.

As a final step, 34 factsheets were prepared and are presented below

The inventory was compiled based on the structure agreed upon in the kick-off meeting with the JRC. Key strands include the design of the policy or initiative, conceptualisation and promotion of creativity, performance of the policy or initiative, and the sources. Strands comprise variables, all of which are presented in the figure below.

Source: Compiled by the authors.

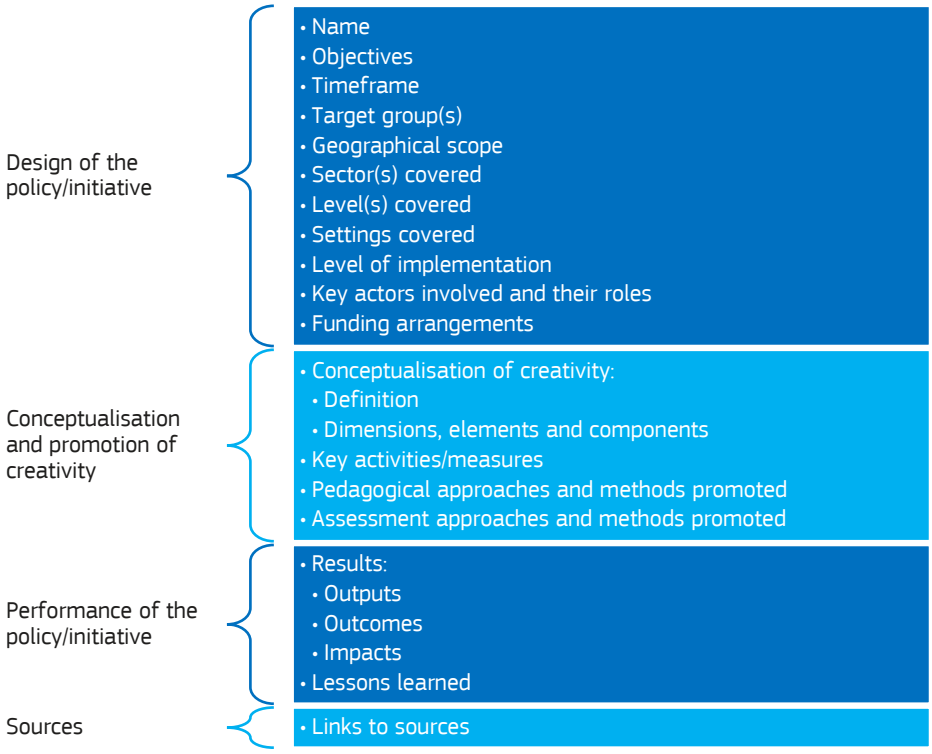

Figure 1. Row descriptors

While most of these variables are straightforward, some require an additional explanation. For this inventory:

- Sectors covered can be formal, non-formal or both.

- Levels covered can be (primary and/or secondary) school education, vocational education and training (VET), higher education (HE) and adult learning.
- Settings covered can be institutional, workplace, community, distance learning, etc.
- Key activities/measures refer to the main project activities, not only the ones which are directly linked to the promotion of creativity.
- Pedagogical and assessment approaches and methods are described only if they are directly linked to the promotion of creativity or other transversal skills. Project methodologies which are not related to these, are not described.

Play, creativity and learning

Objectives	Research had shown that play was only sporadically featured in the Diploma modules on offer in Social Education (around 60% of professionals working in Danish day-care settings for 0 to 5 year-olds hold a bachelor's degree in this field). However, Section 7 of the amended Danish Daycare Facilities Act (Dagtilbudsloven) of 2018 stipulates: 'Early childhood education and care must support children's well-being, learning, development and formation through safe and pedagogical learning environments in which play is an essential element and which are based on a children's perspective'. In this context, the module was launched to promote play as a didactic tool among professionals working in the early childhood education and care (ECEC) sector. More specifically, the objective is to help pedagogues acquire both theoretical knowledge about and practical competences in how adults can facilitate and position themselves in play situations, in their work with children's well-being, formation, development, and learning.
Timeframe	2018-present
Target group(s)	In-service ECEC professionals
Level of implementation	Local (municipality)
Geographical scope	Denmark, municipalities of Billund and Esbjerg (although the module has been nationally accredited and approved for offering by all university colleges in Denmark)
Sector(s), level(s) and settings of education and training covered	Adult learning (continuing and further education and training), institutional settings
Key actors involved and their roles	Central to the initiative was the municipality of Billund, University College Lillebælt and the LEGO Foundation partnered to develop a continuing and further education and training programme targeted at in-service ECEC professionals, which resulted in the creation of the Diploma module 'Play, creativity and learning'. University College Lillebælt offers the course. Municipality of Esbjerg was invited to participate in the competence development programme 'Play, creativity and learning' by the LEGO Foundation.
Key activities/ measures	The Diploma module forms part of a full Pedagogical Diploma Programme, which is a qualification for in-service professionals rated at 60 ECTS points, equivalent to one year of full-time study. Each module (10 ECTS) is typically organised into 40 hours of face-to-face teaching over the course of 7-20 weeks. In addition, Diploma students receive guidance on assignment writing, and can engage in group work, reading, observations in the field, and action learning through peer work and video-based feedback. The module is concluded with an exam. Participants gain new theoretical insights into play and its importance while being able to practise what they learn between the individual lessons. They are then asked to analyse their practice and reflect on it together. It is argued that after completing the module, students can: - Assume responsibility for facilitating children's formation through participation, play, creative expression and the creation of communities of children; - Collaborate on strengthening children's play based on the children's perspective; - In collaboration with colleagues, develop and implement a pedagogical approach that supports children's play, learning, curiosity, experimentation and creativity;

	- Develop a pedagogical practice based on a research-informed fundamental view of children and children's play; - Analyse and assess the importance of play to children's formation, development and participation; - Explain and use didactic thinking to support children's play and creative processes. They also have: - Fundamental knowledge about creativity, children's play and play culture as well as insight into the importance of play in an educational and learning perspective; - Knowledge of and the ability to reflect on the importance of professional input in interaction with the institutional framework, facilities and conditions.
Funding arrangements	Sponsored by the LEGO foundation
Conceptualisation of creativity	Not applicable
Pedagogical approaches and methods promoted	The module centres on play (to avoid getting ready for school at the expense of creativity) and is deeply rooted in the thinking behind the bolstered pedagogical curriculum. It is argued that: - Pedagogues are supposed to let go of their own agenda and, instead, allow children to take the lead (i.e. it is crucial to involve the children's perspective). - A priority should be given to games initiated by children rather than adults. - Balancing on the edge of what they are used to can be a highly formative experience for children because it helps them test their limits. Adults can offer new aspects and perspectives to children's play activities that the children themselves do not see, but it is important how they position themselves (e.g. player-coach or fellow player, instructor or spectator). - Pedagogues must be careful not simply to let the most dominant children take the lead. It may leave quieter children on the side-line.
Assessment approaches and methods promoted	Not applicable
Results	The key output was the Diploma model 'Play, creativity and learning' delivered to in-service ECEC professionals working in municipalities of Billund and Esbjerg. Outcomes in the Municipality of Billund were: - Around 125 pedagogues in the municipality are planned to take part (last group will complete the exam in summer 2020); - Pedagogues are very enthusiastic about their participation and argue it has boosted their professional competences. In the Municipality of Esbjerg: - 50 pedagogues are doing the module; - Pedagogues argue the model has been a collective eye-opener - helped to gain new perspectives on their own practice. In the Municipality of Billund, the model: - Contributed to strengthening interdisciplinary collaboration across the municipality (all pedagogues do the course, regardless of their professional position and

tasks);

- Improved job satisfaction;
- Helped pedagogues become better at giving priority to child-initiated games;
- Helped to move away from the institutional logics and question own habits, traditions and modus operandi, let go of daily routines and instead focus more on following the children's perspectives;
- Contributed to creating a new focus on what constitutes learning environments: the group has become more aware that many day-to-day activities involve both educative and formative aspects; this has contributed to changing their view of what happens in, for example, the cloakroom;
- Helped pedagogues become more reflective when it comes to the children's perspective, the concept of formation, learning environments and each other as colleagues; it has provided them with new knowledge and new tools that they can use in their future work to support the children's development, formation and learning through play.

In the Municipality of Esbjerg, the model:

- Gave pedagogues a legitimacy in relation to focusing much more on a playful learning approach;
- Helped pedagogues gain new theoretical knowledge about play, creativity and learning, enabling them to argue more convincingly for their practice;
- Contributed to raising awareness of the institutional logics at play in the institutions, and the importance of such logics to children's play, creativity and learning;
- Overall, boosted professional strength, pride and improved job satisfaction.

Lessons learned

In the Municipality of Billund:

- The main strength of the module is that all the municipality's pedagogues must participate in it, i.e. all pedagogues gain and take back to their institutions the same theoretical knowledge and insights, which makes it easier to subsequently implement new approaches and methods in their day-to-day work.
- Practice-oriented teaching makes it easier to translate new knowledge into action in day-to-day work.
- The success of the initiative is also down to the strong political support and a strategic approach.
- Role of the ECEC managers is important. Doing the module comes with certain obligations. Each participant is responsible for contributing to developing their pedagogical practice in the direction decided by the Municipality of Billund. This means that the managers are responsible for ensuring that the pedagogical practice is aligned with the Danish Day-care Facilities Act (Dagtilbudsloven), the bolstered curriculum and the political objectives set out in the Municipality of Billund's early childhood education and care policy.

In the Municipality of Esbjerg:

- It is important to have an open dialogue among staff members on how they can break with their institutional logics. Everybody must support the process of change – otherwise there is a risk that it will cause division in the staff group.

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Creative Ireland Programme

Objectives	Creative Ireland is a culture-based programme designed to promote individual, community and national wellbeing. The core proposition is that participation in cultural activity drives personal and collective creativity, with significant implications for individual and societal wellbeing and achievement. The Programme builds on five pillars: - Enabling the creative potential of every child; - Enabling creativity in every community; - Investing in our creative and cultural infrastructure; - Ireland as a centre of excellence in audio-visual production; - Unifying our global reputation.
Timeframe	The initiative was launched in 2017 and will run until 2022.
Target group(s)	General public
Level of implementation	National
Geographical scope	Ireland
Sector(s), level(s) and settings of education and training covered	All
Key actors involved and their roles	Creative Ireland Programme is overseen by the Department of the Taoiseach and led by the Minister of Culture, Heritage and the Gaeltacht. The national programme office is based within the Department of Culture, Heritage and the Gaeltacht in Dublin. - Creative Communities is supported by a Culture and Creativity Team within each local authority, under the guidance and leadership of a local Creative Ireland coordinator. - Creative Youth is supported by a working group of officials from the Creative Ireland Programme office, the Department of Education and Skills, the Department of Children and Youth Affairs and the Arts Council. An Expert Advisory group of arts and education experts and policymakers guide and oversee the implementation of the Creative Youth Plan. - Implementation of the Audio-visual Action Plan is overseen by a working group chaired by the Department of Culture with representatives from Screen Ireland, Department of Business Enterprise and Innovation, the Department of Communications, IDA, Department of Finance, Department of Education and the BAI.
Key activities/ measures	The Programme is built around key themes: Creative Youth, Creative Communities, Creative Places, and Creative Nation: - Creative Youth creates opportunities for children and young people to realise their creative potential. Working within and outside of the formal education system, the Programme supports their learning, self-expression and personal development

through participation in cultural and creative activities.

- Creative Communities is a local authority-led initiative which pioneers and supports creative collaborations and local cross-sectoral projects in arts, heritage, local history, STEM and the creative industries.
- Creative Places will see a capital investment of €1.2bn in cultural infrastructure in Ireland over ten years, as part of Project Ireland 2040. Investing in Culture, Language and Heritage 2018 – 2027 was announced under the Creative Ireland Programme in April 2018 at the newly refurbished Shaw Room at the National Gallery, Dublin.
- Creative Nation recognises and values the unique contribution of Irish culture and creativity to the country's global reputation and influence in the world. The Programme supports and contributes to cross-agency collaboration which seeks to position culture and creativity at the centre of our international relations.

Moreover, in the first year of the Programme, Creative Ireland identified the audio-visual sector as a priority for strategic investment. Following the publication of the government's first Audio-Visual Action Plan in June 2018, an additional €200 million in funds for Screen Ireland was announced over the next 10 years.

Funding arrangements	Funded by the Government of Ireland. In 2019, the total budget was €6,827,349, in 2018 - €5,336,349, in 2017 - €4,950,524.
Conceptualisation of creativity	Creative Ireland defines creativity as a set of innate abilities and learned skills: the capacity of individuals and organisations to transcend accepted ideas and norms and by drawing on imagination to create new ideas that bring additional value to human activity.
Pedagogical approaches and methods promoted	There are three essential operating principles for Creative Ireland: collaboration and communication, community empowerment, and internationalisation. Following these general principles, different approaches and methods are employed and/or promoted within individual initiatives, actions and projects.
Assessment approaches and methods promoted	Not applicable
Results	A very wide range of initiatives is implemented under the Programme. Some of the key/most relevant ones include: - Creative Youth Plan, setting four strategic objectives: supporting collaboration between formal and non-formal approaches to creativity in education, extending the range of creative activities for young people, embedding the creative process, and continuing professional development for teachers in schools (a number of actions comprise this plan, e.g. Creative Schools, 'Voice of the child' training, Local Creative Youth Partnerships, and Cruinniú na nÓg - Ireland's national day of creativity for children and young people, and Creative Clusters); - Culture and Creativity Plans/Strategies for each of the 31 local communities; around 3,172 creative projects had been implemented in 2017-2019, and these included art projects, awards, cultural projects, exhibition, festivals, performances/shows, events, and talks/storytelling - just to name a few types; - Capital Investment Plan and investments in creative and cultural infrastructure (e.g. the National Gallery of Ireland); - Audio-visual Action Plan, the first results of which include legislative change, increased funding to Screen Ireland, developments to reform TV licence fee model, and introduction of the Regional Film Development Uplift;

- National Creativity Fund to add value and/or scale to the implementation of the Programme and to help inform policy and/or cross-sectoral development in the area of culture, creativity and wellbeing.

Lessons learned

Following the launch of the Creative Ireland Programme, the Creative Ireland team held 39 public consultations and some hundreds of meetings with individuals and organisations involved in the arts, arts education and other creative activities for young people. Among the many insights gained were that greater collaboration is required to support the development of a creative ecosystem – collaboration within national and local government policymaking and administration, between art forms, between professionals such as artists and teachers, and between the myriad arts and community activists all around the country. Developing deeper and more widespread collaborative networks is now a key task for the Creative Ireland Programme.

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Paul Hamlyn Foundation: Teacher Development Fund (TDF)

Objectives	The purpose of the TDF is to support the delivery of effective arts-based teaching and learning opportunities in the primary classroom, and to embed learning through the arts in the curriculum. It aims to do this through supporting teachers and school leaders to develop the necessary skills, knowledge, confidence and experience. Priority areas are the following: - Supporting the needs of pupils experiencing disadvantage; - Embedding learning through the arts in the curriculum; - Strong partnerships between arts/cultural organisations and schools.
Timeframe	2016-present (the pilot ran for two years from September 2016 to July 2018)
Target group(s)	Primary school teachers and leaders
Level of implementation	National
Geographical scope	United Kingdom
Sector(s), level(s) and settings of education and training covered	Adult learning (continuing professional development and learning (CPDL)), institutional settings (focus on primary schools)
Key actors involved and their roles	Paul Hamlyn Foundation set up and has been managing TDF. It is one of the largest independent grant-making foundations in the UK, with a mission to help people overcome disadvantage and lack of opportunity, so that they can realise their potential and enjoy fulfilling and creative lives. The Foundation has a particular interest in supporting young people and a strong belief in the importance of arts. Partnerships of arts/cultural organisations and five to ten primary schools implement projects. Hence, applicants may include charities, community organisations, social enterprises and no-for-profits companies active in the arts; primary schools and academies operating in the state sector. Pilot projects were led by the British Council Wales, Creative Scotland, Hotspur Primary School, Into Film, Royal Shakespeare Company, RSA, and Bath Cultural Education Partnership. PHF Grant Managers, the Centre for the Use of Research and Evidence in Education, TDF Advisory Group, and Cohort Learning Days supported the pilot projects."
Key activities/ measures	Projects are implemented by partnerships of arts/cultural organisations and five to ten primary schools. Each partnership works together for two academic years. The focus is on: - Supporting children and young people experiencing disadvantage; - Approaches which involve learning through the arts; - Long-term, inquiry-based projects which support teachers' professional development and learning; - Promoting effective and equitable partnerships between schools and arts/cultural organisations and artist practitioners; - The contributions of school leaders and artist practitioners as both professional

learners and as supporters of embedding learning through the arts in the curriculum;

- Approaches which involve any of the following art forms: crafts; creative writing, including poetry; dance; design; film; music; opera; photography; digital arts and media; theatre and drama; the visual arts; and cross-arts practices.

Pilot projects were Listening to Language /Cerdd Iaith (teaching modern foreign languages through sound components such as pitch, shyme, repetition and rhythm), and embedding these within music), Art of Learning (supporting teachers to embed a range of arts-based practices which allow pupils to develop executive functions and creativity skills), Concordia (increasing the confidence of teachers to lead signing with children so that they can successfully transform the learning environment of their schools), Full Steam Ahead (increasing teacher confidence in using film and film making as an aid to raising pupil attainment in literacy, numeracy and information, communication and technology), RSC Rehearsal Room Techniques (usinh rehearsal room approaches and theatre-making to teach Shakespeare at primary level), Performing Pedagogy (building the skills, confidence and capacity for innovation amongst primary teachers and supporting their use of drama and theatre to improve students' literacy, language development and storytelling abilities) and School Without Walls (transposing school into an arts environment or cultural setting, inviting teachers and children to interrogate and reshape teaching and learning in and through the arts).

Funding arrangements

Paul Hamlyn Foundation is a registered charity with substantial investment assets that finance its grant-making activities, including TDF.

Each year, around five grants of up to £150,000 are awarded to partnerships of arts/cultural organisations and schools. TDF grants support both activity costs and core organisational costs which relate to the project. It is expected that participating schools make a contribution (e.g. cash, teacher cover, school leaders' time or other).

Conceptualisation of creativity

Not applicable

Pedagogical approaches and methods promoted

Teachers and school leaders engage in inquiry-based continuing professional development and learning, facilitated by artist practitioners.

Applicants are asked to demonstrate the effectiveness of the CPDL models proposed. TDF defines effectiveness as the use of CPDL approaches which are consistent with the evidence about what makes a difference for pupils, as well as educators. Developing Great Teaching (by Teacher Development Trust) and Standard for teachers' professional development (Department for Education) are referred to as sources for more information.

Also, TDF gives specific attention to:

- Involvement of school leaders (not only headteachers but also others influencing curriculum planning as subject leads or phase leads);
- Relationship between schools (especially teachers) and artist practitioners (in TDF projects, the role of artist practitioners is to facilitate CPDL for teachers and school leaders, supporting them to become autonomous in their delivery of arts-based learning and to achieve a sustainable approach to embedding learning through the arts in the curriculum);
- Reflective practice embedded in the CPDL process;
- Evaluation of and learning from project results.

Assessment approaches and methods promoted

All TDF partnerships are expected to undertake a detailed evaluation of their work for two years, looking to examine, evidence and understand the effectiveness of the CPDL and the impact of the project on teachers' practice and outcomes for pupils' learning. Each partnership can decide on how to approach this requirement/task.

Results

Seven grants were awarded as part of the pilot programme (£1,258,000 in total). Over 400 teachers and school leaders engaged in enquiry-based CPDL in 2016-2018. Over 4,000 pupils were involved in the pilot projects.

Many partners began to experiment with different CPDL processes for identifying and overcoming barriers to learning through the arts for pupils experiencing disadvantage.

In general, within each initiative there was a range in the extent to which learning through the arts became embedded in the wider curriculum. At one end of the range were four schools, which made extensive progress in embedding learning through the arts in every aspect of school life. At the other end was a small number of schools that chose to withdraw, either because of external challenges or because they felt they had accomplished all that was appropriate for their context and/or goals.

Lessons learned

Evidence from the pilot suggests that:

- The greatest impact is achieved when school leaders are positioned as lead learners and closely involved in planning, delivery and reflection activities.
- It is crucial to have a defined process through which all partners, both separately and together, reflect on the effectiveness of the CPD input, how the work is impacting on teachers' practice and the outcomes for pupils' learning.

Characteristics of schools that progressed the most in the pilot include:

- Prior knowledge, skills, capacity and roles related to embedding learning through the arts;
- Alignment with a pre-existing, sophisticated professional learning environment;
- Capacity to draw skilfully on specialist support;
- Pre-existing reflection and enquiry skills;
- Alignment between the TDF goals and the school's existing model of teaching and learning (prioritisation of risk-taking and creativity).

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IDEO's Creative Difference tool

Objectives	Creative Difference was designed to help organisations understand their creative capabilities and then to guide the growth of these capabilities with tailored focus areas and tools. More specifically, the tool aims to help leaders assess, track and guide the development of innovative, and adaptive teams; to identify strengths and blind spots and help develop a strategy and focused plan of action to take an organisation to the next level and help it become highly effective at creative problem-solving.
Timeframe	2016-present
Target group(s)	Organisations (including for-profit companies, government departments and NGOs)
Level of implementation	Local (organisation)
Geographical scope	Global
Sector(s), level(s) and settings of education and training covered	Adult learning, workplace settings
Key actors involved and their roles	IDEO has developed and offers the tool. It helps organisations identify business units that they would like to participate with, prepares custom surveys and email templates, analyses findings, delivers them in an interactive dashboard, and offers a consultative review of it to help organisations interpret insights and prioritise future actions.
Key activities/ measures	Key steps of employing Creative Difference are: - An organisation assigns someone to lead the process; - An organisation works with IDEO to identify business units it would like to participate with; - IDEO prepares custom surveys and email templates to deploy within an organisation; - Participants spend 15-20 minutes each to complete the survey; - IDEO delivers results to an organisation (not only scores but also a custom guide surfacing strengths, improvement areas, relevant case studies, as well as tools and resources to enable quick action based on priorities).
Funding arrangements	Organisations can purchase the product for a certain price.
Conceptualisation of creativity	IDEO argues that 'sometimes the word 'creativity' can throw business leaders off. They think of art, poetry and music, or at best traditional 'creative' business functions like graphic design or advertising. Sometimes it's good to level set and establish a common language within the organisation of what creativity is, or what alternative word the organisation will use. Some common terms are innovation, adaptability, change, business design, and design thinking. Very few would argue against the fact that people within an organisation should be able to effectively drive change, whether that is to modernise operations, evolve offerings, or innovate to create new products. All of these are by nature 'creative', even though many business people are uncomfortable with that framing.' Six qualities of a creative organisation that help it become more innovative and adaptive are

defined as follows:

- Purpose: a clear, inspiring reason for a company to exist - beyond just making money;
- Looking out: moving beyond the walls of your organisation to understand customers, technologies, and cultural shifts;
- Experimentation: trying out new ideas and making evidence-based decisions for how to move those ideas forward;
- Collaboration: working across business functions to approach opportunities from all angles, including a diversity of perspectives;
- Empowerment: providing paths to create change in all corners by reducing unnecessary constraints;
- Refinement: elegantly bridging both strategic vision and tactical execution, moving concepts from idea to reality.

Pedagogical approaches and methods promoted

Together with the dashboard, organisations that employ Creative Difference receive access to the method library - tools and resources developed by a wider IDEO community. These are built on beliefs that everyone is creative, creative organisations are more agile, complex problems are best solved collaboratively, innovation starts with people, technology moves fast, human needs change slowly, and venturing is R&D. IDEO builds on design thinking, which is described by the company's Executive Chair as 'a human-centred approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.' In IDEO's resource, design thinking is also described as a methodology used to solve complex problems, and find desirable solutions. It is said to involve a solution-focused mindset and action oriented towards creating a preferred future. Design thinking draws upon logic, imagination, intuition, and systematic reasoning, to explore possibilities of what could be, and to create desired outcomes that benefit the end user.

Assessment approaches and methods promoted

The survey helps to answer three questions:

- How does the organisation score on the six qualities of a creative company?
- How do the employees view the company's culture?
- What type of a creative company is the organisation?

The assessment consists of questions that measure the conditions and behaviours influencing team capabilities across the six creative qualities and sub-qualities. It helps to uncover a teams/ways of working, and provides language to describe certain behaviours and mindsets.

The Creative Difference dashboard delivers team-level scores with benchmarks by industry or team. It also tells organisations how to prioritise their efforts to achieve the largest impact and gives them an action plan that outlines the specific steps they should take to make their organisation more innovative, right down to what to do for different teams within the company."

Results

Since the launch of the Creative Difference, it has been rum with more than 54,000 respondents at 600+ organisations across every industry category, including non-profits and government departments.

Regarding results, it is argued that Creative Difference helps to develop a common language for innovation, where employees across the organisation can actively participate in the growth and improvement of it. Creative Difference offers a baseline from which teams can improve and validate their progress over time. Most importantly, Creative Difference provides methods, case studies, and a collaborative space to enable improvements in the organisation's tangible ability to drive change.

An example: Intercorp (an economic group of more than 30 companies spanning banks, malls, cinemas, schools, and more, accounts for 2.5% of Peru's gross domestic product): Having started in 2017 without any digital capability, Intercorp companies launched five new digital services in 2018. Casa Andina hotels, using human-centred design practices increased its NPS by more than 10 points in 1 year. Innova Schools achieved more than 3x annual growth over projections. All thanks

to identified strengths and improvement areas, and newfound skills. Chief Innovation Officer of Intercorp argues 'Creative Difference is our master tool to maximise the creativity of our 58,000 employees, and track how our 29 companies evolve year after year. It is measurable, scalable, and extremely actionable'. Director of Innovation in Innova Schools says 'Creative Difference has allowed us to tackle our problems one by one, making it easier to develop our innovation skills and culture as a whole organisation'."

Lessons learned

Data from Creative Difference shows that creativity or the ability to effectively solve challenges in new, meaningful ways is essential to compete in modern markets:

- 3.4 times more successful launches when teams practice even the most basic forms of the behaviours measured by Creative Difference;
- 180% more likely to achieve business goals when teams understand their market, the users they serve, and what relevant technologies exist;
- 50% higher rate of successful ideas when teams test and iterate with five or more ideas, rather than anchoring on a single idea too early in their process.

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Interview with the representatives of IDEO.

Creative work with information

Objectives	The objectives of the course are to help students: - Define the goals and possibilities of their education; - Introduce various concepts and procedures of learning, e.g. learn to learn; - Master the method of creative writing and get rid of creative blocks; - Master the methods of effective and critical reading; - Learn to use mind maps in common study and work situations; - Master a variety of creative techniques; - Acquire principles and competences for visualisation and presentation of ideas and information.
Timeframe	2016-present
Target group(s)	University students
Level of implementation	Local (university)
Geographical scope	Czech Republic
Sector(s), level(s) and settings of education and training covered	Higher education, institutional settings
Key actors involved and their roles	The course is held at the Masaryk University where it is situated at the Cabinet of Information Studies and Librarianship. It was developed by Prof. Michale Cerny, an expert on how we learn and what we need creativity for in this activity. He developed the course and has two students as assistants in running and tutoring it.
Key activities/ measures	The main activity is tutoring on how to work with information in a creative way. The course is divided into: - Creativity and learning: finding your own educational path and learning methods and creativity; - Reading and writing: creative writing, effective and critical reading; - Creativity: mind maps and creative techniques; - Revelation: visualisation and presentation of information. Within each activity, students go through the following: - Finding your own educational path: self-management and motivation; personal learning environment; time and task management; portfolio; learning through networks; MOOCs; - Learning methods and creativity: drilling; continuous learning; do not learn by yourself; creativity; mindfulness; - Effective and critical reading: reading and writing for critical thinking; slow reading; fast reading; write reviews; - Mind maps: what are mind maps; how to create mind maps; history; mind maps

when searching for a topic; reading with a mind map;

- Creative techniques: brainstorming and brainwriting; six coloured hats; clustering; collage methods; memory methods;
- Visualisation and presentation of information: infographics; presentation; sketch noting; SWOT analysis; own website; video;
- Creative writing: what is creative writing; automatic writing and rhythm writing; blogs; daily; photo diary.

Funding arrangements	Publicly funded
Conceptualisation of creativity	Creativity is defined as the ability to create and state of mind or process - rather than a permanent disposition. Approaches to creativity developed by the following theorists are taught to the students: - Marie König; - Theresa Amabile; - Joy Paul Guildford. Creativity first of all links to problem-solving and creative problems that are: - New - their solution does not exist yet; - Socially important - the problem needs to be socially recognised, at least have such potential (for example, no one needs to see it yet); - Open - these are often broadly and vaguely defined problems; - Have more correct answers or ways to get them than one. In line with the path set out by the definition of creativity as a combination of discipline and a child's spirit, the course documentation relates creativity to skills that are close to the discipline on the one hand and close to playfulness on the other: - Self-care and management; - Reflective thinking; - Perseverance; - Critical thinking; - Mindfulness; - Motivation; - Openness.
Pedagogical approaches and methods promoted	The pedagogical methods applied and promoted during the course are: - Personalised learning environments (rather than having a coursebook, the approach is to collect and present various approaches and resources and self-learning tools that students can use); - Continuous learning for lifelong learning (in order to be able to learn continuously, it is necessary to be able to manage time and tasks, plan them and follow up); - Reflective learning (the creative diary is one of the key methods of the course; it is applied to foster reflective and creative thinking; - Collaborative and virtual learning (pairing students to talk about their learning, progression, issues, ask each other questions and review each other's work). Writing and working with information regularly is central to the course. Writing forces one to work with words, associations, sentences and transfer the mind to the paper. Creative diaries and

	morning warm-ups are preferred because writing about a similar topic over and over again forces one to look at it from a different angle while adding an element of perseverance.
Assessment approaches and methods promoted	Assessment is conducted formatively through continuous mandatory quizzes, but with no minimum number of points. The students are expected to read through course material and videos. The individual texts are designed to show the breadth of the topics covered in the course, but also to refer to the various approaches, articles and resources that relate to the topic of creativity. To successfully complete the course, it is necessary to: - Submit required 7 tasks; - Provide feedback on 7 assignments of classmates; - Complete 7 quizzes; - Pass a final online test with 70 per cent correct answers; - Submit and have positive feedback on the creative diary. Little information is available on the exact content of the final test, but it is stated that the diary should reveal the following: three positive things; feelings map; a list of what one did that day; poetry; one thing that surprised one that day; short stories, narration or descriptions; short excerpts from readings; dreams; intriguing thoughts; mind maps.
Results	The key output of the initiative was a course website with links to course material, literature and videos. The course was set up to foster personalised learning and inclusion of continuous learning to encourage lifelong learning, which suggests that transversal skills were taught. The course documentation reveals that it aims to foster creativity as a skill that is transferable to other fields of students' life: 'Creative work with information is a skill that you can use in various areas of your work and study life'. No evaluation of the course has been conducted.
Lessons learned	Not applicable
Sources of information	KISK. (n.d.a). *How to navigate the course?* Retrieved 8 September, 2020, from https://kisk.phil.muni.cz/kreativita/o-kurzu KISK. (n.d.b). *Creativity.* Retrieved 8 September, 2020, from https://kisk.phil.muni.cz/kiskonline/kreativita/metody-uceni-a-kreativita/kreativita KISK. (n.d.c). *Learning Methods and Creativity.* Retrieved 8 September, 2020, from https://kisk.phil.muni.cz/kreativita/temata/metody-uceni-a-kreativita

Lead Creative Schools

Objectives	The scheme aims to promote new ways of working, with innovative and bespoke programmes of learning designed to improve the quality of teaching and learning. It works with selected schools by providing creative people, skills and resources that are needed to help them address the challenges that they face. The scheme nurtures and develops the creativity of learners so that they achieve their potential, grow as well-rounded individuals and are prepared with skills for like, i.e. able to meet the needs of the economy and to thrive within the increasingly competitive environment of day-to-day life. More specifically, the programme aims to support schools to: - Work with creative practitioners in their classrooms to transform teaching and learning; - Devise and implement a project or programme of work links to individual school development priorities; - Find creative approaches to improving literacy, numeracy and attainment, and to reducing the impact of deprivation on educational attainment; - Embed changes in teaching practice leading to sustainable impact - Put the arts and creativity at the heart of school life; - Be recognised for their commitment to improvement through creative teaching and learning and the arts.
Timeframe	2015-present
Target group(s)	Schools
Level of implementation	Sub-national (country)
Geographical scope	Wales, the United Kingdom
Sector(s), level(s) and settings of education and training covered	School education, institutional settings
Key actors involved and their roles	The scheme is implemented by the Lead Creative Schools Team. Schools (including School coordinators), Creative Agents and Creative Practitioners are involved in the activities. Other important partners of the scheme include: - Regional Education Consortia and Challenge Advisors; - Estyn; - Arts Council of Wales.
Key activities/ measures	In Lead Creative Schools pupils, teachers, and creative professionals work together to plan, implement, reflect and evaluate a creative project or projects. It facilitates a process where all the partners work together to co-construct the learning. It supports enquiry based learning, ongoing reflection and in-depth evaluation, leading to sustainable and embedded practice. What this approach looks like in schools in the form of projects varies greatly, as each project is designed to be an individual response to the needs of each school. The key defining characteristic of project activity is the collaborative partnership between creative professionals, classroom staff and young people and how this partnership helps to bring the curriculum to life, providing new ways for

	learners to engage with subjects and to develop increased motivation for learning. Lead Creative Schools projects allow time for in-depth planning, co-delivery and reflection. More importantly, they can be more active and more fun than standard curriculum activities and, at the core of the process, they give pupils greater involvement in decision making.
Funding arrangements	Funding for Lead Creative Schools comes from a £20 million budget allocated to support the implementation of Creative learning through the arts - an action plan for Wales between 2015 and 2020. In total, £10 million from the Welsh Government has been allocated to match £10 million in Lottery funding from the Arts Council of Wales. £9.5 million were allocated to Lead Creative Schools over five years.
Conceptualisation of creativity	Creativity is defined as a habit of mind that can be developed within and through all subjects and disciplines. It is argued that creativity is not a skill bound within the arts but a wider ability to question, make connections, and take an innovative and imaginative approach to problem-solving. Within the frames of the scheme, creativity is defined as five creative habits of mind, described by Claxton, Lucas and Spencer. Habits of mind and their sub-habits are: - Inquisitive: wondering and questioning, exploring and investigating, challenging assumptions; - Persistent: tolerating uncertainty, sticking with difficulty, daring to be different; - Imaginative: playing with possibilities, making connections, using intuition; - Disciplined: crafting and improving, developing techniques, reflecting critically; - Collaborative: cooperating appropriately, giving and receiving feedback, sharing the 'product'.
Pedagogical approaches and methods promoted	The scheme centres on enquiry-based learning. The featured pedagogy is the five creative habits of mind, which are used to: - Develop a shared language of creativity; - Reflect, self-assess and value creative skills/dispositions; - Gather supporting evidence; - Track progress over time; - Be more self-aware of when students are using their creative skills; - Seek opportunities to be more creative, and identify future learning goals. A concept of high-functioning learning space is also key. It is argued that 'a high functioning approach results in a thriving learning space where all pupils are able to achieve and where they are physically, socially, emotionally and intellectually engaged. This is not to say that a low-functioning approach is ineffective, many education systems are built on this model, but it does not appeal to all learners. Therefore, we need to be able to move between the approaches to ensure that there is variety in teaching and learning and the pedagogy responds to pupils' needs.
Assessment approaches and methods promoted	The focus is on self-evaluation. It (including the forms provided to schools) is based on the five creative habits of mind, but schools are free to choose the specific means and approaches to conduct this exercise.
Results	Since 2015 and by the end of the 2018/2019 academic year: - 559 schools have participated in the Lead Creative Schools Scheme or as a partner school in the school-to-school development strand; - 233 creative professionals have been trained as Creative Agents to work with schools to help them find creative approaches to teaching and learning; - Over 40,000 learners have benefitted from the scheme.

Based on the most recent publicly available evaluation report (Welsh Government, 2019):

- LCS scheme is the most advanced element of the Creative Learning through the Arts programme to date.
- The level of interest in the LCS scheme from schools has been high.
- The uptake of the LCS strand is largely representative of Wales in terms of the geographical distribution of schools and the primary–secondary split. However, schools in Yellow or Green support categories — demonstrating good outcomes and improvement capacity — are much more likely to engage with the LCS scheme.
- The participation of largely 'the usual suspects' calls into question the degree to which the changes and innovations evidenced within schools benefitting from the LCS scheme can or will be replicated amongst other schools throughout Wales.
- Professional development has emerged as a key motivation for engaging in the Lead Creative Schools process, and developing pedagogy is a key programme outcome for teachers.
- Teachers perceive that the LCS activities have had a positive impact on the creative skills of learners. Improvements were evidenced and reported with regard to all five creative habits of mind.
- Due to a lack of access to key data, it is not possible to robustly evidence or rigorously evaluate the impact of LCS activities upon the attainment of pupils. Nevertheless, interviews with teachers suggest a positive impact upon attainment in many cases, while data provided through evaluation forms reveals a general correlation between participation in the LCS scheme and improving attainment.

The last point has been addressed in more detail in the fourth evaluation of the Creative Learning through the Arts programme. Although the publication of the report is still pending, indicative findings shared by the Arts Council of Wales reveal that most teachers believe the intervention to have had a positive impact upon the attainment of learners.

Lessons learned

According to the Arts Council of Wales, collaborative partnerships can effectively help to increase the creativity of learners, improve attainment, and re-ignite teachers' confidence and passion about their profession. The intervention is suited for not only well-performing but also struggling schools.

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Study Strategy of the University of Zagreb

Objectives

There are three key strategic areas that should lead to the realisation of the university's mission and academic values:

- Orientating modern study programmes towards the development of a broader spectrum of competences;
- Encouraging creativity, innovation and a motivating learning environment;
- Directing education and action towards the development of the economy, society and culture.

The objectives as regards creativity are to:

- Develop a motivating learning environment that encourages creativity, innovation and internationalisation;
- Enable increased study success by achieving targeted quality teaching and defined learning outcomes while providing support to students;
- Increase the quality of teaching by providing support to teachers and improving their competencies;
- Harmonise criteria and procedures for the assessment of teacher competencies which promote excellence in teaching in elections to scientific-teaching, artistic-teaching, teaching and associate titles;
- Improve the quality of teaching and achieving learning outcomes through the establishment of appropriate levels and qualities of e-learning.

Higher or long-term objectives as regards creativity are:

- Be an open and attractive centre that motivates students and provides them with high quality innovative and relevant education that is internationally recognisable and inclusive to its students, enables the acquisition of qualifications relevant to the global labour market, values and capabilities that are important for the development of a democratic civic society and personal development of students;
- Perform academically stimulating and economically and socially relevant study programs that include contemporary research and creative approaches and knowledge in the field of study, emphasise a creative and flexible approach to content and mode achieving personalised learning outcomes, develop students' in-depth understanding, enable the creation of new values (innovation, creativity), development of relevant skills and attitudes, go beyond the narrow boundaries of disciplines to include interdisciplinary and multidisciplinary knowledge and approaches;
- Encourage a motivating, creative and supportive environment for teaching and learning which includes motivated, responsible, creative and methodologically qualified teachers (professors and assistants), the application of modern teaching methods based on an approach that is directed towards the student and achieving learning outcomes, encouraging active participation of students in learning and taking over responsibilities for personal work and progress, support to the student in entering and adjusting to the university as well as mastering obstacles during studies, encouraging student participation in creative extracurricular activities, career development activities and programmes, the use of e-learning and other modern ways of learning and teaching that contribute to achieving learning outcomes and motivating students to learn and achieve academic and personal goals.

Timeframe	The strategy applies for the years 2014 to 2025
Target group(s)	University teachers and students
Level of implementation	Local (university)
Geographical scope	Croatia
Sector(s), level(s) and settings of education and training covered	Higher education, institutional settings
Key actors involved and their roles	The University of Zagreb and its bodies are the main actors in the implementation of the strategy.
Key activities/ measures	Key activities to follow up on the objectives of the strategy are: - Establishment of the Center for the Improvement of Teacher Competences; - Establishment and organisation of lifelong learning courses; - Investing in a supportive environment for students and teachers, e.g. a student support centre was set up; - Working towards improved virtual learning environments and teaching, and creating separate e-versions at Level 2 (application of e-learning technologies); - Facilitating and helping students and teachers who want to go abroad, working on easing the process of getting grades from extracurricular activities recognised; - Evaluating results towards a long list of specified indicators.
Funding arrangements	Publicly funded
Conceptualisation of creativity	Creativity is not defined in the strategy but described as 'a key social and developmental resource'. According to the Croatian Qualification Framework (CQF), which the university closely follows, creative thinking is a cognitive skill. The university argues that 'Future jobs require fundamental knowledge, but also practical skills and especially generic skills and creativity and innovation in work'. This suggests that creativity is treated as a generic/transversal skill. The strategy links creativity to: - Innovation; - Internationalisation (openness towards cultures); - Personal development (creation of new values and attitudes, not just ideas); - Motivation and lifelong learning; - According to the CQF, creativity can be broken down in these strands: - Abstract creative thinking (necessary in research for the generation of new knowledge and procedures and the integration of different fields); - Simple abstract thinking (required to generate solutions to abstract problems in

partially unpredictable conditions);

- Concrete creative thinking (required to select and apply relevant information in the course of execution of a series of complex routine tasks in familiar conditions.

Pedagogical approaches and methods promoted

The following pedagogies and/or measures have been employed:

- Application of student-centred learning, based on which students are expected to adopt a responsible approach and actively study for the purpose of the acquisition of knowledge and skills and also the creation of new knowledge;
- Encouraging and coordinating extracurricular activities, especially students' work in proposing, organising and implementing activities where they cooperate and innovate;
- Encouraging and coordinating incoming and outgoing students and teachers (mobility) to foster 'internationalisation at home';
- Interactive lessons and collaborative learning;
- Learning and teaching based on the latest research and mentored problem-solving, encouraging students to apply a holistic approach to the problem, promote creativity, innovation, initiative, interdisciplinary, critical thinking, being analytical and responsibility, ethics and professional independence;
- Encourage the acquisition of knowledge and skills, as well as the associated independence and responsibility through individual study and collaborative forms of teaching. The aim is to partner a motivated and competent teacher with a motivated student.

Assessment approaches and methods promoted

Short-term educational modules that earn ECTS credits are accredited if they are up to 10 ECTS credits while larger-scale modules are accredited in accordance with regulations for the evaluation of study programmes at various levels. ECTS credits can be awarded to extracurricular activities, such as student internships or activities that are not regulated by the curriculum, student competition, active participation of in science, conferences, workshops, seminars or other activities not previously awarded ECTS credits within the study programs of the University or other institutions.

In terms of learning outcomes, the university follows the Croatian Qualifications Framework. The framework sets out that creativity is a cognitive skill together with logics. Assessment at the university covers formative and summative approaches.

Results

Key outputs have been:

- The strategy document;
- A website containing online resources and manuals for teachers to improve their competences, e.g. a centre for teacher competence improvement;
- 39 extracurricular lifelong learning courses, covering cross-disciplinary topics, sustainability and innovative teaching and research methods. For instance, a course on pedagogical-psychological-methodological-didactic education of teachers.

Not all of the courses focus on teaching creativity per se as the approach of the university is rather to make it easier to apply and develop creativity through lifelong learning, sharing resources and research. No evaluation exists as to whether such an approach has had a positive outcome in terms of improving creative skills.

Lessons learned

Not applicable

Sources of information

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High-performance cycles (ETHAZI)

Objectives	The interviewee confirmed that the objectives of the ETHAZI learning model for VET education and educators in this context have been: - To develop processes for learning, designing, experimenting and rolling out innovative learning models in VET; - To activate and spark the talent of people and organisations in being agile and proactive about solving real-world problems; - To respond to the skill needs of companies and the future of work.
Timeframe	TKNIKA started developing the model in 2010 and piloted it in 2013 at five vocational training centres in the Basque Country. Since the successful pilot, TKNIKA has worked on implementation and continuous follow-up and evaluation of the learning model.
Target group(s)	VET teachers and students
Level of implementation	Sub-national (region)
Geographical scope	Basque Country, Spain
Sector(s), level(s) and settings of education and training covered	VET, institutional settings
Key actors involved and their roles	Central to the initiative has been the education innovation centre TKNIKA. The education innovation centre is responsible for implementing the innovation policies set out by the regional VET minister, as well as doing trainings and applied research in the areas of technology, education and management. The Basque centre led the implementation of the learning model across the region. Within TKNIKA, The Learning and High Performance Department is responsible for implementing the model. IDEATK, a parallel training and research centre under VET that focuses solely on creativity, has also contributed to the training under ETHAZI. For instance, IDEATK developed the SOR-GIM course (see key measures). According to the interviewee, in order to create a more holistic VET strategy in the region, IDEATK merged with and operates under TKNIKA in 2015. Another important actor driving the implementation of the model and activities is the regional government who sets out the policy agenda that TKNIKA follows.
Key activities/ measures	'The High-Performance Cycles (ETHAZI)' learning model is developed and implemented in the Basque region of Spain (Euskadi) through several training programmes. The Learning and High Performance Department of TKNIKA mainly has five fields of actions in the implementation strategy of ETHAZI that can be further broken down by lines of action and programmes (TKNIKA, n.d.a): - Seven lines of action: • **STEAM:** Enriches the methodological proposal of the regional VET policy by adding relevant methodological innovation proposals in STEAM, Visual Thinking, and more. It is a training course to answer practical questions on how to translate STEAM into educational activities. • **Collaborative challenge-based learning (CCBL):** CCBL is one of the core elements upon which the ETHAZI model rest. In CCBL, teachers introduce problematic situation, turn it into a challenge, as well as the entire process until achieving a result, is structured around both the

technical and specific skills of each cycle, as well as soft skills that are strategic at that time (see 6.4).

- **VALUES 4.0**: The initiative contributes to the comprehensive training of people who come to VET Euskadi to work. The objective is to learn to think and look at the world in all its three dimensions to bring about social responsibility: the ethical or values dimension, the social dimension and the environmental dimension.
- **Adapting spaces:** Collaborative learning needs to integrate working spaces that are conducive to learning and creativity. As a line of action, the focus has been put on transforming space, making it flexible, comfortable, colourful with good acoustics and setting up an internet connection that facilitates ICT.
- **Creating an entrepreneurial culture**: Ikasenpresa is an educational programme that focuses on creativity at the company level, making students aware of what being an entrepreneur entails and the steps they have to take to do so, develop student skills to make them good professionals — employable and active as well as entrepreneurs and intra-entrepreneurs.
- **Creative thinking**: Since it is an objective of the model to put creative thought into action and to offer ideas that contribute value to overcoming challenges, it is a line of action to train the flexibility (ability to change one's line of thought), fluidity (skill in having many ideas) and originality (skill for ideas to be different, for them to provide value and be feasible).
- **Developing learning tools:** Making use of learning accelerators that simulate the reality (virtual reality, augmented reality, immersive, 3D, interactive) in learning processes, and to turn any space into learning space. When using virtual reality in learning session, one's imagination about the future and development of skills for the future can be expanded.

- Four actions for roll-out through the TKNIKA teams:
  - **eNOLA:** A tool at the service of teacher teams to self-diagnose their situation in each cycle of the ETHAZI learning model implementation process, to spot, and then later propose actions for improvement. It also acts to validate the implementation of ETHAZI model in training and at the centre.
  - **ETHAZI gunea**: The objective of ETHAZI gunea is to make everything related to the ETHAZI free and available online. It is a dynamic space where teachers generate content, boosted by ICT teachers and learning coordinators as an essential element.
  - **SET**: A tool that TKNIKA is offering to work on the skill evaluation and progress of the ETHAZI cycles. This tool was developed eight years ago, but several improvements are constantly being added, based on suggestions sent by users. Originally, teacher teams used SET to evaluate soft skills, but today, it is normally used to evaluate specific skills and give overall feedback.
  - **Ikasenpresa:** See description above.
- five learning actions aimed at developing the talent of teachers and their implementation of the ETHAZI model:
  - **Initial training**: Training focused on teamwork, an entrepreneurial attitude, creative thought, communication skills, commitment, solidarity,

along with a skill set specific to each speciality. The objective is to develop new skills to start implementing ETHAZI. The training program is meant to make participants future learning coordinators and leaders in implementation of the model.

- **8 Advanced trainings**. Besides for VALUES 4.0 and STEAM these were:
- **Irakasle taldea**: One of the central elements around which the Euskadi VET Learning Model is structured is the cycle's teacher team, whose mission is to work toward applying advanced learning models. The objective of the training is to accompany the cycle's teacher team and reinforce their relational skills to improve their well-being and performance.
- **Diving in challenges (epa):** A training for teacher teams that are already working within the context of CCBL who wish to delve deeper and enrich their challenges from a global perspective with the following objectives: Adapting the challenge's phases to the classroom situation, Discovering techniques to boost each one of the learning process' phases, Offering a shared, global vision of challenges, Making progress in working as a teacher team and transferring learning.
- **Evaluation** of learning gleaned through challenge work is extremely important, since it largely defines how said challenges will be developed. At the evaluation team, we want to help all teacher teams that are already working with challenges to improve this part of the challenge. They can think about the focus of the evaluation they are using, improve their rubrics, increase or improve the quality of their indications, programme and improve how students are given feedback, or design better the scoring process and how to recover the modules that are part of the challenges.
- **ELKAR&EKIN:** A training itinerary on entrepreneurial culture, entrepreneurial initiatives and idea-generation and development.
- **SOR-GIM (TKNIKA, 2017)** was one training course in the package, initially developed by IDEATK. It was a training program to develop the creativity of teachers by use of creative techniques and close follow up.
- **Digital skills:** This training seeks to give structure to improvements in developing the digital skills necessary for the ETHAZI teacher team. In consists of training on the five areas falling under the DIGCOMP framework, drawn up by the Erasmus+.

In addition, the learning and high performance department provides consulting, diagnosing and designing the development and roll-out of ETHAZI.

Funding arrangements

ETHAZI is funded regularly by the Government of the Autonomous Community of the Basque Country's Ministry of Education.

Conceptualisation of creativity

In ETHAZI, creativity was defined as the ability to put creative thought into action, and offer ideas that contributed value to overcoming challenges. The following can be said about how creativity was understood and how conceptualised (TKNIKA, n.d.a):

- Based on analysis of the learning outcomes, it can be said that creativity in the course was related to critical thinking, idea generation and imagination, metacognition, divergent thinking, parallel thinking, emotional management and problem-solving and innovation.
- According to the interviewee, the most important elements in the creative process is the cognitive flexibility, the ability to change the line of thought; fluidity, the ability to come up with many ideas; originality, the ability to come up with ideas that are original and new, provide value and are feasible; and, lastly, the ability to

filter and choose the best ideas. These elements cover divergent, latent and convergent thinking.

Pedagogical approaches and methods promoted

ETHAZI follows a challenge-based collaborative learning method (CCBL) for the training for VET students. The resources suggest that CCBL showcases the following pedagogical principles and characteristics (ETHAZI GUNEA, 2020a):

- **Working in teams and rotating challenges:** In CCBL, the teacher introduces a 'problem' scenario in that teachers and students need to face at a team level. After the problem-solving session, the teams analyse what worked and did not, to prepare better for the next challenge. The teachers rotate different challenges between the teams.
- **Learning as evolution:** The model sees learning as a process of evolution and where the students are responsible for their learning.
- **New and non-formal settings:** The model encourages using new and non-formal settings as a method to make the experience of a challenge more realistic.
- **Moving towards social innovation:** According to the initiative manager of ETHAZI, the challenges are usually technical, but in the last years TKNIKA encouraged teachers to focus more on societal challenges, soft skills or technical challenges that relate to social innovation.
- **Intermodulation**: The challenges should be relevant for and remind the students of possible situations in the labour market. This requires an in-depth analysis of professional competencies and the learning outcomes of the cycle.
- **Self-managed cycle teaching teams:** Within the cycle, the teachers operate in the same team, dividing tasks and responsibilities between themselves. Students learn to practice self-management and are supported by a small number of teachers throughout the cycle.
- **Evaluate to evolve in development of key competences:** Assessment is integrated as a key element within the students' learning process and providing them with frequent feedback on their evolution in the degree of acquisition of the expected professional competences. The specific tool SET (Skills Evolution) has been developed to promote this assessment approach and encourage participation by teachers and students (personally and as part of teams) and other agents who can contribute to the assessment process. Tool).
- **Adequacy of learning spaces:** The implementation of these new methodologies requires classrooms, equipment, furniture and specific spaces different from those that usually exist in training centres. Their design mainly caters for the characteristics of flexible, open, interconnected spaces that foster environmental situations that favour active-collaborative work.

Particularly important to the CCBL pedagogy is the 11 steps or dimensions of CCBL (ETHAZI GUNEA, 2020b). In stage 5 of the process, regarding the generation of ideas, creativity techniques such as brainstorming and the six hats test are applied. Furthermore, the aim of the model below is to integrate the creative thinking process into the challenge and thereby foster transversal competences.

Besides, some courses within ETHAZI focused on developing the creativity of teachers. One such course was SOR-GIM, which made use of the following rationale and methods to develop the creativity of teachers in VET education (TKNIKA 2017a):

- Training for the development of parallel thinking:
    - Activities of using the six hats to think.
    - Design and sequence generation activities.
- Training for the development of the creative process:

- Activities to sharpen the focus, identify and define challenges
- Activities to generate ideas
- Activities to select and evaluate ideas

- Training for the development of emotional and executive intelligence:
  - Activities to train the Emotional Management of curiosity, admiration and security.
  - Activities to train Executive Intelligence (choice of goals and planning, initiation of action and organisation, maintenance of action and effort, cognitive flexibility and metacognition).
  - Conceptualisation of critical and creative thinking

Assessment approaches and methods promoted

The programme was assessed at the VET centre/teacher and student level. 2 tools, described below, based on self-assessment and answers to simple questions were used to assess teacher' understanding and implementation of the model. Besides, the training encouraged teachers to give regular feedback to students on how they fare along with the transversal skills in a spider diagram.

- SET is the tool that TKNIKA is offering to facilitate the evaluation of skills based on the progress of the ETHAZI cycles. This tool was developed eight years ago, but improvements are constantly being added, based on suggestions sent by users. Originally, teacher teams used SET to evaluate soft skills, but today, it is normally used to evaluate specific skills as well. It also supports feedback that teacher teams give students. The programme gives an overview of how each school that implemented ETHAZI perform against a long list of dimensions (e.g. follow up with assessment, implementing the model in cross-disciplinary settings).
- eNOLA is a tool at the service of teacher teams to self-diagnose their situation in each stage of the ETHAZI learning model implementation process, to spot, and then later propose actions for improvement. It also acts to validate implementation of the said model in the training cycle and at the centre.

The teachers assess their students formatively and summatively according to a transversal and technical skills assessment framework awarding grades from 1 (poor) to 5 (excellent). The transversal skills are: Personal (entrepreneurial initiative, autonomy, implication); Communication (oral communication, written communication); Digital (information and data literacy, communication and collaboration, digital content creation, security, problem resolution); Collaborative (teamwork, problem resolution, decision making). The first links to creativity and covers the creative process described in the initiative as that of coming up with many unique ideas and take them into action. Those who were awarded the highest marks were active in their teams and able to select and drive the implementation of their innovative ideas.

Results

Key outputs have been:

- Up to 12 training sessions ranging from introductory to advanced implementation of the model;
- Four tools to either help the assessment or methodological implementations of the model: eNOla, SET, ETHAZI gunea and Ikasenpresa.

ETHAZI has been particularly successful in rolling out the model across the region, nationally and internationally. As of 2020, TKNIKA trained 2289 teachers who taught 8175 students across 327 cycles and 70 VET centres in the Basque region (ETHAZI GUNEA, 2020a). According to the interviewee, due to the training and follow-up by TKNIKA, the model has been implemented in 40 per cent of VET centres in the Basque region. In addition, TKNIKA has trained other Spanish VET teachers and centres, especially in Andalucía, Chile and El Salvador. TKNIKA was recognised for its international work in educational innovation by becoming a member of the UNESCO-UNEVOC network in 2017. Due to its big outreach, we can assume that ETHAZI has been successful in teaching its model, which is based on creative thinking, and transversal skills into VET education systems nationally and internationally. In addition, feedback and evaluation show that students are content about their learning experience and that ETHAZI improved their pro-activity, creativity and

ability to develop ideas (Egigure et al., 2020).

Lessons learned

A synthesis of information from the interviewee and the initiative documents, suggests that the following were the key strengths of the initiative:

- ETHAZI has developed an advanced model and several accompanying training programs for developing transversal competences making use of an innovative challenge-based design that incorporates creative thinking throughout its stages.
- Strong collaboration and network with local industry and companies makes sure that the model is grounded in the real-world and stays relevant.
- Strong political will from the regional government to innovate in VET education.
- According to the interviewee, the strength of the programme is its ability to include the creative thinking process throughout the process of solving a challenge.
- Advanced ICT solutions for assessment and close follow-up of the schools that apply the learning model to make sure that they continue to apply it and in a transformative way.
- A careful assessment, although formative or based on self-assessment, can be crucial in following up and making sure that the model and training has the indented effects.

Key challenges have been:

- To change the mindset of individual teachers and teach them the attitude needed to implement the model effectively and comprehensively.
- According to the interviewee, the biggest challenge in implementing the model has been that not all teachers understand the value or concept of creativity. Teachers tend to rush the 7th and 8th step of the 11 stages (select suggestions and plan actions). This is due to time limitations and the process of problem-solving real-world challenges being time intensive. It is challenging it is to make teachers understand the value of creativity, as they tend to focus on the number of ideas elaborated in a short time rather than helping students to develop ideas of high quality.
- According to the interviewee, some VET teachers are technically minded and struggle to grasp that 'soft skills', creativity and feedback have meaning and are not just 'decoration terms'.
- For the students, the 11 stages are hard to remember, and they, therefore, have to go through the process many times in order to remember it.
- Collaborating with key stakeholders, including future employees of students in VET education is crucial to ground the training, make it popular, relevant and increase the take-up of the model and training.

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Interview with representatives of TKNIKA.

Denkmotor

Objectives	The objectives of Denkmotor are to: - Spark ideas that drive successful companies forward; - Motivate employees to achieve creative excellence and innovation at the company level through hands-on training and workshops.
Timeframe	2005-present
Target group(s)	Workers
Level of implementation	Local (organisation)
Geographical scope	Germany
Sector(s), level(s) and settings of education and training covered	Adult learning, workplace settings
Key actors involved and their roles	Denkmotor is run by the German entrepreneurs and/or public figures Chris Brügger, Karla Schlaepfer, Jiri Scherer and Markus Müller, in cooperation with these experts: - Jean-Philippe Hagmann (inspirator and author, innovation manager) - Dr. Michael Hartschen (expert in innovation and online marketing) - Bramwell Kaltenrieder (master of digitalisation and expert) - Tobias Lehr (facilitator and online expert) - Jana Lev (transformation and customer experience expert) - Lukas Stadelmann (design thinking expert) - Sascha Wolff (expert for user experience design)
Key activities/ measures	The main activity of the initiative is to provide seminars and training around creativity, innovation and simplicity. The following training and workshops are available: - Creativity techniques: a course about the most effective creativity techniques and innovation methods; examples from practice are used to show how to apply these techniques in a targeted and successful manner; - Simplicity training: a course about how to come up with more simple ideas in a complex world; throughout the course, the participants learn what simplicity is about, why it is important and strategies to foster simple idea generation processes; - Design thinking training: in two interactive days, the participants get to know the customer-focused design thinking approach using a practical example; - Lego Serious Play: a workshop using the Lego Serious Play methodology; - Innovation workshop: a workshop about how to come up with unique ideas, suitable for start-ups; - Facilitations: a course on how to stimulate dynamics in a group and learning to make workshops and meetings more efficient and varied;

	- Six thinking hats: a workshop using the six-thinking-hats technique to train companies on how to make less biased decisions and rule out error judgements; - Business model: in the Business Model Generation workshop, existing business models are analysed and broken down into the individual components; with the Business Model Canvas, unconventional and promising business models are developed. - Thinking Tools Seminar: thinking is not synonymous with intelligence, but an ability that everyone can improve with targeted techniques; in this training, a variety of simple thinking tools is presented to improve thinking skills and thus lead to better and more creative solutions; - Get straight to the point (Pyramid principle): the training is based on the Pyramidal Principle developed by Barbara Minto.
Funding arrangements	Privately funded by companies that buy services from Denkmotor
Conceptualisation of creativity	Denkmotor defines creativity as the ability to merge knowledge and experiences from different areas of life and come up with new ideas, while overcoming established structural and thought patterns. The known is restructured, combined, reversed, mixed, misused and expanded in the process. As evidenced by the motto 'Creativity. Innovation. Simplicity', and the activities, creativity first of all links to: - Innovation; - Simplicity (see the section on pedagogical approaches and methods promoted); - Design-thinking; - Critical thinking. To understand creativity Denkmotor sees creativity in light of creative barriers such as rigid school and work environments.
Pedagogical approaches and methods promoted	Central to the approach of teaching creativity is that it needs to be taught from a practical and 'hands-on' standpoint, by using subtle humour, and without ever losing sight of the ultimate goal. Really good programmes structure a chaotic process and yet deliver clear and documented results. Denkmotor argues that their creativity methods and innovation tools convince with their simplicity and high practical relevance. The idea behind is that innovation always starts at the same place: in the head! Creative solutions are created where familiar ways of thinking are abandoned, and inhibiting barriers to thinking are overcome in a playful way. This is not an art, but one thing above all: a matter of practice! Examples of methods to teach creativity are: - Chaotic-intuitive creativity methods covering brainwriting 6-3-5 method for brainstorming, stimulus word analysis & visual synectics to develop unconventional ideas and semantic intuition to develop creative products; - An essential part of the methods behind Denkmotor is to go beyond brainstorming and mind-mapping to find more efficient methods that work faster in bringing out solutions. This includes semantic intuition, stimulus word analysis, brainwriting, Osborn checklist, six thinking hats, provocation, customer benefit matrix, etc. Denkmotor argues that the more the creative muscle is challenged, the more willingly the original problem is accepted as a challenge. Pedagogical approaches used the most are: - Project-based learning; - Problem-based learning.

Assessment approaches and methods promoted	The companies get certified for attending training and workshops provided by Denkmotor.
Results	Key outputs have been: - A website with blog posts and resources on creativity; - Video material on YouTube and the website; - five books on the methods applied. 127 companies participated in the training over the last 15 years.
Lessons learned	Not applicable
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Kaospilot (Chaos Pilot) and the Enterprising Leadership programme as an example

Objectives	The objectives of Kaospilot education in general and Enterprising Leadership programme, in particular, are to: - Educate and support educational development and foster enterprising leaders, change-makers, creators and responsible entrepreneurs by providing training opportunities; - Build frameworks within which creative minds can become creative leaders by providing a place where the creative and potential change-makers can develop the knowledge, skills, attitudes and competencies they need to fulfil their values and visions; - Prepare young adults for life with access to fulfilling, creative and successful work along with an overall sense of purpose and direction by creating a culture based on shared values, a sense of identity, energy and presence, and by fostering the following beliefs and attitudes: playfulness, reality-based, streetwise, risk-taking, balance, and compassion.
Timeframe	1991-present
Target group(s)	Youth from 21 years of age
Level of implementation	Local (organisation)
Geographical scope	Denmark
Sector(s), level(s) and settings of education and training covered	Higher education and adult learning, institutional settings
Key actors involved and their roles	Kaospilot works alone, but partners with JKS (the nationwide temporary work and recruitment agency) in handing out their annual innovation award.
Key activities/ measures	Kaospilot is a hybrid business and design school, providing a multi-sided education in leadership and entrepreneurship. The Enterprising Leadership programme runs six semesters: - In the first semester, the students learn fundamentals of project management, teamwork and value creation, creativity and design and creation. - The second semester focuses on the values and value of projects: forming a learning organisation; creative and enterprising projects; exploring the future of business; value creation. - The third semester focuses on contextualising the lessons globally, i.e. looking at team relocation to another city; intercultural learning; cross-sector collaboration; large-scale projects. - The fourth semester looks at craftsmanship and how to work with practitioners

and masters of one's field.

- The fifth semester zooms in on local transformations covering team-wide projects; solving complex local challenges; addressing social innovation.
- In the final semester, students put their skills to practice through a final graduation project and study sustainability and impact (Kaospilot, 2020).

The Enterprising Leadership practice is set around three dimensions, which the students are trained on and required to practice:

- Developing abilities (imagination, action, sense-making, learning, collaboration, and communication);
- Cultivating character (courage, toughness, lightness, patience, generosity, and curiosity);
- Creating a sense of direction (higher pursuit, your community, and making a living).

Funding arrangements

The initiative has been funded in several ways:

- Publicly funded in 1991-2003 and 2004-present
- Privately funded by the Tuborg foundation in 2003-2005
- Students pay fees

Conceptualisation of creativity

Creativity is not defined. However, the description of creative people puts an emphasis on making ideas, dreams and values come to life and become 'new solutions' while acting with empathy in complex and turbulent situations.

Furthermore, according to the evaluation by the Nordic Ministry, Kaospilot created an impact on the discourse on creativity by helping to define it as the ability to handle chaos and act in chaos.

Creativity links most strongly to entrepreneurship, while agency and ability to effect change are key components.

The process of creative inquiry requires reflection on the following:

- Finding your way;
- Creating value;
- Contributing to transformational change;
- Fostering effective collaborations;
- Practicing entrepreneurship;
- Living our time.

Pedagogical approaches and methods promoted

Kaospilot has its roots in activism culture, the Bauhaus, the cooperative movement, beatnik culture and the folk high school tradition. Therefore, the methods promoted by the school are highly participatory, action-focused and multi-levelled (individual to community-level settings). The programme is designed to help students create the future and centres on bringing out creativity.

The initiative has its own 'Kaospilot method'. A Kaospilot is described as an entrepreneur, leader, change-maker, whose core competences lie in moving projects, people, and ideas forward in order to create transformation and positive change. The method draws inspiration from humanism and seeks to combine it with a systemic and relational view of social and natural systems into an 'enterprising leadership practice' – a practice that involves identifying and realising opportunities and potential within a given context, and creating holistic value and benefit for those connected people and communities.

Furthermore, the Enterprising Leadership course applies a method called 'Creative inquiry'. It is a process that is intended to be holistic, that involves exploration, creation and reflection and includes three ways of knowing and learning:

- Conceptual and theoretical knowledge;
- Methodological and practical knowledge;
- Phenomenological and experiential knowledge.

Throughout the programme, the following pedagogies are applied:

- Project-based learning;
- Action and participatory learning;
- Collaborative learning;
- Personal development;
- Dynamic interplay between practice and theory.

Assessment approaches and methods promoted

Assessment concerns:

- In order to be selected for the school, 70 students attend an assessment workshop. The applicants go through individual and group assignments and interviews;
- Throughout the course, the assessment is both formative and summative and varies by group size (individual, group, team), assessment type (pass/fail, 7-point grading scale, completed with evaluation) and censor type (internal, external).

Learning outcomes are:

- A clear sense of direction, including what the higher pursuit is, and how it connects to one's work and making a living;
- A clear sense of what one's skills, abilities and talents are, and how to apply them in one's work, along with a platform for further growth and development;
- A clear and holistic understanding of how to create value and change in one's work;
- The ability to develop and realise visions, ideas and concepts;
- The ability to develop and deliver projects of various scale and level of complexity;
- The ability to understand what transformational change is and how to make it happen with people, organisations, and communities and in a broader systemic or societal sense;
- The ability to foster and building healthy relations and collaboration in community and organisational life;
- A practice for cultivating a strong and resilient character, capable of facing tough challenges and setbacks;
- 21st century literacy which allows one to investigate, read and understand patterns, trends and tendencies, including ecological, media, and technological literacy.

Results

Key output has been leadership training courses (either for students or tailored for businesses).

Other products Kaospilot provides are:

- Experience design project;
- Talent development;
- Idea and concept development;
- Exploration and learning journey development.

In evaluations, outcomes have not been disaggregated by type of training. Out of more than 600 Kaospilot graduates, over time, one third have started companies, NGOs and other similar initiatives and around half hold some sort of management position. Over 200 projects are

undertaken every year by entrepreneurship students and participants of other training and events.

BusinessWeek has recognised Kaospilot as one of the best design schools in the world. Fast Company has named it in its Startup Leagues Big 10. It is frequently acknowledged as an innovative educational institution with great impact nationally and globally. Over the years, Kaospilot has worked with hundreds of organisations from South Korea to Chile, South Africa to Canada. The most significant impact is that the methodology has been taken up in many places around the world from Sweden to Japan.

Due to the links between real-world problem-solving and creativity, it can be said that transversal skills were fostered as part of the initiative.

Lessons learned

Not applicable

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Creative Problem-Solving Institute

Objectives	The creative problem-solving institute (CPSI) has the following objectives: - Train attendees to the conference and training week skills and habits and give them tools that foster their creativity and problem-solving skills; - Teach attendees to the conference and training week the specific creative problem-solving technique developed by the founders of CPSI; - Provide practical creativity skills and tools in an inspiring learning environment.
Timeframe	1955-ongoing
Target group(s)	Youth aged 8 to 17 and adults
Level of implementation	Local (organisation)
Geographical scope	Buffalo, United States
Sector(s), level(s) and settings of education and training covered	Youth and adult learning, non-formal settings
Key actors involved and their roles	The main partner of CPSI is the Creative Education Foundation (CEF) which runs the Institute. The innovation company FourSight is responsible for assessment.
Key activities/ measures	The activities are implemented on the campus, during in-depth experiential sessions, applying practical tools and skills for the development of creativity and innovation, and networking with global creativity colleagues from diverse industries. During a one week training, the participants can usually choose from the set of tracks and do so based on their prior knowledge of the CPSI method of creative problem-solving: - CPS Level 1: Foundations of Creative Problem Solving - CPS Level 2: Creative Problem Solving Tools - CPS Level 3: Creative Problem Solving Facilitation Techniques - CPS Level 4: Creative Problem Solving Instructor Training The training lasts for a week, but participants can also join for shorter sessions and a conference. For instance, Spark Creativity Workshops that are held by inspiring business leaders or creativity experts. For youth (YouthWise), the CPSI runs a virtual conference, inviting attendees aged 8-13. Teen participants can join the virtual sessions for adult learners together with specialised YouthWise instructors. The young participants can choose from 4 workshops ('clubs'), all focusing on various aspects of creativity.
Funding arrangements	Privately funded and sponsored by Asset Recovery Company of America (ARCA), EPIC International Summit, Foursight Official Assessment of Creative Education Foundation, Inheritance Project, Inly School, K&L Gates, Seed Strategy, Strategic Play, and Niwaki.
Conceptualisation	Creativity is not discretely defined in the documentation of the initiative, but often referred to as deliberate creativity. According to the key source which the theory of creative problem-solving

of creativity	stems from, creativity is 'applied imagination' and can be described as 'more than mere imagination. It is imagination inseparably coupled with both intent and effort' (Oxborn, 1953, pg. 117). Creativity is described as an innate ability that nevertheless needs to be fostered to serve a positive purpose in solving problems and to have a 'deliberate' purpose. Creativity is linked to the problem-solving process. According to Oxborn, association and chain-thinking (linked to the process of brainstorming) are key components of creative thinking (Oxborn, 1953). Another definition used by CEF/CPRSI is that by Noller on the creativity formula C*f*a (KIE), stating that it is the interaction between knowledge, imagination, and evaluation that generates creativity. Overall, the key components of the creative thinking process are: - Imagination, brainstorming and positivity; - Mix of convergent and divergent thinking; - Judgement of ideas and critical thinking; - Problem-solving.
Pedagogical approaches and methods promoted	Based on the interpretation of the project activities, CPSI uses project-based and experimental learning pedagogies, and 'coaching' or interactive sessions facilitated by trainers as the main teaching method. The training and conference are designed to be fun, engaging and collaborative. The training aims to not only help participants create better solutions but facilitate a positive experience and environment that help speed up the adoption of new ideas. The participants stay at the campus of the CPSI where the training takes place to get fully immersed in the programme and topic. This year, due to the COVID-19 outbreak, the conference was virtual. CPSI teaches the method of creative problem-solving, the core principles of it are: - Everyone is creative and/or can learn it; - Divergent and convergent thinking must be balanced; - Frame problems as open-ended questions; - Defer or suspend judgment; - Focus on positive language. CPS is based on the Osborn-Parnes process, a basic structure comprised of four stages with a total of six explicit process steps, each covering divergent and convergent thinking: - Clarify: explore the vision; identify the goal, wish, or challenge; gather data; and describe and generate data to enable a clear understanding of the challenge; formulate challenges; sharpen awareness of the challenge and create challenge questions that invite solutions; - Ideate: explore ideas, and generate ideas that answer the challenge questions; - Develop: formulate solutions; move from ideas to solutions; evaluate, strengthen, and select solutions for best fit; - Implement: formulate a plan; explore acceptance, and identify resources and actions that will support the implementation of the selected solution(s).
Assessment approaches and methods promoted	Assessment during the CPSI conference is conducted by the company Foursight. Attendees that register for the conference are provided with a self-assessment form to help them determine what 'track' they would get the most value out of at the event. During the class, they are given the Foursight metric. It does not assess the level of creativity, or ability. Rather, it looks at the person's preference for the four aspects of creative problem-solving. That tested metric divides it into the four steps that relate to the CPS process, i.e. clarify (asking questions, finding out information), ideate (coming up with many possible solutions), develop (working out the best solution and refining it), and implement (putting a plan together and into motion). Attendees of the multi-day session are then given the opportunity to take a course assessment for certification purposes, and if they pass, are granted proof of certification that is good for a full year. This also applies to the Advanced Programming, Tools of Creative Problem Solving, Facilitating Creative Problem Solving, and Training Creative Problem Solving. Certification at

advanced levels includes the certification of the previous levels. For the rest of the CPSI, there are no assessments or certifications.

Results	Key outputs have been: - Yearly conferences (now also virtual); - Website with links to resources (a library); - Manuals for teachers and participants; - Training for participants who want to become teachers of CPS. More than 400 business leaders, educators, community activists, non-profit and government professionals, artists, students and others from around the globe take part in each event. CPSI is the longest-running and, most likely, the most famous creativity conference in the world. Participants report that attending has had a positive impact later in their life on the way they face personal and technical challenges: 'Through the Creative Problem Solving Institute, and the methodologies that I have studied there, I am now able to approach every problem I face in my life, knowing that if I set my mind to it, I can find a solution'. The statement above, as well as the excellent feedback and cooperation between CPSI and companies, suggest that the initiative successfully teaches creativity as a transversal skill useful in the world of work and as a socio-emotional skill.
Lessons learned	Not applicable
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CREUS: Developing and Nurturing the Transversal Skills of Disadvantaged Young People through Creative, Non-Formal Learning in Unconventional Spaces

Objectives	The objectives were to: - Introduce innovative ways for young people who are disadvantaged and NEET to develop transferable and transversal key competences for the labour market by engaging them through non-formal, cultural and artistic learning; - Introduce innovation and experimentation in non-formal learning by situating the learning in 'unconventional places' - locations and spaces which are not associated with the target group with traditional education; - Develop intellectual outputs that support the creation of new pathways to initial vocational education; - Foster the key competencies listed in the European Reference Framework for Lifelong Learning, i.e. communication skills, sense of initiative & entrepreneurship, cultural awareness and expression and social and civic competences; - Improve the personal development/life skills (confidence, communication, team-working, presentation, problem-solving, time management, responsibility, attitude and motivation) of 120 disadvantaged young and unemployed people aged 16-24, and help 25 young peer mentors (aged 18-24) improve to boost their achievements and enable success; - Equip the trainers, tutors and peer mentors that support young people to implement ECVET and Youthpass in their work.
Timeframe	The initiative ran between 2017 and 2020.
Target group(s)	Young adult (aged 16-24) NEETs and their mentors
Level of implementation	International
Geographical scope	UK, Cyprus, Italy, Greece and the Netherlands
Sector(s), level(s) and settings of education and training covered	Adult learning, community settings
Key actors involved and their roles	Seven partners with expertise in adult learning, innovation in education or arts took part: - Hope for Children CRC Policy Center, Greece - Dimitra, Greece - Kunstbedrijf Arnhem, the Netherlands

	- Mulab, Italy - ERIFO, Italy - Colleage Arts, the UK - Rinova, the UK
Key activities/ measures	Key activities were: - Conducting a case study of transnational initiatives making use of similar methodology; - Arranging events and workshops with key partners to brainstorm on the curriculum development and approaches to mentoring; - Developing a curriculum with four modules, guidelines to accompany it, and a website to support dissemination.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for vocational education and training
Conceptualisation of creativity	The initiative documents make use of the following definition of creativity, as set out in 'Creative industries for youth: unleashing potential and growth' (UNIDO, 2013): - 'Creativity is the untapped and innate human resource, whose potential economies have yet to harness. It can contribute to prosperity, to cultural exchange and social justice. Creativity is the inspirational energy and knowledge that spurs many individuals, including young men and women, to undertake new industrial ventures with a vision of the future transformation of their societies. Based on the initiative documentation, the following were components of creativity: - Soft skills such as team building, trust-building, development, peer support and confidence; - Self-expression; - Outside-the-box thinking.
Pedagogical approaches and methods promoted	In the context of CREUS, peer mentoring is defined as learning from individuals with similar backgrounds and enhanced experiences, and learning through cooperation and shared practice. The working hypothesis is that space is essential as a factor facilitating the interaction and exchange of knowledge. In terms of peer mentoring, the methodology places emphasis on reflexivity or reflective practice and encourages peer learning in and co-creation. The methodology was developed based on an initial transnational review of case studies and lessons learned from three Leonardo Da Vinci initiatives run in the past: - The Euro Arco model; - The Collage Arts Talent match programme; - ECLN (European Cultural Learning Network). Inspired by these initiatives, CREUS focused on the following pedagogical approaches: - Peer-to-peer learning; - Arts-based learning; - Space as a learning environment; - Developing transferable skills.
Assessment approaches and methods	Learning modules for mentors offered assessment and accreditation against the following frameworks:

promoted

- European Reference Framework (8 key competences);
- Collaborative Learning Open Curriculum Kit (CLOCK);
- Youth Pass Certificates.

The Learning outcomes 4 and 5 of the ERF were specified for each of the four modules and devised to reflect the CLOCK methodology in order to offer accreditation for peer mentors.

In addition, the Talent Matching Europe: Diagnostic Skills Check Tools covered recommendations concerning assessment of entrepreneurial skills and creativity of the participants.

The 'How am I creative' self-assessment tool focused on questions that allow for individual definitions of creativity, creativity as both small and big ideas, but require action to make ideas come to life (value-added). Key questions were:

- Why do you think it is important to be creative in life or work?
- What does being creative mean to you?
- What is the creative idea that you want to take forward? If you have a creative idea, what's the big idea? Please describe your idea and what you have done so far to make the idea a reality.
- Finally, how do you hope the programme/mentorship will help you? What do you want to achieve?

Results

Key outputs were:

- Initiative's website;
- CREUS curriculum framework: a modular learning programme comprising four strands - 'Starting the journey', 'Building the relationship', 'Setting boundaries and knowing own limits' and 'Ending the mentoring journey';
- Intellectual outputs: case studies and qualitative enquiry transnational report, methodology - inception document and CREUS development curriculum;
- CREUS activities and exercises for peer mentors and tutors;
- CREUS visual guides for peer mentors;
- Talent matching Europe: diagnostic skills check tools;
- EARS listening model used in mentoring practice and designed to support the development of listening skills;
- Mentoring worksheets and mentoring plan templates;
- Talent matching manual;
- Guidelines for achieving accreditation.

This innovation initiative and learning modules were designed in a way that responds to a range of research studies (e.g. Work-based learning in Europe: Practice and Policy Pointers, Identifying What Matters) which call for innovation in the design of post-statutory, employment-related VET through transversal skills development for lifelong learning. The initiative fostered creativity as a transversal skill first and foremost through the development of soft skills such as confidence, self-reflection and collaboration.

Working in unconventional spaced had the following effects on participants and mentors:

- Freedom from the classroom (one can do things one would never think of doing in a classroom, get new perspectives and play);
- Change in the hierarchy of relationships and of rigid social norms;
- Encouraging creativity and thinking outside the box both in the activities and the use of space;
- Breaking down social barriers experienced by mentees;

	- Changing and naturalising group dynamics.
Lessons learned	The use of non-formal and informal learning strategies through peer mentoring in unconventional spaces is rarely formally acknowledged. It should be possible to set out a guide to formally acknowledge this learning since the implementation of the activities presents many common elements. However, structured methodological approaches to do so are lacking. This possibly explains the difficulties at times felt by the interviewees to explain the reasoning behind adopting particular approaches and the success factors, reinforcing the need to develop a formal methodology as proposed by CREUS.
Sources of information	CREUS Consortium. (n.d.). *CREUS*. Retrieved 10 September, 2020, from https://creus.initiativelibrary.eu/

Creative Thinking in Youth Work

Objectives	The creative thinking in youth work initiative was a mobility and collaboration initiative, the objectives of which were to: - Support the professional development and ability of 35 youth workers from seven NGOs to be creative and innovate (a 9-day training course on design thinking, creativity and e-learning); - Raise awareness on how innovation and developing creative initiatives can increase the impact and efficiency of youth activities (intensive co-created MOOC on the subject); - Upscale the impact by setting up a network of youth NGOs for sharing knowledge of how to bring innovation to their organisations and communities (an interactive marathon of challenges proposed by the participants, an online course in English with subtitles in seven languages and seven multiplying activities).
Timeframe	The initiative was launched in 2018 and ended in 2019.
Target group(s)	Youth workers
Level of implementation	International
Geographical scope	Bulgaria, Cyprus, Croatia, Hungary, Lithuania, Romania and Serbia
Sector(s), level(s) and settings of education and training covered	Adult learning, community settings
Key actors involved and their roles	Central to the initiative was the Bulgarian organisation WalkTogether, which led the consortium, all the initiative activities and hosted the training. This non-governmental organisation offers non-formal education to adults and young people, covering the three main areas of non-formal education: socio-cultural and popular education, education for personal development, and professional training (SALTO-YOUTH, n.d.). Monomyths (Romania) and Tavo Europa (Lithuania) assisted WalkTogether in developing the training of creativity and online MOOC. All the partner organisations distributed the initial survey, chose and sent 5 participants each to represent their country in the training. After the training, the NGOs let the participants to use their social media platforms for dissemination and their facilities for multiplier events.
Key activities/ measures	'Creative thinking in youth work' was an intensive training course spanning over 9 days and covering topics such as design thinking, creativity and e-learning. The training course which all participants attended compromised the 6 activities described below:[1] - **Introduction about creativity** - This part of the training course focused on the art and science of creative thinking, what it means and how it can benefit the participants. After a short period of exploring the literature, and to follow a participatory method, the participants were encouraged to come up with their own informed definitions of creativity. - **Think creatively** - This part of the training course was dedicated to practical challenges and testing methods to generate new ideas and solutions by the use

[1] The following overview is a synthesis of information learned from the initiative description and the initiative coordinator.

of creative thinking tools. As an example, the participants were challenged to write creative briefs. A creative brief is a document used by creative professionals to develop engaging deliverables that maximise on visual design and digital skills. To bring the challenge close to home, the participants worked only on creative briefs of their own NGO.

- **Process tools** – Seeing that a process can kill an idea before it has had a chance to fully mature and be fairly evaluated, this part was devoted to teaching the participants how to practice active listening and feedback during idea generation and brainstorming sessions. In this workshop, the trainers also analysed blocks of creativity and how the environment can negatively or positively affect creativity and idea generation processes. The participants practice techniques for keeping the idea process on track and removing blocks on creativity caused by external factors.
- **Innovate** - This module focused on how to evaluate and select ideas, refine and further develop them to solve problems best and create new solutions. Whereas this section was more heavily focused on critical thinking and selection of ideas, it emphasised that the idea exploration phase never ends but instead continues on a higher level where the aim is to best fit the idea to the needs of the local community and the organisation.
- **Leading Innovation** - This part was designed to ensure that the leaders from different NGO are not unconscious impediments of creativity, but rather mature enablers of innovation. This workshop, therefore, regarded self-development and teaching the participants to have a proactive approach to and positive attitude towards innovation and change.
- **E-learning platform and MOOC design** – In this section, the participants provided their expertise in selected areas and imagination to create a product that could offer support and build capacity for innovation in other Youth NGOs. Each participant produced one video each for the explanation of their topic in the MOOC.

Also, two other activities were crucial for the implementation of the initiative:

- **Uploading the MOOC materials into the Monomyths lifelong learning platform** – The Monomyths associations created the course 'Creative thinking in youth work' on their lifelong learning platform. In collaboration with the participants, Monomyths uploaded the videos and descriptions for each module onto the online course and made the course presentable.
- **Multiplier events** - These events were held in the origin countries of the participants to showcase the 'Creative thinking in youth work' activities and promote creative thinking at a larger scale among youth workers. Each participant held an event to present the lessons from the training and disseminate the MOOC in his/her community.

Funding arrangements

The initiative was funded as a Youth in Action programme by the European Union's Erasmus+ Programme from February till October 2019. Besides, it was a Key Action 1 initiative, designed for initiatives that enable organisations to offer structured study, work experience, job shadowing, volunteering, training, and teaching opportunities through mobility. It was awarded a grant of EUR 27,700.

Conceptualisation of creativity

The initiative partners themselves did not clearly define creativity in their own initiative documents. The reason for this was an underlying notion that creativity must be defined on a personal and individual rather than an objective level. However, according to the co-created MOOC, creativity was understood as a *process* consisting of two elements: thinking and production. The following can be said about how creativity was understood and how it was conceptualised vis-à-vis creative thinking (Monomyths, 2019):

- According to the interviewee, the consortium took an explorative approach to the

conceptualisation of creativity in training by letting the participants define creativity.

- The MOOC curriculum does not apply a holistic approach to defining creativity.
- The three definitions presented in 'Basics of creativity' were: 'Creativity is the process of change, of development, of evolution, in the organisation of subjective life' (Ghiselin, 1952), 'Creativity is the forming of associative elements into new combinations which either meet requirements or are in some way useful' (Mednick, 1962) and 'Creativity denotes a person's capacity to produce new or original ideas, insights, inventions, or artistic products, which are accepted by experts as being of scientific, aesthetic social or technical value' (Vernon, 1989).
- To bridge these definitions, creativity was described in the MOOC as consisting of two separate and necessary processes, that of thinking and that of production. This implies that being imaginative without implementing one's ideas does not make one creative.
- The focus on production, in addition to thinking implies that the conceptualisation of creativity was both process and output-driven.
- The production of the MOOC by the participants is proof in itself that the training initiated and was a creative process.
- A distinction between creativity and creative thinking can be drawn as the former implies a combination of a thinking process and a valuable output, whereas the latter concerns the thinking process that is, depending on the output, potentially - but not necessarily - creative.
- Whereas the value or product outcome of a creative thinking process cannot be expected from the thinking process, the initiative presents the creative thinking process as a 'capability' and/or an 'ability' that can be trained. Besides, improving one's creative thinking ability is necessary to bring about innovative solutions to societal challenges (Vernon, 1989).

Since the focus area of the training and MOOC was on creative thinking, not creativity *per se*, the MOOC took care to define this thinking process separately, including the first four basic stages of a creative thinking according to Wallas (1926) and two additional key elements defined by the participants (Nikulina, 2019):

- **Preparation**: This stage deals with the collection of background information and reading of literature, recognising that knowledge is the foundation of good ideas.
- **Incubation:** The period of frustration, where one matches prior knowledge with theoretical facts learned during the preparation period. This stage is also important for matching ideas with the reality and considering the feasibility of one's ideas.
- **Illumination:** This is the 'Eureka' moment of the creative thinking process in which one finds a solution or idea that one is content with. It can occur at any points in the thinking process.
- **Verification**: Regards the period when an idea is tested and implemented, to learn whether it works as expected or not.
- **Problem-solving**: The creative thinking process was defined as a way to look at and solve problems from a different perspective, avoiding Orthodox solutions and thinking outside the box with the intention to arrive at solutions that are unusual, original and new.
- **Exploration:** Recognising that to excel at problem-solving, it may be necessary to explore and challenge the nature of the question, the direction of and the desired solutions, as well as the associations and connections between ideas and assumptions.

Pedagogical approaches and methods promoted

The consortium did not set out a specific pedagogy on how to teach creativity. Nevertheless, the resources suggest that 'Creative thinking in youth work' showcases some pedagogical principles and a plethora of methods. The following pedagogical principles reveal how to best teach creative thinking for youth workers (SALTO-YOUTH, 2019):

- Determine what new knowledge and skills the youth need to develop through pre-assessment. According to the interviewee, the desire to remedy the low participation and engagement among youth workers seen in the stakeholder survey drove the consortium's participatory approach to the methods prompted.
- Allow for as much collaboration and participation in the teaching as possible to increase the activity, enthusiasm and feeling of ownership of the learners
- Focus on techniques that can be applied to the participant's context and personalise the learning experience as much as possible
- Make use of ICT, e-tools and e-learning (e.g. video making and visual design) to modernise the teaching, give the learners additional fun challenges and reach out to a bigger audience

To strengthen the creative thinking abilities of youth workers, the participants and the partner NGOs developed and uploaded a wide range of materials for the MOOC. Whereas the first module in the MOOC concerned the definition of creativity, the last three concerned methods that can be applied to foster the creative thinking of youth workers:

- **Creativity activators:** To think creatively requires more energy than our typical, behavioural mode of thinking, usually a break away from the typical or expected. This module focuses on tips and tricks to stay creative in spirit and how to deal with and avoid creativity blockers.
- **Creative environment**: It is well-known that the right working environment can stimulate learning – the same goes for creativity and innovation. This part teaches methods of how external factors ranging from lightening to the people one is surrounded with can be used to strengthen one's creativity.
- **Creativity tools:** To support in the explorative, incubating and illumination phase of the creative thinking process, this module gives a variety of tools and techniques that helps one to take new and different perspectives ranging from brainstorming tasks to interactive games.

Assessment approaches and methods promoted

According to the interviewee, no assessment was applied to the participants regarding their creative thinking ability, and no assessment was integral to the training or MOOC. However, along with the viewpoint that creativity should be understood and fostered on a personal level, the MOOC promoted personality type testing as a form of self-assessment of creativity. Understanding how one's personality type mattered in creative processes was seen as beneficial to the development of creativity skills, personal development and job opportunities (Monomyths, 2019).

The three tests of personal and/or creativity types mentioned and their benefits for creative thinking processes were (Monomyths, 2019):

- **Adobe – Creative Type Quiz:** From knowing one's dominant creative type among 'the artist', 'thinker', 'adventurer', 'maker', 'producer', 'dreamer', 'innovator' and 'visionary', youth can better understand how to turn their creative ideas into action.
- **Belbin team roles test:** Depending on the task at hand, building a team from individuals with diverse team role personalities, strengths and weaknesses, can help to solve a task or problem at the team level. The 9 team roles are: resource investigator, team worker, co-ordinator, plant, monitor evaluation, specialist, shaper, implementer and completer finisher.
- **Myers Briggs type indicator personality test:** Knowing one's placement on scales of extroversion versus introversion, sensing versus intuition, thinking versus feeling and judging versus perceiving can help youth in understanding needs and

deciding on strategies in creative problem-solving situations.

Participants to the MOOC were particularly encouraged to take the Adobe – Creative Type test and reflect on how the results could help them strengthened their creativity. Besides this self-assessment, all participants to the training course received a certificate of attending the course - a customised Youth Pass section filled out for the 8 key competences.

Results

The key output of the initiative was the MOOC for creative thinking in youth work.

The feedback from the participants and comments by the interviewee suggests that the training reached its overall goals and that it taught creativity as a transversal skill. By September/August 2019 the objectives had been reached. Central to those were the training, the creation of the MOOC and that the 35 participants in the seven countries shared their newly acquired know-how and their curriculum on creativity and design thinking with other 100 local youth workers, teachers or disadvantaged learners.

The feedback from the participants regarding the training was overtly positive. The participants enjoyed the personalised learning experience, discovering their own form of creativity and how to put it into practice by solving problems faced by themselves or their community. On the one hand, the feedback suggests that enhancing creative thinking improves other transversal skills. On the other hand, creative thinking is a transversal skill in its own right. This is particularly visible in the participants' reflection on the applicability of creative thinking to diverse areas of their lives.

- **Regarding the sense of initiative and entrepreneurship**: "The whole initiative was to enhance our creativity, and to do that the trainers showed us not only how to produce ideas but also how to use them effectively to solve real-world problems."
- **Regarding the personalised learning experience**: "Most powerful learning moment was discovering myself, dealing with my fears, fighting them and pushing my boundaries. This initiative helps us to explore our mind and creativity limits."
- **Regarding learning-to-learn:** "I found tools used during this training course such as brainstorming and mind mapping very useful and productive for me. I now know how to use them in order to organise and manage my learning experience better" and "We had to find a lot of resources in the final task of the initiative to back up our video, so we learned in a way to gather information and distinguish what is useful from them."
- **Regarding the transferability of the methods**: "In this course, I learned new methods to enhance creativity. I can use these methods at my work and school."
- **Regarding social skills**: "In this training course, most of the work was taking place in teams. This characteristic helps a lot an individual to learn how to interact with others, respect their opinions, solve conflicts and work harmonically with others in order to achieve a common goal" and "I am now more aware of both the differences and the similarities between other cultures and mine".

According to the interviewee, at least 150 people had signed up for the online course as of last year. Yet, looking at the participant lists in the course as of July 2020 reveals that work needs to be done to make sure that it is and remains a popular e-learning platform and that the course remains relevant.

Lessons learned

A synthesis of information from the interviewee and the initiative documents, suggests that the following were the key strengths of the initiative:

- Each NGO in the consortium was familiar with working on Erasmus initiatives. This meant that the tasks related to the management of the initiative were easy, and more effort could be placed on the implementation of the activities.
- The NGO partners were committed to the implementation of the initiative and a long-term goal to enhance the creative thinking abilities of youth workers in Europe. To this day, the participants and NGO workers still keep in touch and learn

from each other informally.

- The design of a personalised and participatory learning experience, where the participants were in charge of the creative thinking process and applied metacognition on their learning, brought out the intrinsic motivation needed for successful creative processes.

Key challenges have been:

- Several e-learning platforms for youth exist. This makes it hard to draw attention towards the Monomyths platform and the particular course on creative thinking.
- Not enough time and resources were put into the co-creation part of the training course where the MOOC was set up and developed. While the course is great for being free, open access and giving an overview of the creative thinking process, it does not include a designated place for assignments and assessment.

Key messages for those willing to take up similar actions include:

- Creativity is abundant, but time and resources are not. Make sure that enough time is put into the implementation of ideas and development of products.
- Make use of the digital tools available to guide the learning and disseminate results.

According to the interviewee, for workshops and online courses on creative thinking in youth work to be taken up, it is important to recognise that non-formal learning plays a crucial role in developing the skills of youth workers and effectiveness of youth NGOs. In that regards, non-formal learning focused on creative problem solving will show in the effectiveness of their work. On top of that, this training has generated creative thinking as a skill and method that is transferable beyond youth work – particularly in the field of personal development, digital competences and lifelong learning.

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Interview with representatives from Walk Together.

Bullying: I don't stay! Yes to friendship.

Objectives	The initiative was developed as a result of searching for solutions to fundamental problems that teachers face: methods for bullying problem solving and work with bullies, unsatisfactory teaching effectiveness and a lack of motivation for learning among students. The main objectives were: - Promoting pro-social behaviours; - Developing the creativity of students and teachers; fostering language, basic and transversal (such as social, civic and intercultural) skills; - Searching for new innovative methods and forms of work; - Building motivation to learn.
Timeframe	The initiative was launched in 2017 and ended in 2019.
Target group(s)	Students in secondary schools
Level of implementation	International
Geographical scope	Italy, Poland, Romania and Greece
Sector(s), level(s) and settings of education and training covered	Secondary school education, institutional settings
Key actors involved and their roles	Central to the initiative were the Instituto Comprensivo di Porto Viro, Portugal (Initiative Coordinator), Szkola Podstawowa nr 4. im. Prof. Wladyslawa Szafera w Elku, Poland, Palatul Copiilor Vaslui, Romania, 5th Primary School Agion Anargyron, Greece, and Agrupamento de Escolas Fernando Casimiro Pereira da Silva in Portugal.
Key activities/ measures	The key activities were: - Students, using different techniques, made posters and organised a viewing where they were presented, prepared a dyadic digital comics book, an e-book, website and leaflets on bullying prevention; - Students wrote scenarios of a theatrical performance and organised a day of enactment of enthusiastic teaching and learning in the school community; - For teachers, a methodological guide was created to be used when working with bullies; - Students and teachers organised a public conference to improve awareness of the bullying problem and the methods that can be adopted to solve it. Throughout the initiative, a variety of creative activities were implemented, especially with the support of modern technology, i.e. information and communication technology.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for schools.
Conceptualisation of creativity	Creativity was not defined but treated as integral to digital competence and cultural awareness and expression. Concerning digital competence, creativity is a social skill needed to have an impact on communities and networks for social purposes. In relation to the cultural awareness and

	expression, creativity is a variety of ideas and production of something new or unique. Creativity was linked to: - Critical thinking; - Innovation; - Cultural awareness; - Respect for diversity; - Self-reflection; - Bravery and confidence-building.
Pedagogical approaches and methods promoted	Participatory, cooperative and justice-based methods were adopted in the initiative. Other pedagogical approaches were: - Discussion to stimulate reflection and problem-solving. - Cooperative learning by age, knowledge and skills. - Encouraging self-reflection on own feelings and emotions. In this way, learners were provided with a more likely social learning environment and encouraged to interact with different age groups and across disciplines. - Younger people benefited from observing and mimicking the behaviour of older adults with greater knowledge and skills. In contrast, the older ones had an active part in involving the younger and older children in school activities, playing a leadership role in a climate of collaboration (peer tutoring, group work). - Spreading awareness about bullying was done through activities based on non-violence education: exploration and observation - description - telling - playing to build new contexts of human society utilising the 'peer education' approach - using dialogue to solve conflicts.
Assessment approaches and methods promoted	A questionnaire and test were developed for students to answer 'true' or 'false' statements about bullying.
Results	Key outputs were: - Posters, a word cloud and conceptual maps; - Team presentations; - Website design; - Music against bullying; - Workshops and debates; - Bullying stories combined with pictures, comics and different scenarios; - A publishable e-book; - A bullying script and theatrical performance, video to be used in future teaching; - Digital comics based on a small guide of didactic digital comics; - Leaflets with slogans; - A public conference about bullying; - A presentation to the families and communities; - A methodological guide for an education initiative; - Bullying scenarios including a tour in local environment.

At the end of the initiative, the participants were better aware of the discomfort and malaise determined by deteriorating interpersonal relationships. An internal evaluation found that the initiative developed social, cultural, linguistic and technological knowledge, motivation to teach, sharing knowledge and skills, awareness and cultural expression, citizenship skills, organisational and professional skills, a sense of belonging, initiative, design capabilities, experimentation and development of new tools and methodologies together with pro-social behaviour.

Creativity was fostered in relation to critical thinking on the one hand and appreciation of difference (different artistic expressions seen during the initiative) on the other. ICT to support creativity also contributed to achieving the goal to engage the community and networks for social purposes. Also, by using multiple techniques (ranging from arts to ICT, from individualised to team-work based strategies) to tackle a specific problem, the initiative seems to have developed creativity as a transversal skill.

The initiative was evaluated positively and presented as a good practice example and a success story in the Erasmus+ initiative database. The initiative first of all, increased the awareness of bullying and reached out to the whole community about it. The initiative modernised teaching methods adopted in schools involved, especially on ICT.

Lessons learned

The initiative shows that transversal skills, including creativity and creative thinking, can be fostered by applying a participatory approach to address a specific real-life problem.

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Design Thinking in Higher Education for Promoting Human-Centered Innovation in Business and Society (Design IT)

Objectives	The objectives of the initiative were: - Introducing innovative design thinking[2] interventions into entrepreneurship higher education that prepares students to enter evolving economies as adaptive, resilient, innovative, and creative individuals who also possess practical entrepreneurship skills. These skills allow them to put ideas into action in business as well as social well-being contexts. - Addressing the educational needs of students by introducing design thinking skill, building activities that can be integrated into a wide range of subjects, and helping learners understand the core design thinking concepts as well as explore its practical applications in diverse contexts. - Addressing the needs of educators by introducing instructor support content for integrating design thinking into education and training so that while learning students are challenged to generate new ideas and bring them to life.
Timeframe	The initiative ran between September 2017 and December 2019.
Target group(s)	Students and trainers in Higher Education
Level of implementation	International
Geographical scope	Finland, Estonia, Portugal and Greece
Sector(s), level(s) and settings of education and training covered	Higher education, institutional settings
Key actors involved and their roles	The consortia of DESIGN IT consisted of five partners: Tallinn University (Estonia), Metropolia (Finland), University of Thessaly and Centre for Research & Technology Hellas (Greece) and Polytechnic Institute of Porto (Portugal). Tallinn University and Dr Kai Pata at the Centre of Educational Technology coordinated the initiative and contributed to overall initiative development and design. Partners involved have contributed to the implementation of all initiative activities. The design organisations Futurice, Gofore and IDEO contributed to the initiative as specialised consultants.
Key activities/ measures	The core activity of the initiative was the development and testing of the gamified learning platform. The core and functions in the game were the same, but the topic students had to address inside the game differed from institution to institution. The students mostly participated in each country as players of the game, playing an active role in carrying out the design procedure. In each country, a certain number of students also answered a questionnaire and gave interviews about their experience of the structure of the game. The following activities cut across the work of the

[2] Design thinking is a human-centered, solution-oriented approach to entrepreneurial innovation that aims at better understanding of how a user experiences a proposed solution through empathy for understanding actual issues, creativity for innovation, prototyping, and testing with users to ensure that proposed services work (Stanford).

partner organisations:

- A small-scale study to identify student needs for building design thinking skills. The intention was to map the prior knowledge of the students about design thinking and gamified learning methodologies, to find the knowledge gaps and needs that the game had to address.
- Development of the methodological framework for design thinking in higher education. The methodological framework underpinned the development of the game and active learning approaches for building design thinking skills of students by use of the game. The developed framework combined three dimensions: practice, cognitive, and mind-set (see the section 'Fostering creativity'). The framework adopted tools and lean service creation canvases from design companies, a human-centred approach, thinking by doing and collaborative work style.
- Development of a gamified online learning platform. The initiative produced a learning game for promoting design thinking mind-sets in formal entrepreneurship education contexts as a complementary learning tool. In the game, students were challenged to solve a real-world problem or challenge set out by the teacher.
- Multiplier events. Multiplier events were used to share ideas, brainstorm, and test the gamified online learning platform by the use of collaborative learning methods.

Funding arrangements

The initiative was funded as a strategic partnership for higher education (cooperation for innovation and the exchange of good practices) under the Erasmus+ Programme. It was awarded a grant of EUR 232 710.

Conceptualisation of creativity

Creativity was not clearly defined in the initiative documentation. However, the term is understood to have two capabilities: 1) idea-exploration and the ability to come up with multiple and diverse ideas and 2) the action of bringing ideas into life and applying critical thinking.

Creativity was referred to as a transversal skill and linked to innovation and entrepreneurship, and this was tied to national education policy documents. In the Final report, critical and creative thinking is given as examples, together with entrepreneurial capacity, as transversal skills that the initiative fosters.

Overall, creativity was seen as an integral part of the problem-solving process necessary in design thinking and gamification. Creativity is especially important in solving problems where there are no solutions.

Pedagogical approaches and methods promoted

This initiative aimed at facilitating design thinking in higher education by introducing an active, experiential learning approach that engages students with design thinking principles towards building their capacity to act as innovators in business and civic contents (Design IT initiative, 2018). Design thinking is a solution-based approach that is used to solve problems and correct faulty definitions of problems. It has a human-centric characteristic because it stresses that the process of "thinking out of the box" towards introducing solutions need to address actual user needs.

The methods had two key dimensions:

- The *practice dimension* adopted tools and lean service creation canvases from design companies, human-centred approaches (Norman, 2010), thinking by doing (Schön, 1983) and collaborative work style (Paavola and Hakkarainen, 2014**;** Seitamaa-Hakkarainen and Hakkarainen, 2001; Rylander, 2009; Brown, 2009; Sato et al., 2010). The initiative partners considered that the practice dimension of the game had three key components: visualisations, combination of divergent and convergent approaches and collaborative work style.
- The *cognitive dimension* regarded the research of creative thinking which was mainly based on abductive reasoning (Paavola, 2015; 2015a; Lockwood, 2009;

Dew, 2007) and hands-on research on thinking and doing by Seitamaa-Hakkarainen et al. (2014). Abductive reasoning provides a means to understand how to foster creative activities appropriately. Ideation, creative thinking or in other words coming up with ideas out of the box requires the following activities and characteristics (Paavola, 2014): Searching anomalous, surprising, or disturbing phenomena and observations, Detecting details, little clues, and tones, A continuous search for hypotheses and understanding their presumptive nature, Aiming at finding what kind or type of explanations might be viable for scoping the challenge, Aiming at finding ideas which can be explained or rather be experimented if they work, Searching for "patterns" and connections that fit together to make a reasonable unity and understanding and paying attention to the process of discovery – its different phases.

Assessment approaches and methods promoted

Within the frames of the 'Design IT' initiatives, learning outcomes were not assessed. However, students received scores during the game based on their creativity and entrepreneurial skills and, most importantly, based on their ability to collaborate in solving problems and ideation. Each team in the game gets three coins once in every level once they confirm their work to their game master (teacher). The final assessment, so to say, is done when the game master (teacher) evaluates and accepts the work after the players have improved and it is based on feedback (formative evaluation). Some characteristics of the coin system in the game could be seen as a competitive feature of the game, rather than meaningful assessment.

Regarding learning outcomes, the key idea of design thinking is that students must fully understand the game, accurately define a problem statement, collaborate, and think out of the box to introduce solutions to 'wicked' problems to which none appears to exist at first glance since this will prepare students to face future risky situations at their workplace.

In addition to targeting students, Design IT aimed to develop the following skills and/or knowledge of educators: the ability to integrate new methodologies into courses, awareness of the need for integrating ICT into HE in alignment with the needs of the entrepreneurial and social-entrepreneurial sectors, linking of theoretical knowledge to business practices, linking newly developed knowledge to educational goals, ability to build high-level knowledge among students, fostering students' motivation and creativity on engaging in problem-solving activities, critical thinking, innovation, know-how exchange networks and the ability to integrate design thinking into their practices.

Results

The outputs of the initiative were:

- A needs analysis for design thinking in higher education courses in four countries
- An active learning framework for promoting design thinking in entrepreneurship higher education through exploration, collaboration, and creativity
- A validated gamified learning platform Design IT that familiarises students with design thinking concepts and helps to build practical skills
- An Educator support in learning scenarios and best practice guidelines for the integration of the proposed methodologies and tools into classroom practices

Students from each partner country (100 students from Finland, 64 students from Estonia, 140 students from Greece, 54 students from Portugal) participated in the game validation phase in 8 activities from Fall 2018 to Spring 2019.

Regarding the ability of Design IT to foster creativity, all the student teams developed innovations and mostly experienced designing for human-centred innovations positively. In addition, most teachers testing the tool in multipliers event were positive.

The tool was evaluated by the students to promote creativity, interactivity and communication between team members. It was explained as follows: 'The Design IT interface acts like a blackboard with stickers, where it is easier to categorise your ideas, and break the initial problem into smaller ones, so that each post-it sticker represents a smaller problem. Additionally, you can visualise your ideas and edit them whenever you want, which helps you be creative and process your ideas. It also helps you work step by step and gradually improve your idea' (Final Evaluation Report). The students stated that the easy collaboration further fostered their creativity as

transversal skills (actualisation of problem-solving ideas).

Lessons learned

Based on external and internal review, Design IT can be deemed a successful initiative. According to the initiative coordinators, key success factors were:

- Well-developed and consistent methodological framework underpinning the game
- The game and development of material were built in an extremely participatory manner
- The flexibility of the game to different contexts, which made in adaptable to several countries and disciplines

This is not to suggest the initiatives had no weaknesses:

- Challenges to disseminate and make the initiative well known
- Not enough funding to sufficiently upscale the initiative
- Although the game made students generate ideas, some found the online learning platform limiting as there were not always that many options and ways to act during the game.

Overall, 'Design IT' helped to foster creativity as a transversal skill – especially in the ways creativity links to problem-solving and collaboration. Certain features of this methodology make it particularly well suited for learning in various settings. This was because gamified learning platform could be changed to make students solve any form of problem in any field through games and collaboration. According to the initiative coordinators, the initiative is still unique and should have gotten more publicity. To make it more popular, one needs more funding but also to share the platform on the right websites.

Sources of information

Erasmus +. (n.d.). *Design thinking in higher education for promoting human-centered innovation in business and society*. Retrieved 8 September, 2020, from https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2017-1-EE01-KA203-034889

Design IT. (n.d.). *About Design IT initiative.* Retrieved June 4, 2020, from https://initiativedesignit.eu/

Interviews with the representatives of the Design IT

Experiential Live Initiative Enhancement

Objectives	The initiative aimed to build a strategic partnership to support the adoption of live initiatives in the role of students' consultancy at European and regional levels. The specific objectives were: - Integrating an innovative methodology with e-learning, hence supporting the quality and modernisation of undergraduate and postgraduate curricula, youth employment, and the engagement of higher education institutions with businesses and local authorities; - Fostering creativity and innovation in the study process by applying a method, central to which is that students employ social skills and take leadership of real-world initiatives; - Integrating academic and prior experiential knowledge with personal development attributes and employability skills by supporting and promoting the use of live initiatives within the higher education institutions in the EU.
Timeframe	The Experiential Live Initiative Enhancement initiative ran between 2017-2019.
Target group(s)	Academic staff of higher education institutions, students and business representatives.
Level of implementation	International
Geographical scope	Italy, Lithuania, Finland and Spain
Sector(s), level(s) and settings of education and training covered	Higher education, institutional settings
Key actors involved and their roles	Central to the initiative were the Utenos kolegija, Lithuania (Initiative Coordinator), Fundacio UAB, Portugal and HAAGA-HELIA Ammattikorkeakouluoy in Greece.
Key activities/ measures	The live initiative method was introduced cross-disciplinary in seven courses in the Spanish university and four courses in the Lithuanian college. - The students taking the courses were divided into small groups. Each of these acted as a group of consultants to a real-life commissioner for a real-life problem or development opportunity that the commissioner needed to explore. Students participating in the initiative attended events with the respective businesses. - The commissioner/business representative interacted directly with the group of students-consultants by providing a brief for a new opportunity or analysis of an existing problem or issue as well as giving feedback and making it possible for the students to proceed with the initiative. - As a result, students had to take on a new kind of responsibility, accept that the process of the initiative will develop and change during the semester. They learned teamwork, initiative management, creativity, contacting initiative stakeholders, standing uncertainty and appreciation that teachers do not always

have all the answers.

Teachers organised events with businesses and in schools to involve them in the initiative. All school staff was responsible for disseminating the initiative activities through social media and their local communities.

Two conferences were held:

- An international conference on live initiatives - Experiential Learning and University-Industry Cooperation was held in Utena, Lithuania.
- A final conference 'Learning Innovation: Live Initiatives, Creativity and New Approaches for a Changing Labour Market' was held to discuss and disseminate findings in Barcelona, Spain.

Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for higher education
Conceptualisation of creativity	The initiative consortium did not define creativity. Yet, creativity was mentioned in the initiative documentation in the context of problem-solving and entrepreneurial capacity. Creativity encompassed divergent thinking, bravery and exploration, the process of bringing an idea into action and solving problems. Moreover, the initiative documentation linked creativity to the following: - Problem-solving; - Critical thinking; - Entrepreneurship; - Innovation; - Collaboration; - Initiative management and leadership.
Pedagogical approaches and methods promoted	The main pedagogy adopted was experiential learning, which centres around acquiring knowledge by experiencing things. It usually requires classroom learning in a workplace or simulated workplace settings. Initiatives that foster experiential learning are often called live initiatives because they can be worked on in real-time and with a defined deadline (i.e., internships). Experiential learning helps to engage students in creating knowledge and critically reflecting on their experiences, allowing them to understand how to transfer their knowledge and skills to the future and for lifelong learning. Other pedagogical approaches employed during the initiative were: - Inquiry-based learning; - Problem-based learning; - Transformative learning theory; - Active learning; - Student consultancy pedagogy.
Assessment approaches and methods promoted	In standard courses, students could choose to get half of their grade covered by their participation in a live initiative. The tutor could also provide an input to the evaluation of the work of each student. In general, in student consultancy initiatives, it is important to assess both the process and the product or outcomes. For this reason, the assessment typically included: - Peer- and self-assessment; - Assessment by the tutor; - Assessment by the teacher(s). The tutor's assessment of the student's performance included validation of specific skills required

in the workplace (i.e. time management, communication, emotional intelligence, assertiveness, teamwork, conflict resolution, work under pressure, creativity, proactivity, etc.). In some cases, creativity was assessed together with innovation. On other occasions, the skills that were assessed were soft and transversal skills, but these did not include creativity and focused on critical thinking, teamwork, communication, research, problem-solving and decision-making. Creativity was mentioned under problem-solving and integrated into the description of the highest marks. For the highest marks, students had to be creative, take initiative, go outside the box, take and negotiate risks.

Results

Key outputs of the initiative were:

- A Students' Consultancy guidebook: An International Perspective. A Guidebook Implementing and Managing Students' Consultancy Live Initiatives;
- An online learning platform;
- A Short guidebook;
- Case studies on modules integrating a live initiative approach in two countries and describing how the process went in two main participating universities.

The initiative had several and documented positive outcomes. The teachers were content since the courses with live initiatives got more popular among students and received good feedback from businesses. The companies gained new and different insights from young consultants on how to develop and solve their problems whilst gaining an opportunity to mentor and encourage young and potential new employees. Students improved transversal skills through experimental and creative problem-solving. They improved teamwork, relational, communication, stress management skills, level of employability, managerial, entrepreneurial and meta-skills; while gaining a better understanding of the utility of the higher education content for the real world.

On a higher level, the initiative strengthened the link between universities and the industry and information flow between the different types of institutions.

Lessons learned

Success factors for the initiative were:

- Close cooperation between the universities and businesses;
- Invested and engaged students and businesses.

Sources of information

ELPE Consortium. (n.d.). *Experimental Live Initiative Enhancement*. Retrieved 8 September, 2020, from https://sites.google.com/view/initiative-elpe

Sustainable Consumption and Production in Social Life

Objectives	The initiative objectives were: - Improving the quality of school curricula, encouraging sustainable consumption behaviour through educational activities in 5 different European schools and creating an educational base consisting of lesson plans, posters, and a book to achieve this; - Enhancing the potential of teachers, i.e. mastery of ICT skills, improved language and intercultural competences; - Improving the teaching of reading comprehension in order to develop critical thinking and proper consumer choices; - Involving 65 students in designing an innovative interactive book that promotes environmental protection; - Increasing knowledge about sustainable consumption among 2,500 students and local communities during a 2-year-long initiative; - Increasing knowledge about sustainable consumption among students; - Stimulating students' creativity, innovation, observation skills, comparison and classification techniques.
Timeframe	The initiative ran between 2016 and 2018.
Target group(s)	Students (aged 9-14) and teachers
Level of implementation	International
Geographical scope	Poland, Turkey, Romania, Estonia and Italy
Sector(s), level(s) and settings of education and training covered	Primary and secondary school education, institutional settings
Key actors involved and their roles	One partner in each participating country organising activities under different sub-topics: - School in Kaletach Miotku, Poland (Unsustainable consumption & Threats) - IPSSAR P.pi Grimaldi, Italy (FUTUREU & Healthy Living & Food & Sports) - Gymnasium Miron Cristea, Romania (Employment & Economy) - MTU Tartu Erahariduse Selts, Estonia (Environment & Climate change & Environmental protection) - Toki Sehit Yuzbasi Erhan Kindir Primary School, Turkey (Education & Innovation)
Key activities/ measures	An initial questionnaire laid the foundation for the course. The first part focused on students' knowledge of sustainability. The second part concerned creativity and innovation and was used to shed light on how students perceive these concepts and what students need in order to be creative. Survey findings led the organisers to incorporate more ICT and brainstorming activities into the lessons. Throughout the course, there was an active engagement of students. It was up to the

	students to set out criteria that would lead to success on the new planet under all the sub-topics. During the initiative, there were student exchanges between the partner countries where each country served as a base for sub-topics of sustainable development: Unsustainable consumption & Threats'; FUTUREU & Healthy Living & Food & Sports; Employment & Economy; Environment & Climate change & Environmental protection; Education & Innovation. Moreover, the initiative had three stages: - During the first three months, the students analysed the threats of unsustainable consumption. - In the second stage, students created a learning scenario based on their experience on the imaginary spaceship that landed on the habitable planet FuturEU after a 500-year-long quest for a planet. In creating a new civilisation from scratch, they dealt with problems related to key themes of sustainable development. - In the third stage, the initiative outputs and results were disseminated to other students.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for schools.
Conceptualisation of creativity	Creativity was not defined, but creative learning was described by students as including fun activities and activities that allow them to take risks. Looking at the ideas behind the initiative and methodology, as well as the principles the students came up with to support creative learning, creativity seems to be linked to: - Innovation; - Critical thinking; - Imagination; - Student-centred learning; - Real-world problem-solving skills; - Life-long learning; - Didactic competences.
Pedagogical approaches and methods promoted	Overall the course made use of the following pedagogies: - Eco-justice pedagogy; - Initiative-based learning; - Problem-based learning; - Didactic learning methods; - Blended learning (flipped classroom); - Collaborative learning. For the part of the initiative focusing on Education & Innovation, there was a stronger focus on collaborative learning, usage of multimedia lessons and giving the students time to experiment and have fun.
Assessment approaches and methods promoted	Not applicable
Results	Key outputs were:

- Initiative website;
- Survey results;
- An educational base - lesson plans for each sub-topic of the course for each country;
- An innovative interactive book that promotes environmental protection;
- A leaflet that presents the topic of the initiative, objectives and partner schools.

A new survey at the end of the initiative found an increase in the share of correct answers from 44% obtained in the preliminary study to 69% of correct indications in the final study, which was considered satisfactory. The initiative team concluded that didactic activities undertaken could be considered effective and developed communication, intercultural skills, analytical skills and critical thinking, increasing motivation to acquire knowledge, independent thinking and shaping attitudes among the respondents, which relate to the principles of sustainable development. Furthermore, making the students set out criteria for sustainability on a new planet fostered their imagination and sense of responsibility since they needed to imagine being in charge of the new planet and apply their new knowledge. The initiative was evaluated positively and is presented as a good practice example and a success story in the Erasmus+ initiative database.

In terms of wider impact, it resulted in schools introducing issues of sustainable consumption into their curricula. The initiative, therefore, had a lasting impact on each partner institution.

Lessons learned

Not applicable

Sources of information

The consortium. (n.d.). *Sustainable consumption and production in social life*. Retrieved 10 September, 2020, from http://sustainableconsumptionandproduction.weebly.com/

Erasmus +. (n.d.). *Sustainable consumption and production in social life*. Retrieved 10 September, 2020, from https://ec.europa.eu/programmes/erasmus-plus/initiatives/eplus-initiative-details/#initiative/2016-1-PL01-KA219-026190

Arts & Humanities Entrepreneurship Hub

Objectives	The initiative was developed with the objective to: - Increase the proportion of VET students acquiring an entrepreneurial mind-set and engaging in early-stage entrepreneurial activity; and - Raise awareness and improve the pedagogic capacities of VET policymakers and educators, and facilitate collaboration with other actors in the entrepreneurship ecosystem.
Timeframe	The initiative ran between 2016 and 2018.
Target group(s)	Educators in VET
Level of implementation	International
Geographical scope	UK, Belgium, Spain, Ireland, Denmark and the Netherlands
Sector(s), level(s) and settings of education and training covered	VET and adult learning, institutional settings
Key actors involved and their roles	Central to the initiative were: - Lisburn and Castlereagh City Council, the UK (responsible for initiative management, quality & evaluation, sustainability, mainstreaming student entrepreneurship in VET, needs and opportunities assessment); - Roscommon Leader Partnership, Ireland (responsible for mainstreaming student entrepreneurship and regional alliances); - Technical Education Copenhagen, Denmark (responsible for Student Entrepreneurship Support Toolkit, Phase 1: Content development); - Inqubator, Netherland (responsible for assisting quality management & evaluation of the initiative); - Feltech Software Innovations, Ireland (responsible for Student Entrepreneurship Support Toolkit, Phase 2: Technical Realisation); - Cebanc, Spain (responsible for the coordination of the Student Entrepreneurship Support Toolkit, Phase 3: Implementation and Feedback); - European Foundation for Vocational Education and Training, Belgium (responsible for the dissemination strategy and effort).
Key activities/ measures	The main activities undertaken include: - A needs and opportunities analysis developed, arguing the case for an integrated, cross-sector approach to student entrepreneurship education. The analysis explored the enablers, barriers, needs, opportunities and existing support that relate to the development of entrepreneurship education. - Five regional alliances were established in Ireland, Holland, Spain, Northern Ireland and Denmark, and brought together 61 stakeholders from VET, private

	and public sectors. - The alliances were involved in a consultation for the analysis of needs and opportunities, support and best practice mapping, development of regional action plans and dissemination activities. - A Student Entrepreneurship Support Toolkit was developed, and ten innovative entrepreneurship training activities piloted in the participating countries. - All initiative outputs and findings were shared via a multilingual initiative website and comprehensive strategy.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for vocational education and training.
Conceptualisation of creativity	In the initiative documentation, a creative and confident individual is described as one who innovates to solve problems and convert ideas into value across enterprises, organisations and the public sector. In the toolkit, creativity is treated as the ability to come up with loads of ideas without limitations and reasons and therefore differentiated a bit from innovation and entrepreneurship (although integral to an entrepreneurial mindset). Creativity was linked to: - Critical thinking; - Problem-solving; - Innovation; - Entrepreneurship. While innovation and entrepreneurship are said to be about convergent thinking and combining convergent and divergent thinking, creativity stands out because of these components: - Divergent thinking; - Multiple perspectives; - Acceptance of all ideas, also irrational ones; - Outside-the-box mentality.
Pedagogical approaches and methods promoted	The analysis of needs and opportunities conducted at the beginning of the initiative was used to inform the methods employed and design of the toolkit. For example, the study found that VET often is only a tool, and not an efficient one, to find employment, and VET should therefore aim to better boost the employability of an individual, and also develop students' transversal skills and life-long learning trajectories. A structured methodology was developed by a leading Danish VET school to identify 10 best practices and compile them into the toolkit, covering aspects such as the potential of the approach to develop and foster entrepreneurial mindsets incorporating creative thinking, problem-solving, team building, time management, decision making, communication and much more. It was agreed that the best practices should have practical 'learning by doing' focus and they should make learning entrepreneurship fun. A variety of approaches was applied, aiming to let VET institutions 'mix and match' from the initiatives to create lessons that suit their context. The main pedagogies employed were problem-based and collaborative learning.
Assessment approaches and methods promoted	The exercises and toolkit did not focus on assessment, but most exercises had strong elements of self-assessment and self-reflection.
Results	Key outputs were: - Initiative website; - Pilot implementation and feedback report;

- Student Entrepreneurship Toolkit, including detailed summaries, lesson plans and tips for replicating the activities (supported by the initiative website which includes essential and additional resources to assist teachers in rolling out the activities in their own settings);
- Survey templates from Student Entrepreneurship Toolkit pilot sessions;
- A guide to creating regional alliances;
- Needs and opportunities position paper and appendixes;
- A brochure;
- Email newsletters;
- Independent initiative evaluation.

An external evaluation based on post-initiative surveys found that all respondents had rated the pilot initiatives as either useful or very useful in developing the following competences: creativity, innovation, working effectively & efficiently (initiative), solving problems and teamwork, and that the Toolkit was very effective or effective in relation to 3 competences: build a spirit of enterprise, enhance creativity and improve decision-making skills.

Overall, the initiative was awarded high scores for its ability to teach skills related to entrepreneurship, which one can infer are also transversal skills related to creativity. The percentage refers to the share of respondents who were satisfied or very satisfied with the teaching of these skills:

- Creativity (100 %);
- Innovation (100 %);
- Risk-Taking (95.8 %);
- Working Independently (95.8 %);
- Working effectively and efficiently (100 %);
- Solving Problems (100 %);
- Teamwork (100 %);
- Design/Implementation for an idea (91.7 %);
- Capacity to manage deadlines (95.8 %);
- Analysing/ evaluating results (91.7 %).

The initiative was successful in responding to a genuine need experienced by partner organisations in the vocational education, entrepreneurship support and economic development sectors eager to use the outputs and sustain the impacts of the initiative in the long term.

Lessons learned

The Student Entrepreneurship Toolkit is user friendly and engaging for students in entrepreneurial education but can be further developed to cover more in-depth or longer lessons with an even wider focus on entrepreneurial transversal skills (e.g. soft skills and ICT).

Sources of information

The Mainstreaming Student Entrepreneurship initiative partners. (n.d.). Student Entrepreneurship Toolkit. Retrieved 10 September, 2020, from http://www.studentstartup.how/student-entrepreneurship-toolkit/

AHEH Consortium. (n.d.). Arts and Humanities Entrepreneurship Hubs. Retrieved 10 September, 2020, from https://www.artshumanitieshub.eu/

Assessment of transversal skills 2020 (ATS2020)

Objectives	Assessment of Transversal Skills 2020 (ATS2020), an innovative policy experimentation project, had the following objectives: - Develop and provide a comprehensive learning model for the enhancement of students' transversal skills within curricula and offer new approaches and innovative tools for the teaching and assessment of these skills; - Make sure that the resources and model are implemented by institutions, and research the effectiveness of the products against expected learning outcomes; - Provide recommendations for policy aimed at developing and assessing transversal skills in the school context, targeting policymakers, school leaders, teachers and researchers, as well as anyone interested in the development and assessment of transversal skills in the digital era; - A higher level objective is to contribute to the reform of education systems, coach young people on skills they need to contribute meaningfully locally and globally to their lives and economies and take charge of their learning.
Timeframe	The initiative ran between 2015 and 2018.
Target group(s)	Students aged 10-15 and their teachers
Level of implementation	International
Geographical scope	Belgium, Cyprus, Greece, Finland, Ireland, Lithuania, Slovakia and Spain
Sector(s), level(s) and settings of education and training covered	Secondary school education, institutional settings
Key actors involved and their roles	The project had 17 partners and one associate (Microsoft Corporation). The partners were: - Cyprus Pedagogical Institute Latsia (Project Coordinator) - Ministry of Education and Culture, Cyrpus - Centre for Educational Research and Evaluation (CERE), Cyprus - Danube University Krems, Austria - CVO Antwerpen, Belgium - Croatian Academic and Research Network, Croatia - Foundation of INNOVE, Estonia - University of Tampere, Finland - Computer Technology Institute & Press 'Diophantus', Greece - Monaghan Education Centre, Ireland - H2 Learning Limited, Ireland - Centre of Information Technologies in Education, Lithuania

	- National Examinations Centre, Slovenia - Ministry of Education, Science and Sport, Slovenia - Educational Research Institute, Slovenia - National Education Institute Slovenia - Dirección Xeral de Educación, Formación Profesional e Innovación Educativa, Spain
Key activities/ measures	The main activities of the project were the development of the assessment framework, the learning platforms, training materials, organising workshops in the participating countries, adopting and implementing the plan across the countries. Since the e-learning platforms were at the centre of the project, the partners spent considerable time developing the functions and content of the e-portfolios on the Mahara platform and Office365 for storing documents and evidence on students' learning. The development of the ATS2020 learning platform passed through four main phases: setting up an administration platform, developing a teacher dashboard, developing a students dashboard, and deploying learning analytics.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020)
Conceptualisation of creativity	Creativity was not defined but treated as a cognitive skill. According to the assessment framework, creativity is linked to innovation, problem-solving and digital skills. As the description of the competences needed for and attainment goals linked to being creative and innovative, the following components are listed: - Self-reflection/awareness and self-expression; - Ability to make help of digital tools and create new and original content, ideas and products; - Critical thinking and judgment of ideas (also called adaptive thinking); - Action and motivation to implement ideas and create high quality of outputs.
Pedagogical approaches and methods promoted	The ATS2020 Learning and Assessment Model has four basic elements: it focuses on transversal skills; contains an ePortofolio (student-owned dynamic digital workspaces); and MyLearningJournal (active student participation in the designing of their learning); assessment of, for, and as learning; and makes use of digital technologies. The learning model is based on a three-level developmental ePortofolio process: repository, workspace and showcase. Thereby, the following methods and pedagogical approaches were used: - Student-centred and participatory learning; - Digital platforms and tools; - Experimental learning; - Feedback and assessment.
Assessment approaches and methods promoted	The project partners considered assessment as a tool for enhancing and informing learning, rather than just certifying it, and focused on the assessment of, for and as learning. The project drew on the ISTE Standards for Students, and set out five skills to assess: - Information and research literacy; - Autonomous learning; - Communication and collaboration (interpretation and argumentation construction); - Creative and innovative thinking; - Digital literacy.

The assessment framework also set these components of creativity and innovation as learning outcomes:

- Identify and match needs with possible solutions;
- Integrate and re-elaborate;
- Innovate and creatively use tools and resources;
- Create original works as a means of expression.

These four components are assessed along three levels of proficiency. For example, the expectation for the highest level performance on the 4th component was: 'Effectively criticise the quality of their final content, ideas and products based on clear and tangible criteria, proving the development of their critical thinking skill.

ATS2020 used ePortofolios, electronic library of evidence, to assess students (especially formatively) and the following tools further assisted the assessment:

- Oppika (an evaluation tool for self-assessment of prior knowledge);
- My learning (Plugin to Mahara platform);
- Rubrics;
- Feedback form provided by Mahara.

Although creativity was defined as a separate transversal skill, it was also incorporated and mentioned in the framework regarding the other transversal skills (e.g. express creativity through different media and technologies).

Results

The main output was the ATS2020 transversal skill framework. Other deliverables and documents were available in multiple languages and included the assessment framework, learning assessment model, ATS2020 toolkit, manual for the learning and assessment platform, formative self-assessment scaffolding tool, technological tools and change management, implementation plans, learning scenario booklets, resources for training material, and policy/research papers.

A conference 'Developing 21st century skills, and 9 workshops to guide the implementation of the project and toolkits were organised.

Promotional material covered brochures, leaflets, posters, stickers, newsletters, logos, ppts, a promotional video, YouTube channel and website.

The pilot reached 224 schools, 747 teachers and 11,891 students.

The evaluation found that the project developed transversal skills. It also revealed significant differences between the control and experimental classes in post-test in almost half of the countries. Collected qualitative and quantitative data on the teaching and learning process reveals that the attitudes towards transversal skills became more positive among teachers and students. The teachers and students were particularly happy about digital tools and found them useful in developing autonomous learning skills. Regarding creativity, the evaluation found that it was most successfully taught and assessed in the Beligum school. Aside from this insight, there was little focus directly on creativity in the evaluation and assessment documents, although creativity was comprehensively covered (see lessons learned)."

Lessons learned

Some lessons learned, based on the evaluation report, are:

- Implementing an innovative learning model and its critical elements, such as ePortfolio, assessment of, for and as learning, development of transversal skills, and technology-enhanced learning design, is a complex process for both teachers and students, and it needs time to be adopted.
- Both teachers and students need longer engagement in activities promoting transversal skills for them to have an impact.
- Assessing student progress/learning outcomes is more meaningful and reliable for longer periods.
- More experts on creativity should have been involved since teachers found it

	harder to assess and understand. Besides, teachers need to make sure the concepts such as creativity are clear for the students.
Sources of information	ATS 2020 Consortium. (2020). *Assessment of transversal skills 2020*. Retrieved 12 September, 2020, from http://www.ats2020.eu

Tinkering: Contemporary Education for Innovators of Tomorrow

Objectives	The objectives of the initiative were: - Enrich skills and competences with specific reference to STEM; - Contribute to the development of the 21st century (transversal) skills: creativity, innovation, and entrepreneurship; - Promote a learner-centred pedagogical approach (tinkering); - Improve the attractiveness of, attainment in, and lifelong relationship with science and technology for adults and students; - Implement the innovative pedagogy of tinkering in school and out-of-school contexts at a European level and create a Europe-wide community of practice working with this pedagogy; - Encourage the cooperation and exchange of the expertise and practice between formal and informal learning institutions and professionals.
Timeframe	The initiative ran between 2014 and 2017.
Target group(s)	Adults (parents, museum educators and teachers of schools) as well as school-age learners (from 12 to 18 years old) in the first two projects.
Level of implementation	European
Geographical scope	Ireland, the Netherlands, Hungary, the UK, and Germany.
Sector(s), level(s) and settings of education and training covered	Non-formal learning, museum, and other non-formal settings
Key actors involved and their roles	The project was carried out through the cooperation between formal and non-formal learning institutions. The National Museum of Science and Technology 'Leonardo da Vinci' coordinated the project. Other partners included: - Stichting Nationaal Centrum voor Wetenschap en Technologie, NEMO Science Museum - University of Cambridge, Faculty of Education - International Centre for Life Trust - Deutsches Museum von Meisterwerken der Naturwissenschaft und Technik - Jedlik Ányos Gépipari és Informatikai Középiskola és Kollégium - MOBILIS Közhasznú Nonprofit Korlátolt Felelősségű Társaság Partners involved contributed to the implementation of all project activities, except for Cambridge University, which focused on the development of the theoretical and methodological frameworks as well as pedagogic materials and educational tools.
Key activities/	The main activities of the project were:

measures	- Design of new Tinkering activities for adult learners and schools; - Definition of a methodological framework for Tinkering as a founding element of the work; - Development of pedagogical materials focusing on the methodology of Tinkering and professional development, aiming to help practitioners adopt Tinkering in their practice; - Organisation of training for adult and school educators, aimed at creating the conditions for the implementation of the pedagogy and the activities; - Organisation of multiplier events for the wide implementation of the activities; - Dissemination at local, national and European level; - Management and monitoring of cooperation and operations.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership addressing more than one field.
Conceptualisation of creativity	Creativity was not defined, but the approach to it was two-fold. First, it was referred to as one of the 21st century skills. Second, together with self-expression, it was treated as one of the learning dimensions of making and tinkering. As defined by the Exploratorium, this dimension includes playfully exploring, responding aesthetically to materials and phenomena, connecting projects to personal interests and experiences, and using materials in novel ways. It was argued that specific opportunities tinkering offers for the development of creativity include the following: - Using a wide range of idea creation techniques, e.g. planning, sketching, brainstorming; - Developing unique strategies, tools, objects, or outcomes; - Creating new ways to use materials or tools; - Setting personal long- and short-term goals and planning ways to achieve these. The Consortium considered descriptors of creativity and innovation prepared by the Partnership for the 21st Century Learning – a Network of Battelle for Kids. P21 defines creativity in three strands: - Think creatively; - Work creatively with others; - Implement innovations.
Pedagogical approaches and methods promoted	Tinkering is an informal, constructivist, constructionist and inquiry-based learning approach. When engaging in Tinkering, participants do not follow a set of instructions. Tinkering activities are physical and open-ended. The ethos of Tinkering focuses on the process, not the outcome. Tinkerers set their own goals (within the initial long-term goal of the activity) and develop transferable skills during their engagement in the Tinkering activity. They progress in a creative way that elicits emotions such as curiosity, drive, frustration and success. This means that progress is not firmly led by the facilitators; the Tinkerers themselves drive their experience of the Tinkering activity. Tinkering is, therefore, learner-centred. Tinkering facilitators need to step away so that Tinkerers become resilient, learn how to deal with frustration, move on from failure and keep an open mind. Tinkerers engage in a scientific approach to improve their design through iteration and innovation. It promotes individuals' active engagement with science- and making-oriented activities as ways to relate with and understand the surrounding world. It promotes skills that can be used in different contexts and become useful for a lifetime (lifelong learning). The method was pioneered by the USA-based experience of the Exploratorium of San Francisco.
Assessment approaches and methods	Learning outcomes were not assessed. According to the project partners, this was because: - Assessment is neither necessary nor desirable in the context of informal learning,

promoted	which the three projects have focused on; - Tinkering focuses on the processes rather than results; - Learning is such a complex process that one cannot expect to improve certain skills having participated in one or a few activities only; - One may internalise the experience long after the visit to the museum where the activities take place; - If designed well, tinkering activities support the development of the 21st century skills; however, learning outcomes also depend on the paths chosen by the participants.
Results	Key outputs were: - New Tinkering activities for adult learners and schools; - Sustainable and transferable pedagogical materials focusing on the methodological framework for Tinkering and guidelines for the professional development of educators adopting Tinkering; - Training events for adult and school educators, including a training workshop by the Exploratorium; - Multiplier events for the wide implementation of the activities; - Website containing all resources (remains active after the end of the project). The project reached 27,213 individuals through multiplier events and about 450 professionals through training. It helped to establish the European community of practice working with tinkering pedagogy. The partners argue the project had the following impacts: - Enriched educational practice in school and out-of-school environments; - Helped to improve the facilitation skills of educators involved in STEM-oriented experience in both formal and informal learning contexts; - Contributed to the increasing consideration of the innovative pedagogy of tinkering at a policy level about the curriculum and lifelong learning; - Helped to understand the conditions fostering the involvement and motivation of early school leavers; - Contributed to the reinforcement of skills relevant to the labour market; - Informed directly interested target groups and stakeholders at a local, national, and European levels. It is impossible to assess whether the project had any impact on the development of creativity as a transversal skill, although it is clear it was designed to do so.
Lessons learned	Tinkering offers much potential for the development of creativity as a transversal skill. Certain features of this methodology make it particularly well suited for informal learning. It also has much potential for underserved/vulnerable groups. Tinkering activities may look simple, but they are underpinned by complex pedagogies and based on thorough research. To conduct them successfully, one needs to study the methodology (ideally, participate in training), try to deliver activities that have already been tested, observe the participation of learners and reflect upon it.
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Ontario Technology and Learning Fund (TLF)

Objectives	TLF was intended to promote accelerated uptake of evidence-based, technology-enhanced pedagogical practices focused on deeper learning and competencies. Specific objectives included: - Enabling innovative teaching practices and instructional methods through technology to more precisely engage and address the learning needs of all students; - Investing in the technology, design, and infrastructure required for the classrooms of the future to serve the needs of all communities; - Working with teachers, principals and supervisory officials (and their professional associations) to identify and share effective and innovative teaching practices that include the use of technology; - Contributing to a provincial focus on defining and developing measures for higher-order 21st Century competencies such as critical thinking, communication, collaboration, creativity and entrepreneurship. - Focus areas were to: - Create more educator-student learning partnerships through real-world, authentic learning tasks enabled by technology; - Provide more opportunities for student peer-to-peer learning enabled by technology; - Develop and provide professional learning about new assessment practices that reflect deep learning pedagogy aligned with Growing Success; - Provide opportunities to develop new learning partnerships among educators enabled by technology in addition to funding for face-to-face professional development.
Timeframe	The initiative ran between 2014-2017 (launched as a three-year investment)
Target group(s)	District school boards, school authorities, and provincial schools
Level of implementation	Sub-national
Geographical scope	Ontario province, Canada
Sector(s), level(s) and settings of education and training covered	School education, institutional settings
Key actors involved and their roles	Central to the initiative was the Council of Ontario Directors of Education and the Ministry of Education established the Fund. Beneficiaries of the TLF were schools. In the innovation research initiatives, parents, community, employers, cross-panel partnerships (e.g. elementary and secondary), post-secondary institutions, local/global partners, and university researchers could join local school boards and help them support deeper learning for improved student outcomes.

Key activities/ measures	TLF was comprised of two interrelated allocations, which reflect well what the TLF could be used for: - Support: to acquire relevant digital technology and learning tools such as tablets, laptops, cameras, software and 3D scanners and printers (up to 80% of the allocation); to provide professional learning opportunities for educators and school and/or system leaders related to the development of new teaching and learning practices enhanced by technology (a minimum of 20% of the allocation); - Innovation research: for school districts to develop and document innovation research projects towards systematising and scaling-up new teaching and learning practices (focus on deeper learning and global competencies)."
Funding arrangements	Council of Ontario Directors of Education and the Ministry of Education allocated $150 million to the TLF, hence co-sponsored the initiative. School districts could decide to spend more than 20% on professional learning which reduced the amount of funding for acquiring technology (see the description of key activities/measures).
Conceptualisation of creativity	In 2015 (21st Century Competencies: Foundation Document for Discussion), the following indicators were used to describe innovation, creativity, and entrepreneurship: - Contributes solutions to complex problems; - Enhances a concept, idea, or product; - Takes risks in thinking and creating; - Makes discoveries through inquiry research; - Pursues new ideas to meet a need of a community; - Leads and motivates with an ethical entrepreneurial spirit. Together with innovation and entrepreneurship, creativity was identified as one of the global/key 21st century competencies.
Pedagogical approaches and methods promoted	In Technology and Learning Fund: A Guide to Implementation 2017, immersive media and simulations are listed as one of the tools that could be employed to develop creativity and innovation of students. This implies situating learning in real-world and augmented realities (e.g. by using adaptive software, interactive content, virtual learning environments, interactive games). According to the Ontario Ministry of Education, successful pedagogical models to build 21st century competencies had so far included flipped classrooms, blended learning, collaborative problem solving, inquiry, interdisciplinary projects, immersive, authentic simulations, and digital learning platforms. These successful pedagogical models have implications for assessment practices as well, 'especially assessment as and assessment for learning'.
Assessment approaches and methods promoted	Technology and Learning Fund: A Guide to Implementation 2017 states that districts should 'develop processes for gathering and analyzing how changes in practice impact learners. This may include administering pre and post-assessments, conducting interviews, using rubrics, or developing indicators to determine the impact of innovation research project(s) on student achievement, engagement, equity and well-being. Ways in which Ontario schools districts gathered impact evidence include pre and post surveys, rubrics, developing indicators, testimonials/interviews, pedagogical documentation, observation notes, learning stories, artefacts/student work, moderated marking, selecting marker students, focus groups, student thinking (video, texts, etc.), reflection journals, and analytics.
Results	Since their inception, innovation research projects had reached full-system engagement in 2015-16, involving all 72 school districts, four school authorities, over 2,300 schools, over 15,000 educators and more than 265,000 students. According to the Curriculum Services Canada, the growth in the number of students to 265,000 in 2015-16 (up from 170,000 students in 2014-15) is a strong indicator of the TLF's provincial impact.

The impact per stakeholder group can be summarised as follows:

- Students: TLF contributed to the move to inquiry-based and authentic learning, enhanced by technology. This shift to inquiry led to greater student engagement and played a significant role in the development and improvement of global competencies, learning skills, and work habits focused on deeper learning. In addition to student engagement, technology actively facilitated student learning and understanding, and boards used technology to enable students to become active participants in setting their own goals, managing their learning, and assessing their progress. To a certain extent, the inclusion of technology, and technology-enhanced learning, into the curriculum also helped to advance equity.
- Teachers: TLF strengthened efforts to enhance the use of collaborative processes in learning and teaching. Moreover, research on effective teaching, deeper learning and global competencies all point to the critical importance of formative assessment and timely, descriptive feedback for student engagement, growth and achievement. The data indicates that technology allowed for the deepening of assessment practices, highlighting feedback during the learning as a way of thinking about assessment as part of the learning process. There is also significant evidence that teacher efficacy improved with the use of technology. The quality and focus of professional learning for teachers also improved under the TLF.
- System: There is evidence of concrete direction emerging in terms of sustainability and scalability that capitalised on the convergence of pedagogy and technology. In particular, progress has been visible across there phases: establishing infrastructure and exploring new practices; aligning strategic plans and scaling; and articulating a clear vision in terms of technology-enhanced learning and teaching at all levels while focusing on student growth. Because of the TLF, school boards are now at a point where they are well-prepared and ready to take the transformation across their entire system to the next level. TLF implementation has contributed to the development of new innovative practices for learning and teaching enhanced by technology. Systems are focused more on the human impact of change, such as support for teachers and on building bridges between and among different board personnel in order to provide a more coordinated platform for learning and teaching, enhanced by technology, across the district.

Overall, through the TLF, capacity building and knowledge mobilisation are shifting practices to integrate promising innovations and are making a demonstrable difference for student engagement, learning, achievement, and success.

Lessons learned

Research reveals that the following models of professional learning yielded success in supporting educators and school and system leaders in the development of pedagogical practices that contribute to deeper learning for students:

- The use of in-class instructional supports, most often in the form of school-assigned or system-assigned technology coaches who are an 'at-the-elbow' professional resource for educators.
- The promotion and expansion of intentional use of technologies that allow for educator collaboration across schools within and across systems.
- The use of partnerships with colleagues in a co-learning perspective. Educator-educator partnerships were increasing as a culture of risk-taking and shared learning was developing. It was reported that there are greater frequency and comfort with co-teaching, co-planning, and participation in coaching opportunities in both elementary and secondary. Educators were more comfortable connecting with one another and learning together about changes in pedagogy and technology.
- The use of differentiated approaches to professional learning including workshops, job-embedded learning, collaborative teams/networks/hubs (involved

in co-planning/teaching/debriefing) and mentorship/coaching (mediated through face-to-face interactions, webinars, virtual learning environments, social media, online journaling and digital collaboration).

- The use of co-planning, co-learning (collaborative professionalism) platforms where participants can drive their own learning about problems of practice and share what they have learned in order to make their learning visible to others and to inform their next steps.

Overall, foundational to the success of the whole initiative is the change from viewing technology separately from pedagogy, to one where teachers and systems understand that pedagogically driven and technology-enhanced learning and teaching is a key factor for student success in the global knowledge economy and society.

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The Creative Lion

Objectives	The purpose of providing students with techniques to form their understanding and reflection around their creative production processes was to develop the following skills: - Media literacy: developing students' ability to analyse, evaluate, create and communicate media messages in different formats; - Language proficiency: making students better at communicating in English and other European languages; - Intercultural understanding: improving students' understanding and increasing their appreciation of different cultures; - Metacognition: improving students' understanding of how they learn and continue learning; - Learner autonomy: making students take charge of their learning by stimulating their creativity and entrepreneurship; - Learn to teach: improving the media skills of students; - Teacher training: encouraging the application of new teaching methods, especially innovative methods involving ICT. The students' achievement of these objective was assessed by the teachers and trainers who participated in workshops and events through the initiative timeline.
Timeframe	The Creative Lion initiative ran between 2014 and 2017.
Target group(s)	Students of arts, media and general subjects
Level of implementation	International
Geographical scope	Czech Republic, Italy, Slovakia, Sweden and Turkey.
Sector(s), level(s) and settings of education and training covered	Secondary school education and VET, institutional settings
Key actors involved and their roles	Central to the initiative were Fria Läroverken i Karlstad, Sweden (Initiative Coordinator), Sukromna stredna umelecka skola filmova, Slovakia, Husniye Ozdilek Mesleki Ve Teknik Anadolu Lisesi, Turkey, Liceo artistico osvaldo licini, Italy, and Michael - Stredni skola a Vyssi odborna skola reklamni a umelecke tvorby, s.r.o. in Czech Republic.
Key activities/ measures	- Throughout the initiative timeline, building and updating the website; - Organising teacher conferences in each partner country where innovative ICT teaching methods, problem-based learning, learner autonomy and metacognition were discussed and explored in more detail; - Six international meetings over two years (at the mobility meetings students created media content together while teachers discussed different techniques and methods in teaching media and arts); - Contacting local media agencies from each partner country to evaluate the initiative and evaluating the impact of the initiative on the school community; - Disseminating results of the mobility meeting, e.g. short videos, newspapers, TV

	and radio, creating a presence on digital platforms to share information on the initiative on a global level, including Facebook, Instagram, Prezi, Slideshare, Vimeo and YouTube.
Funding arrangements	Funded by the Erasmus+ (Lifelong Learning Programme).
Conceptualisation of creativity	The Creative Lion consortium did not define creativity. Although creativity was not defined, it was linked to metacognition. This suggests that the knowledge and regulation of one's cognitive process is a component of creativity, which is not a surprise since links between creative thinking and metacognition are widely discussed in the literature.
Pedagogical approaches and methods promoted	Central pedagogical approaches and methods prompted were: - To give students new challenges and new settings for learning and using their skills through initiative-based learning in an extracurricular and multi-cultural setting; - Collaboration and problem-solving to stimulate metacognitive abilities, learner autonomy, creativity and entrepreneurship of the students; - 'Learn to teach' method where students taught each other about media production and collaborated on their outputs while abroad and upon return.
Assessment approaches and methods promoted	Each student who took part in a meeting received a Europass Mobility document which demonstrated the knowledge and skills the student acquired while abroad. The document covered a description of skills and competences acquired: - Activities/tasks carried out; - Job-related skills and competences; - Language skills and competences; - Computer skills and competences; - Organisational skills and competences; - Social skills and competences; - Other skills and competences.
Results	Key outputs of the Creative Lion initiative were: - An initiative's website; - A wealth of examples of creative products and ideas from the media field (footage, videos, posters, etc.) with the intention to offer students the opportunity to rediscover the principles of inventive problem solving and design thinking; - The tutorials (tangible outputs) focusing primarily on media, photography, film editing and graphics. Erasmus + presents The Creative Lion as a good practice initiative. Based on the evaluative review, the initiative was very successful, and the objectives were met. According to evaluations by students and independent media agencies, the tutorials section of the initiative was successful. Students developed their specific media skills by both creating and watching these media tutorials. The initiative stimulated student skills such as media literacy, language proficiency and entrepreneurship, creative production, and at the same time fostered their intercultural understanding and helped discover new perspectives towards the media and the EU. An additional benefit was that the initiative inspired teachers to try new, innovative teaching methods since they learned more about problem-based learning, learner autonomy, media literacy, metacognition and ICT. Despite the positive outcomes, no evaluation was done to investigate if the initiative had an impact

on a bigger scale. The initiative did not seem to have reached out to more people than the participants in the mobility, and the positive outcomes were therefore confined to the participating students and teachers only.

Lessons learned	Some challenges the initiative highlights: - While the training and mobility were very insightful for the participating students and teachers, the initiative did not manage to upscale the benefit of the training to a wider audience. - While the requirement to assess students according to the Europass mobility card and, thus, key competences may have strengthened the importance of 'transversal' skills in the initiative, creativity was not defined as such on its own – although it was frequently mentioned in relation to other key and transversal competences.
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Victorian curriculum and assessment of critical and creative thinking (CCT) as described in F-10

Objectives	The purpose of having CCT as a discrete component of the F-10 curriculum is to ensure that students develop: - Understanding of thinking processes and an ability to manage and apply these intentionally; - Skills and learning dispositions that support logical, strategic, flexible, and adventurous thinking; - Confidence in evaluating thinking and thinking processes across a range of familiar and unfamiliar contexts. The achievement of these is assessed through the CCT sample assessment programme to see if Victoria is on track to reach its ambitious Education State targets.
Timeframe	CCT curriculum was introduced as part of F-10 in 2015. Sample assessment programme was launched in 2016.
Target group(s)	Students in their first 11 years of school
Level of implementation	Sub-national (state)
Geographical scope	Victorian state, Australia
Sector(s), level(s) and settings of education and training covered	Primary and secondary school education, institutional settings
Key actors involved and their roles	Central to the initiative has been the Victorian Curriculum and Assessment Authority (VCAA), which provides curricula, assessment and reporting to enable learning for life. Developing the CCT capability of the F-10, the VCAA consulted academics. Designing, testing, and validating the CCT assessment tasks, the VCAA worked with external contractors – the Australian Council for Educational Research and the National Foundation for Educational Research. In the task review process, individual outside experts were also involved.
Key activities/ measures	- Developing F-10 curriculum with CCT as an explicit component of it; - Producing resources and providing professional learning opportunities; - Designing, testing, and validating CCT assessment tasks, and implementing a CCT sample assessment programme.
Funding arrangements	Funded by the Victorian Government
Conceptualisation of creativity	CCT curriculum addresses creative thinking rather than creativity. According to the VCAA, other vital elements of creativity, for example, creative expression, creative endeavour and creative collaboration are included in other learning areas and capabilities. Creative thinking is linked with and described together with critical thinking.

Critical and creative thinking are described in three strands:

- Questions and possibilities: explore the nature of questioning and a range of processes and techniques to develop ideas. This strand sets the basis for effective learning and provides a structure for inquiry-based approaches to teaching. The VCAA argues that 'helping students to understand the fundamental role that questions and questioning play in enabling learning and developing a learning disposition is a necessary condition for deep learning'.
- Reasoning: explore how to compose, analyse, and evaluate arguments and reasoning. This strand provides students with the knowledge and tools to construct and evaluate ideas and arguments that they may be unfamiliar with. The VCAA argues that it 'underpins other areas of the curriculum in which students are required to gather, consider and evaluate data, evidence and propositions and then form conclusions'.
- Meta-cognition: explore the use of strategies to understand, manage and reflect on thinking and learning processes. This strand defines the knowledge and skills that enable students to better identify, describe, understand, practice, develop and manage their own learning processes.

Pedagogical approaches and methods promoted

The state does not mandate any pedagogies. Nevertheless, in its resources, VCAA showcases certain approaches and methods, e.g. visual argument mapping, self-reflection, thinking routines, using rubrics, and students seeking peer or teacher feedback.

VCAA also promotes certain pedagogical principles that reveal how to best explicitly teach CCT:

- Build deep familiarity with the CCT, i.e. its aims, structure, and content descriptions;
- Determine what new knowledge and skills students need to develop (this is typically done through pre-assessment and whole-school planning);
- Introduce CCT by unpacking content descriptions to engage students with the knowledge and skills required to progress towards the achievement standards;
- Create opportunities for students to become confident with the new knowledge and skills;
- Identify evidence of students' learning progress.

Assessment approaches and methods promoted

Rather than to assess how creative students are, the goal is to see if they have a repertoire of techniques they can draw on, and if they know when and how to use these to assist them with thinking and beyond. Assessment involves teachers collecting evidence of student progress in meeting the CCT achievement standards. VCAA argues that the assessment of the CCT should be thought of in broader terms, as anything that students make, say, write or do that gives an insight into their thinking. The focus is on the uncovering of the student thinking, hence the interest in the process rather than the final product.

VCAA conducts two strands of work to support the assessment of the CCT:

- Development of the CCT assessment tasks: Each task is scenario-based and covers three strands of the CCT. They build on the premise that, in each classroom, students have unequal abilities, hence the lower- and higher-level questions within each task.
- Implementation of the CCT sample assessment programme: Yar 6 and Year 10 students (hence schools) are selected based on the random sampling techniques, but ensuring the representation of all three sectors – government, Catholic and independent schools, as well as taking into account the student family occupation and education, i.e. what level of disadvantage may be displayed in a school. Once students are selected, VCAA employs invigilators who go to schools and administer tasks. The assessment takes place online and lasts approximately 75 minutes (including practice items and introduction to tasks). Collected data is used to determine the percentage of students in Year 6 and Year 10 who are achieving

	'excellence' in CCT.
Results	Key outputs have been: - F-10 curriculum with CCT as an explicit component of it; - A wide range of resources, including 'Introduction to explicitly teaching and assessing the capabilities', a presentation on the CCT, CCT mapping templates, scope and sequence charts, 'Curriculum Planning Resource' and the 'Victorian Curriculum F-10 Revised curriculum planning and reporting guidelines', sample learning activities, indicative progress in CCT template, 'Guide to Formative Assessment Rubrics', CCT assessment tasks, videos, and references to other useful resources; professional learning opportunities; - CCT sample assessment programme. The VCAA has implemented an F-10 monitoring framework to gather feedback from schools in relation to successes and challenges in curriculum implementation. This is a voluntary process when schools self-report. There are standard questions used each year and discretionary ones employed to explore points of interest. The data gathered has shown that schools are implementing CCT, but this has not progressed as well as the more traditional discipline-based learning areas. The schools have indicated they require additional support materials. Resources prepared and professional learning opportunities offered were welcomed and continue to support schools in becoming more confident and advanced in their approach to CCT implementation. At least 800 students are tested each year as part of the CCT sample assessment programme. Results reveal that the target set for ten years was achieved in the first three (e.g. in 2018, 22.4% tested students reached the highest level of achievement, while the target set for 2025 was 20.8%. Although good news, this raises concerns about the selected sampling techniques and questions targets for the future.
Lessons learned	- For teachers to treat capabilities in the same way as discipline-based learning areas, they have to be presented in the same way. - Being transparent about the need to explicitly teach underlying knowledge enables assessment. - Investing in resources, i.e. teacher and school support, is crucial; proper attention to links between discipline-based learning areas and CCT should be given. For such a curriculum reform to work, it is crucial to understand that CCT plays a role in developing good and informed citizens; CCT is not soft but has discrete knowledge and skills; CCT is not replacing learning areas, and their disciplinary knowledge and skills contribute to the development of the CCT, but certain aspects of it are transferable and could be 'centralised' in a CCT curriculum. Moreover, buy-in at different levels is needed. Not only political will is important but also teachers have to be confident in their approach, thus need resources to support them; school leaders must understand the significance of CCT and help to champion the cause; parents need to appreciate explicit teaching of CCT and see the value in it.
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Towards a More Innovative Workplace

Objectives	The general objective was to create a more innovation-friendly environment for EU micro, small and medium-sized enterprises and increase their business adaptability by providing the necessary training support for performing organisational innovation. The specific objectives were: - Providing EU micro, small and medium-sized enterprises with open educational resources in the field of organisational innovation and workplace innovation; - Supporting EU micro, small and medium-sized enterprises in developing their skills for the implementation of the systematic innovation; - Enhancing the competitiveness and the innovation capacity of EU micro, small and medium-sized enterprises through practical training tailored to their needs; - Increasing the awareness of EU business and VET community about the importance of organisational and workplace innovation and creating the necessary supporting culture for that.
Timeframe	The Sustainable Entrepreneurship programme was launched in 2014 and ended in 2016.
Target group(s)	SMEs and VET providers
Level of implementation	International
Geographical scope	Austria, Portugal, Finland, Lithuania, the UK and Bulgaria.
Sector(s), level(s) and settings of education and training covered	VET, workplace settings
Key actors involved and their roles	Central to the initiative were the European Center for Quality OOD, Bulgaria (Initiative Coordinator), Multidisziplinares Institut fur Europa-Forschung Graz, Austria, Aidlearn, Consultoria em Recursos Humanos Lda, Portugal, Oy Vaasan Ammattikorkeakoulu, Finland, KTU regioninis mokslo parkas, Lithuania, LearnPlay Foundation LTD, UK, and Chamber of Commerce and Industry Vratsa Sdruzhenie in Bulgaria
Key activities/ measures	Central to the initiative was a training course aimed at providing the necessary training support for performing organisational innovation. The course comprised 10 modules. Each of them focused on its learning objectives and suggested reading materials, exercises and self-test questions. The modules included: - Concepts of creativity and innovation; - Organisational structure (business model), the creative process and governance for innovation; - Creating a culture of innovation; - Maintaining a culture of innovation; - Application of creativity to the work tasks; - Creative workplace management; - Innovation leadership;

- Technology as an enabler of innovative ideas;
- Designing an organisation innovation plan;
- References to other creativity and innovation tools.

In addition, several events and conferences on creativity with networking opportunities were organised.

Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for vocational education and training.
Conceptualisation of creativity	Creative thinking was defined as a cognitive capacity which shows the way a person thinks about a problem. Besides, creativity was defined as a skill which everyone can develop. Applying creativity to work tasks was viewed as applying creative thinking to problem-solving related to the development of a company. Creativity therefore mainly linked to: - Creative problem solving (CPS) is a well-defined process that can help to proceed from problem definition to implementing solutions. CPS includes the following steps: Providing a vision; Gathering information; Defining a problem; Generating ideas; Selecting ideas; Taking action; Evaluating results. - Creativity and creative problem-solving was linked to creative thinking and design-thinking. Creativity in work tasks was treated as having different dimensions: - Direct or primary application of creativity to work tasks includes research and development activities. - Indirect or secondary application of creativity to work tasks occurs when employees themselves find a way to implement their tasks easily and quickly. - The application of creativity is not limited to certain sectors; it can be applied to any kinds and fields of activities. - Creativity can be applied by individuals and teams and cross-disciplinary. - Lastly, applying creativity to work tasks has a psychological dimension, meaning that a person's motivation, attitudes and perceptions matter. An employee must be intrinsically motivated for personal and professional development, experimentation and improvement of his/her practice (work processes and results). A person should have a holistic view of arising challenges instead of getting stuck in the details. He/she should focus on finding a solution instead of concentrating on a problem, but also be ready to accept failure as part of the creative process.
Pedagogical approaches and methods promoted	Two approaches to learning were possible to choose from - self-learning and tutOr-guided learning. The course was intended to be open, flexible, practical and output-oriented, activity-based and learner-centred, but did not follow a certain pedagogical theory. The principles that underlined the choice of the methodological approaches to the development of the curriculum were: - Competence-based/outcomes-based: The definition of learning outcomes was central to the development of the InnoWork curriculum. The broad learning objectives and module-specific learning outcomes helped to select theoretical concepts, develop reading materials and create exercises, engaging in which one could achieve the intended results. - Gamification: The course content was designed based on the principles of gamification. The term suggests the use of game elements and game design techniques in learning activities and exercises. The material was presented in an attractive and user-friendly way to make it activity-based and learner-centred. There were games and exercises for individual work for those who took the course as a part of self-learning and group exercises for the learners who took

	the course as part of a vocational training course. - Web technologies with video game elements: All course materials were developed in an electronic form and are free online.
Assessment approaches and methods promoted	The module-specific learning outcomes were formulated in accordance with the European Qualifications Framework and in terms of knowledge, skills and competences which learners should demonstrate upon the completion of the course. Also, at several stages of modules, simple and more extensive self-assessment forms were filled out.
Results	Key outputs were: - InnoWork Curriculum; - Training content; - Guidelines for VET providers; - InnoWork initiative website. The initiative was evaluated as a success story by a panel of experts from DG EAC and a good practice example in the Erasmus+ initiative database. The initiative helped to modernise the VET sector by producing a comprehensive curriculum, guidelines and website to foster creativity as a key skill for working life, and supporting the development of ICT skills while doing so.
Lessons learned	Due to its orientation towards real-life business, the training course was particularly helpful for VET, but several modules could also be useful in other sectors.
Sources of information	Erasmus +. (n.d.). Promoting innovation in the workplace. Retrieved 8 September 2020, from, https://ec.europa.eu/programmes/erasmus-plus/initiative-result-content/6eb6351c-e80a-4654-b491-b7a14652da72/Fact_Sheet_2014-1-BG01-KA202-001634 Innowork Consortium. (n.d.). Innowork. Retrieved 8 September, 2020, from http://www.innowork-initiative.eu/

Mobile Learning in VET towards 2020

Objectives	The objectives were: - Fostering mobile-learning pedagogy to help to reduce early school leaving, decrease the number of under-skilled teenagers, contribute to the development of the so-called 21st century skills such as ICT literacy, collaboration, communication, creativity, problem-solving, and ultimately support the modernisation of education and training systems; - Bringing about innovation in education by rethinking the role of teachers and methodologies used, and letting trainers or teachers and learners become co-producers (and not only users) of content and tools, rebuilding the concept of formal learning and pedagogy, empowering users to create and publish their content; - Encouraging learner-centred approaches, group work, peer learning, and promoting inquiry-based learning, learning-by-doing, problem-solving and creativity, and thereby enabling the acquisition of knowledge, skills and competences that are not purely occupational and are adaptable to change.
Timeframe	The programme was launched in 2014 and ended in 2016.
Target group(s)	Students and teachers in secondary school and VET
Level of implementation	International
Geographical scope	Italy, Spain, Turkey, France and the UK.
Sector(s), level(s) and settings of education and training covered	Secondary school education and VET, institutional and workplace settings
Key actors involved and their roles	Central to the initiative were the Scuola Centrale Formazione, a national network of VET providers, Civiform and Fondazione Opera Montegrappa, Italy, Galician Regional Government-DEXFPIE and a school CIFP A Farixa, Spain, Innovative Educators Association (national) and two technical and vocational high schools TÇMB and ZHT in Turkey, Coleg Cambria - a public further education institute, the UK, Fondation Auteuil-Lycée Victorine Magne - a private VET provider, France, Bicocca University, Italy, and FORMATECH - a tech company in Italy.
Key activities/ measures	- The partners Formatech and Bicocca University carried out research on mobile learning and technologies in support of teaching; - Formatech tested their suggested model in 15 VET centres with about 2,500 students from across the Lombardy region; - Based on their findings, they developed guidelines for teachers to be trained in the core activities and pluri-disciplinary approaches to ICT teaching; - Throughout the initiative, the team provided support to teachers on applications and ICT solutions; - Teachers created learning scenarios and material following the methodology set out; - The initiative team developed a dissemination strategy, including the

development of the initiative website.

Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for vocational education and training.
Conceptualisation of creativity	Creativity was not defined. However, it was linked to: Critical thinking; Problem-solving; Innovation; teamwork skills, self-reflection and awareness, communication and decision-making capacity; Design thinking.
Pedagogical approaches and methods promoted	Technology was seen as an opportunity to implement learner-centred approaches promoting inquiry-based learning, participatory learning, learning-by-doing, problem solving and creativity. The aim was to put the learners at the centre of the learning process, giving them the opportunity to create, use and share resources in their own pace. This methodology followed from a literature review on ICT teaching strategies, and combined key take-outs from the following theories: - Behaviourism: focus on the outcome, e.g. test scores; - Constructionism: focus on the process of teachers creating learning environments for active learners; - Constructivism: focus on a single student and teacher providing instruments, and learner-built knowledge; - Activity theory: highlighting the impact that an active role of the learner has on the results. The pedagogy central to the initiative was multi-modal learning - a teaching practice that includes differentiated stimulus for the students and involves them in the production of their original content. The idea was that this method could be further improved by the use of ICT in order to: - Stimulate verbal/linguistic, spatial/visual, musical/rhythmic and emotional intelligence at interpersonal and intrapersonal levels; - Stimulate both the right and left sides of the cerebral cortex and the limbic and neocortex system; - Capture the attention of students who drift with short videos, while using slower and thought-provoking video clips to foster relaxation and long-term memory.
Assessment approaches and methods promoted	The initiative consortium applied three ways of assessing students and teachers: - A questionnaire for teachers and students was developed but focused mostly on experiences with technology and not skill development. - Visitor and resident - an alternative assessment tool was used, focusing on an alternative way of describing the position of people in a virtual world by the use of two-dimensional fields. A visitor leaves no social trace which a resident does. In addition to the online activity and actions, the visitor-resident character has a personal-institutional character. This tool allows the activity online to be assessed not simply by task, but by online social behaviour and aims to see how students learn in formal and informal contexts and engage with others online. The tool can be used to support healthy behaviour online. - Also, the initiative applied a student-centred approach and attempted to foster the metacognitive abilities of students. Self-reflection and self-assessment were therefore encouraged throughout the initiative.
Results	The outputs of the initiative were: - A model enabling users to design and plan their learning units with examples of the units tested by partners (from 24-80 hours); - A list of useful applications utilised by partners during their activities (to create maps, quizzes, videos, research, QR Codes; to manage the classroom, for evaluation; etc.);

- A guidebook on mobile learning elaborated and made available in English, French, Italian, Spanish and Turkish;
- A literature review on the use of ICT in education prepared;
- MoLVET partners' experiences described and analysed in light of the main results of the literature review;
- A set of practical instructions guiding and supporting those involved in the task of 'digitalising education and VET compiled.

351 leaners and 55 teachers/trainers were directly involved in the development and implementation of new multidisciplinary learning units (more than 13,000 training hours delivered in total). 312 more learners and 337 more teachers were involved in the events and showcases of information, and dissemination organised by their colleagues, to share the knowledge and experiences gained thanks to MoLVET. The initiative was evaluated positively and presented as a good practice example and a success story in the Erasmus+ initiative database.

Lessons learned

ICT clearly helps students to get a better education, if and when teachers use it in a creative and innovative way. Unfortunately, sometimes such initiatives are undertaken in an acritical way, and the introduction of ICT is driven more by some market logic or a 'naive' desire to be in line with the time, than a careful reflection on the variables determining the success of this kind of interventions. Innovation should be preceded, for instance, by a careful analysis of the specific socio-cultural context, and an evaluation of the benefit and issues that the introduction of ICT is expected to generate. The BYOD model, for example, exposes an organisation problem as the devices owned by students are in most cases not designed for learning, very different among themselves and forever changing, being substituted by new models for reasons that are neither technical, nor educational, nor even rational or predictable.

Sources of information

Erasmus +. (n.d.a). *Mobile Learning in VET towards 2020.* Retrieved 8 September, 2020, from https://ec.europa.eu/programmes/erasmus-plus/initiatives/eplus-initiative-details/#initiative/2014-1-IT01-KA202-002649

MOLVET Consortium. (n.d.b). *Mobile Learning in VET towards 2020' (Mo.L.VET 2.0.20*). Retrieved 8 September, 2020, from http://molvet.formatech.biz/

Vocational Cooperative Learning Triangles: Using Cooperative Learning to Promote Employer Engagement

Objectives	The purpose of having transversal skills, including creativity, as a discrete component of the initiative was to improve the employability of students. Other core objectives were: - Developing skills of VET staff to use cooperative learning methodologies to develop and assess key employment competences; - Improving the attractiveness and relevance of the VET by ensuring that the curriculum meets the needs of learners and employers; - Strengthening alignment and collaboration between work and VET by using innovative methods; - Enhancing the modernisation and internationalisation of VET systems in partner countries.
Timeframe	Vocational Cooperative Learning Triangles initiative was launched in 2014 and closed in 2016.
Target group(s)	Vocational education and training (VET) teachers and trainers
Level of implementation	International
Geographical scope	UK, Iceland, Sweden, Spain, Czech Republic and Germany
Sector(s), level(s) and settings of education and training covered	VET, institutional and workplace settings
Key actors involved and their roles	Central to the initiative were the InterCultural Ísland, Iceland, Bollnäs kommun, Sweden, Heziketa Teknikoko Elkartea, Spain, Asociace malych a strednich podnikua zivnostniku cr, Czech Republic, RegioVision GmbH Schwerin, Germany, MittMedia AB, Sweden, Institut inpro AS, Czech Republic and Dundee & Angus Chamber of Commerce, the UK.
Key activities/ measures	Key activities were: - Identification of innovation-friendly employers to work with trained VET staff; - Creation of tasks (real workplace tasks framed as learning outcomes) for the development of the transversal skills; - Working on tasks together (employers, learners and staff) as peers in Vocational Cooperative Learning (VoCOL) Triangles promoting engagement by bringing together the worlds of work and VET.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for vocational education and training.
Conceptualisation of creativity	The initiative documents did not set out a clear-cut definition of creativity. Yet, the following clues were given: - Creativity was treated as first and foremost linked to realistic problem-solving,

small c creativity, and critical thinking, self-efficacy, diversity and openness for new ideas.

- The term was seen as key to the methodology of the initiative, i.e. cooperative learning. The idea was that a creative genius is the product of, and best develops within cooperative efforts. The background for this understanding of creativity was the perceived need to prepare students for the real world and the labour market.
- In the employer survey, the creative and entrepreneurial thinking skill was broken down into: 1) generation of new ideas covering anticipation of needs, experimentation, recognising opportunities, showing originality, visualisation of completed work and ability to turn new ideas into action. 2) bringing ideas into products or outcomes by adapting an implementation strategy, creating an implementation strategy and producing original work.

Pedagogical approaches and methods promoted

The initiative consortium adopted diverse teaching methods and approaches. It was argued that teaching methods where a student is active, where there are interaction and communication taking place and where there is a structure that increases the possibility for every student to have access to the learning process, are best suited to activate students, increase their social skills, give them the opportunity to learn in a creative way where higher-order thinking skills are necessary and thus prepare them for life in a pluralistic society and workplace.

However, the main pedagogical approach was cooperative learning. For the purposes of the initiative, collaborative learning in VET was defined by the following strengths:

- as a formal way of structuring learning activities which increases the potential for rich and deep learning;
- going beyond teamwork – all participants rely on one another to achieve a common goal and are individually accountable for doing their share of work;
- through cooperative learning, students develop their key competences important for their future employment such as communication skills, trust-building, initiative, flexibility, critical and creative thinking, problem-solving and conflict management.

Other basic principles that were followed to foster creativity and critical thinking in the initiative were:

- Open-ended questions/tasks;
- Multiplied abilities/intelligences;
- Interdependence and individual responsibility;
- Connection with the main concepts of the curriculum and with the 'real-life'.

Assessment approaches and methods promoted

The initiative made use of the European Qualifications Framework for Lifelong Learning in guiding the assessment of VET students by teachers. It was also suggested to use respective national frameworks, such as the Scottish Qualifications for Transversal Skills Framework. Findings from an employer survey were used to guide the teaching and learning process but not to give feedback. After the initiative, partners from each country filled out self-evaluation forms.

Results

Key outputs were:

- A best practice guide;
- A guide to and training material for collaborative learning;
- Lesson plan resources and videos;
- An EQF mapping guide;
- An initiative website.

The attendance to the workshops (in thousands) and initiative evaluation suggest that the initiative

had mainly positive outcomes. Besides, the initiative is presented as a good practice example and a success story in the Erasmus+ initiative database.

The positive outcomes for the participants were that teachers and trainers benefited from increased knowledge, skills and competences, e.g. developed intercultural skills. The initiative helped them gain the ability to match learners' transversal skills with workplace requirements. The learners increased their awareness of transversal skills and their importance in the labour market, developed a greater sense of initiative and self-worth, and thereby improved the employability. Yet, VET teachers and trainers listed positive results of the initiative only, but most of these related to employability n general rather than improvement of creativity or transversal skills in particular.

On a bigger scale, the participating organisations learned and adopted new ways of work with employers, gained a broader understanding of teaching practices and systems, and created better links between education and the labour market.

Lessons learned

The initiative revealed that cooperative learning is a well-suited approach for the VET sector because it helps to improve public-private and other types of partnerships among institutions. In turn, such collaboration facilitates the acquisition and development of transversal skills, which students need to successfully integrate into the labour market.

Sources of information

Erasmus +. (n.d.). *Vocational Cooperative Learning Triangles: Using Cooperative Learning to Promote Employer Engagement*. Retrieved 8 September, 2020, from https://ec.europa.eu/programmes/erasmus-plus/initiatives/eplus-initiative-details/#initiative/2014-1-UK01-KA202-001626

Sustainable Entrepreneurship: A Game-Based Exploration for Lower Secondary Schools (SUSEN)

Objectives	This initiative aimed to enhance creativity and promote a heightened sense of civic engagement. The specific objectives were: - Creating an innovative game-based student-centred learning programme to develop students' key competences for lifelong learning and, especially, entrepreneurship; - Fostering students' understanding of sustainable development through entrepreneurship, focusing on the clothing manufacturing and the energy sector, in particular energy provision, mix and consumption; - Enhancing key competences and skills such as creativity and innovation through school education; - Assessing transversal skills such as the following: digital competence, learning to learn, a sense of initiative and entrepreneurship and cultural awareness; - Increasing students' sense of community, civic engagement and personal responsibility.
Timeframe	The Sustainable Entrepreneurship programme was launched in 2014 and ended in 2016.
Target group(s)	Students in lower secondary schools
Level of implementation	International
Geographical scope	Germany, UK, Poland, Belgium and Switzerland
Sector(s), level(s) and settings of education and training covered	Secondary school education, institutional settings
Key actors involved and their roles	Central to the initiative were the Environmental Academy, UK, CVO Antwerpen, Belgium, Uniwersytet pedagogiczny im komisji edukacji narodowej w krakowie, Poland, Pädagogische Hochschule Freiburg, Germany, University College London, UK and Associazione seed, Switzerland.
Key activities/ measures	- The partners developed the game rules, defined players' roles, and identified stakeholders to accompany the development of a realistic game. - Students were given tasks in the game that required contacting external stakeholders, hence the opportunity to learn outside the school settings. To build a successful business, each group had to reach a certain energy target within the limits of the budget set in the game. As the rounds progressed, the students had to consider additional aspects, such as the environmental impact of the energy sources they chose to use. - The classroom game and the online companion were piloted in schools in different partner countries. - The evaluation of the whole programme led to revisions, and these - to a final

	version of the game and the online version, which was then disseminated.
Funding arrangements	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for school education.
Conceptualisation of creativity	Creativity was not defined, but the initiative documents mention it several times in relation to entrepreneurship. Entrepreneurship was defined as an attitude of mind. It includes motivation and the ability to seize opportunities and pursue them in a targeted manner. Characteristics related to entrepreneurship were commitment, creativity, curiosity and willingness to take risks. Creativity was treated as a key element of entrepreneurship education because this kind of education needs to promote discovery and creativity. Yet, based on the initiative context and resources, creativity could be defined as an enabler of solutions that cuts across disciplines, from natural to social sciences. In this sense, except for entrepreneurship, creativity was linked to design thinking, self-efficacy and self-efficiency. The initiative focused on how transversal skills, particularly divergent thinking, foster initiative, learning to learn, and digital competences further strengthen the creative power of students.
Pedagogical approaches and methods promoted	The learning programme combined the creation of a classroom game with service learning and extra-curricular activities outside of school, encouraging cooperation with external stakeholders. The game experiences of students were based on concrete, national and real-life examples of companies that incorporate certain aspects of sustainable development into their company policy. The pedagogical approaches were: - Initiative-based learning; - Service-based learning; - Game-based/simulation-based inquiry learning.
Assessment approaches and methods promoted	Not applicable
Results	Key outputs were: - SUSEN classroom game; - Online SUSEN gaming companion; - Teacher support pack; - Teacher training course; - Teacher training syllabus; - Piloting and evaluation; - SUSEN best practice case studies; - SUSEN portal and website. The attendance to the workshops and feedback from participants suggest that the initiative had several positive outcomes. A total of 12 classes and 280 students participated, while 85 teachers received training. The majority of the teachers saw no problem in understanding the game. The students learned to use critical thinking and strategic ICT solutions to solve real-world problems. By involving companies, the initiative had an impact beyond the direct effect on the participants. It helped the companies grow respect for the environment and take better care of their reputation. It brought about modernising and inter-disciplinary teaching methods in elementary schools.
Lessons learned	Success factors were: - An interdisciplinary and multi-institutional approach helped students to

	understand the relevance for real life and the transversal value of the initiative; - Strategic games are successful tools in entrepreneurship education as they allow students to make strategic decisions and test different approaches.
Sources of information	SUSEN Consortium. (n.d.). *PowerPlayer*. Retrieved 8 September, 2020, from http://powerplayer.info

Creative Minds

Objectives	Within the frames of this initiative, LEGO and robotics were used to trigger a creative thinking process which would result in creative solutions to real-world problems. The key objectives were to: - Incorporate elements of robotics into standard subjects such as technology, mathematics, improve knowledge of robotics and make use of robots to teach the following specific topics: sustainability, industrial engineering, bionics, protection of the environment and astronomy; - Use building scenarios with bricks to encourage creativity, rational thinking and innovativeness in solving problems; - Improve the digital competences of teachers and students. The achievement of these objectives was assessed according to whether the robots made by the students managed to solve key societal issues or not (e.g. picking waste).
Timeframe	Creative Minds was launched in 2014 and ended in 2016.
Target group(s)	Students (aged 13-16) and their teachers.
Level of implementation	International
Geographical scope	Poland and Cyprus
Sector(s), level(s) and settings of education and training covered	Institutional settings of school education.
Key actors involved and their roles	Central to the initiative was Zespol Szkol Gimnazjum, coordinating school in Poland, and the partner in Cyprus: Perifereiaka Gymnasio Kokkinotrimithias. The students were divided into international Polish-Cypriot groups with leaders responsible for implementing specific tasks.
Key activities/ measures	- Joint staff training on the use of LEGO in education and modern techniques of creative thinking, learning and self-development (the teachers who took part in the training produced a course material book based on it); - Joint exchanges between students in Cyprus and Poland; - Participating in joint technologic and language workshops; - Maths and Physics tests based on LEGO Engineer Initiative constructs; - Students had to make their own instructions for usage based on their own ideas in English; - They constructed robots for space exploration by making use of trilingualism and natural science and to protect the natural environment; - Events to disseminate the initiative: Creativity Day, Earth Day and final conferences for teachers, students, parents, local educational authorities and local community members of both schools.
Funding	Funded by the Erasmus+ (Erasmus+ Programme 2014-2020) as a strategic partnership for school

arrangements	education.
Conceptualisation of creativity	The initiative documents addressed creative thinking rather than creativity. The partners defined creative thinking as a process of coming up with ideas to solve multiple practical problems by using diverse methods and ways of thinking to expand the capacity and imagination of the mind for learning. They understand this process is further by recognising: - This process occurs in the right hemisphere of the brain through thinking in images. - A multidimensional representation of thoughts on a given subject, focusing on the images of the mind and how to connect images to memory and accelerate learning. - The rule of creativity: 'we will never forget what we have created'. The descriptions of creative thinking and the rule of creativity in the initiative documentation suggest that only a rich or divergent thinking process resulting in a creative product can be defined as creativity. - To better help this process of creative thinking, one needs to also focus on related concepts and strands of thinking such as creative noting, game and playfulness, design thinking and innovativeness.
Pedagogical approaches and methods promoted	The initiative fostered creativity primarily through problem-based learning and eco-justice pedagogy, taking into account that: - In order to increase the satisfaction with learning, basic skills, and practical use of memory learning is vital. Second, in a rapidly changing and competitive world, the main source of advantage is more efficient learning, thinking as well initiating and maintaining valuable emotional relations with others. - A initiative methodology developed by Marek Szurawski - a specialist in the field of comprehensive development of human mental capabilities, who has been leading different trainings and lectures on modern techniques of creative thinking, learning and self-development for over twenty years. The key principle of the methodology is that personality and individual strategies can improve learning and increase the appetite for lifelong learning. Examples of strategies that can be individualised are mind mapping, basic mnemonics, speed reading and intuition and the role of imagination in the process of learning. - Creativity in problem-solving can be fostered by focusing on real-world problems such as safety and plastic waste. A multidimensional way of thinking allows students to work on diverse topics and find solutions to problems faster, and to improve their memory in addition to creativity.
Assessment approaches and methods promoted	Albeit not designed for feedback, key moments of assessment in the initiative were: - Before the launch of the initiative, a survey was conducted to assess what the teachers had known about robotics from before. During this survey, the teachers self-assessed their skills in building robots and LEGO bricks. The findings were used to guide the next stages of the initiative implementation rather than giving feedback to the participants. - The value of robots that students created was assessed based on whether these robots help to solve real-world issues, e.g. protect nature by removing waste or improve safety in the building industry.
Results	Key outputs were: - An initiative's website and public Twinspace; - Lesson plans on robotics; - Mini guide of LEGO initiatives;

- Materials from joint staff training in Poland;
- Mini guide of methods of creative learning;
- Mini dictionary on robotics in three languages;
- Materials on Cypriot culture;
- Materials on space;
- Materials on bionics;
- LEGO robots;
- Results of research on the level of robotisation in companies in Cyprus and Poland.

The attendance to the workshops and feedback from participants suggest that the initiative had several positive outcomes. 200 students and 50 teachers participated in the initiative. The initiative was evaluated positively and presented as a good practice example and a success story in the Erasmus+ initiative database. According to the initiative partners, the initiative improved the teachers' and students' skills of ICT and LEGO software, increased their understanding of methods of effective learning and boosted their motivation to learn English. It contributed to more innovative teaching, and that helped to develop problem-solving skills of the students and gave them room to brainstorm, explore their ideas and deliver creative outputs. The initiative also increased the cultural and environmental awareness and understanding among the participants of the two countries involved.

Although no study has been carried out, the positive outcomes above are reasons to believe that the initiative also had a positive impact on a higher level. It brought about modernising teaching methods in schools while having long-term positive effects by fostered lifelong learning skills such as children's ability to remember, learn and stay motivated to learn.

Lessons learned	Not applicable
Sources of information	Creative Minds. (n.d.). *Creative Minds*. Retrieved 8 September, 2020, from http://gim13zawiercie.pl/creativeminds/index.htm

TECRINO: Teaching Creativity in Engineering

Objectives	While assuming that creativity can be taught, the overarching objective of TECRINO was to develop to set up a pioneering Moodle platform for teaching creativity (Susnea et al., 2014a). Other initiative objectives were to: - study the link between creativity and anxiety about the future; - develop a free, fast, and easy to use software tool for the assessment of creativity in the educational context; - discover research findings that could put pressure on the education policymakers to review the curricula; - improve the public awareness on the importance of reducing standardised testing, provide alternative solutions for the assessment of the students' performance, promoting a review of quality norms and advocate for the creation of non-prescriptive and attractive learning environments in school (Susnea, Pecheanu and Dumitriuet, 2016a); - train professionals to improve the transparency, visibility and the development of their students' competences linked to innovation (TECRINO, 2016b); - address the key competence nr. 5 – "learning to learn" of the European Reference Framework "Key Competences for Lifelong Learning", by creating not only a problem-solving attitude but also the ability of the students to handle obstacles and a rapidly changing environment (Erasmus+ initiative page).
Timeframe	The initiative was implemented between 2013 and 2016. 'TECRINO' was implemented at the European level. Six countries participated as organisers.
Target group(s)	Teachers, trainers, and students in the engineering sector
Level of implementation	International
Geographical scope	Cyprus, Portugal, Spain, Croatia, Poland and Romania
Sector(s), level(s) and settings of education and training covered	VET, HE, adult education, institutional and workplace settings
Key actors involved and their roles	The consortia of TECRINO consisted of eight partners: RTD Tallos (Cyprus), Epralima (Portugal), Inercia Digital (Spain), Fondo formacion Euskadi (Spain), Business Innovation Croatian Agency (Croatia), University of Zagreb (Croatia), Syntea (Poland) and the "Dunarea de Jos" University of Galati (Romania). The consultancy firm RTD Talos in Cyprus coordinated the initiative. Partners involved have contributed to the implementation of different parts of the initiative activities (see below).
Key activities/ measures	The initiative follows the generic ADDIE model, structured around the following parts: Analysis, Design, Development, Implementation, and Evaluation. Key activities were: - Setting out a management and quality plan to coordinate the development, define the strategies, monitor the development and ensure compliance with the

timeline;

- Conducting research on trends and processes to promote innovation in VET to find the most important needs and problems facing learners and teachers in promoting innovative skills in learning processes;
- Defining the content of the educational materials;
- Creating a group of modular training itineraries to qualify the group in the valorisation, development and mobilisation of competences linked to innovation and acquired in informal contexts;
- Designing and implementing the e-learning platform;
- Creating a group of didactic guides in cd-rom format (trainer's version and trainee's version) to valorise, develop and mobilise the competences linked to innovation and acquired in informal contexts;
- Piloting and validating the pedagogic itinerary and the supporting didactic resources;
- Mediatisation and edition of the resulting products;
- Dissemination and exploitation of training innovation products;
- Evaluation of the quality management and the initiative based on e-learning data, examinations and reports from participants.

Funding arrangements

The Lifelong Learning and Leonardo Da Vinci for Development of Innovation scheme funded the initiative.

Conceptualisation of creativity

Creativity was defined as a multidimensional and dynamic process, involving conscious mental activity, affectivity, motivation and social interaction, and the general ability to solve problems. In a published article on TECRINO, creativity was defined as the process of developing ideas that are simultaneously novel, and valuable from a practical perspective (the inventions) (Susnea and Tataru, 2014). Creativity was linked to innovation, since 'the innovation is the process of capitalisation of the results (ideas) within an organisation' (Susnea et al., 2014b). The components of creativity that the initiative focused on were intrinsic motivation, basic skills, curiosity and exploration, choice and discovery, metacognitive skills, creative performance and positive feedback. The 4Ps (Person, Process, Product, Press) of creativity was a theory about the dimension of creativity developed by Rhodes (1961) also adopted for this initiative. Person regards the creative abilities of an individual, e.g. divergent thinking. The process refers to the procedure used by the Person to develop the product, e.g. brainstorming. The product is the result of the creative process, which usually must be both novel and useful for innovation to take place.

Pedagogical approaches and methods promoted

Educational materials supported distance education and face-to-face teaching. In the distance education model, a tutor-led and tutor-facilitated teaching system was the preferred one, but learners also engaged in self-paced e-learning. The initiative followed a humanist approach to creativity enhancement where the role of the tutor/teacher is to provide a service to a learner's work with courseware. Besides courseware, learners had tutors'/community support through chat/forum/messenger communication tools, and that incorporated collaborative learning pedagogies. Following the 4P definition of creativity, the aim was to combine both human and technology resources.

Furthermore, the TECRINO initiative, unlike previous similar initiatives, attempted not just to teach creativity techniques (e.g. TRIZ), but to teach for creativity and develop the general ability to solve problems in a creative way. According to the initiative description of the TECRINO website, the course focused on the following:

- Defining educational objectives and building motivation of the students (especially intrinsic motivation);
- Building basic skills;
- Acquisition of domain-specific knowledge;

- Encouraging and rewarding curiosity and exploration;
- Creating opportunities for choice and discovery;
- Developing metacognitive skills (awareness of the neuro-psychological processes related to learning and creativity, self-management);
- Teaching strategies and techniques to foster creative performance;
- Providing positive feedback.

Assessment approaches and methods promoted

The students of secondary school engineering topics were assessed formatively, based on an existing divergent thinking test which was further developed by the consortium. Besides, the teachers were also assessed for Creativity Management competences and could receive Vocational Competence Certificates (VCC) based on their performance.

Results

The initiative resulted in two distinct courses for educators and learners that were available online. The course for educators collected the best techniques on teaching creativity available, whereas the course for students included more content on the foundations of creative thinking and how it relates to innovation. Both shared the same practical methodology of learning by example, as well as a wealth of examples of creative products and ideas from various domains (visual arts, science and technology, literature, etc.) designed with the intention to offer students the opportunity to rediscover the principles of inventive problem-solving.

The initiative was not evaluated by external agencies, but the partners themselves reported that the initiative activities created added value and high-quality products (Final evaluation report). Attitudes towards the transferability of the tools created were positive. Products of the initiative were in line with application and of good quality and in line with objectives. The Narrative Evaluations found that Creativity Toolbox was highly appreciated, and the course was particularly well designed for learning about creativity.

The approach and concepts developed within TECRINO have been used as a basis for other initiatives such as 'Evoke your creativity' which was an experiential six days course about creativity in action, rapid innovation, and deep presence. However, there has been no impact study so far into the effects of the initiative on creativity, and it is, therefore, hard to say what the impact was. The fact that the initiative was widely researched and mentioned in journals, suggest that it had an impact on the wider community of researchers and educators.

Lessons learned

The strength of the initiative was the well-developed coursebook basing itself on the latest research in creativity. For example, the main finding of the study by the team into the inhibiting factors of creativity found that unsupervised e-learning is more efficient than other learning environments because the most important factors that block creativity in formal education are avoided. This made the interviewee believe that the methods had a positive effect and were positive on student's creativity (also their critical thinking, which he considered a key transversal skill). The educator himself has applied the course in many instances since the end of the initiative. This suggests that the lessons of the course were flexible and easily applied in other learning context.

Another strength was the effort of the coordinator to the initiative, who was passionate about the topic and had developed an expertise on the subject as well as published academic articles to disseminate it. Due to the attention, the initiative achieved from the research and policy community; the initiative did achieve to raise awareness of the importance of systematic education for creativity.

This is not to suggest the initiatives had no weaknesses. In fact, The interviewee suggests that it was challenging to disseminate the course among educators and that the course has not been used much after the initiative ended besides of the educators participating in the development of the course.

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Interview with representatives of TECRINO.

Institute Vasco de Creatividad Aplicado (IDEATK)

Objectives	Institute Vasco de Creatividad Aplicado de la Formación Profesional (IDEATK) is a professional body within the VET system of Spain. It is a part of a policy action to improve the quality of VET education in the region. The main objectives of setting up the institute are: - To advance towards the acquisition of new transversal basic competences in order to promote the field of creative thinking in students who take VET courses; - To develop creative thinking in the launch of new projects in vocational training; - Research, design and experiment on creative spaces for artisan production with advanced technologies in three dimensions in vocational training centres; - Promote and stimulate entrepreneurship in new creative environments. As part of the Basque IV VET Plan, the initiative had higher-level objectives such as to strengthen non-technical abilities of those in VET, the development of creative, open and proactive thinking needed to meet the future of work and to bridge gaps between professional fields. In addition to setting up the Institute of Applied Creativity in VET (IDEATK), the IV Basque VET Plan had the following objectives: - Transform the Basque Institute of Professional Qualifications into a Basque Institute of Knowledge; - Provide SMEs with support in applied innovation by creating strategic environments and network hubs in different sectors for companies and VET centres to join efforts. The VET plan that IDEATK falls underbuilt on four strategic aims proposed by the European Strategy ET 2020 for education and VET as a reference: - Making life-long learning and mobility in VET a reality; - Improving the quality and efficiency of VET; - Encouraging equity, social cohesion and active citizens through VET; - Increasing creativity, innovation and entrepreneurship in VET.
Timeframe	2015
Target group(s)	VET teachers and trainers
Level of implementation	Sub-national (region)
Geographical scope	Basque region, Spain
Sector(s), level(s) and settings of education and training covered	VET, institutional settings
Key actors involved and their roles	Central to the initiative was IDEATK, an Institute conducting research and providing support for teaching. The Institute operated under the Deputy Minister responsible for VET before it merged with TKNIKA. The Deputy Minister set out projects and tasks for IDEATK and operates as a contractor.

Important roles within the Institute are:

- Presidency: Deputy Counselor or Deputy Counselor responsible for vocational training.
- Vocals: technician or technician of the competent direction in the matter of professional training.
- Secretary with voice and without vote: technician or technician of the competent management in matters of professional training.
- Director or Executive Director and Area Directors, responsible for areas of action in: a) Area of Creative Thought. b) Applied Creativity Area. (La Administracional Dia, 2015)

Key activities/ measures

At the policy level, the main and most relevant activity is to create training processes for knowledge transfer and innovation in the VET centres on critical, constructive and creative thinking. As an example of a VET centre focusing on creativity, IDEATK performed the following tasks:

- Defines the processes necessary to carry out different techniques of constructive and creative thinking for the implementation of new projects in the field of VET;
- Researches emotional and executive intelligence to figure out how it can be useful in fostering the creativity of people who are participating in vocational training;
- Research, design and experiment in collaborative networks - new open creativity spaces with advanced technologies;
- Run collaboration projects between different sectors with advanced technologies and focusing on applied creativity;
- Promote the creation of companies in new creative environments through production models with 3D technologies;
- Collaborate with the Center for Research and Applied Innovation in Vocational Training in the Basque Country, TKNIKA, and with the Basque Institute for Knowledge of Vocational Training, IVAC, in the fields of applied innovation and creativity;
- Work with teachers of 10 VET centres to design a creative process development plan adapted to each centre (including training for teachers delivered by specialists in emotional intelligence, creative thinking and techniques beforehand).

Funding arrangements

Funded by the Government of the Autonomous Community of the Basque Country,

Ministry of Education.

Conceptualisation of creativity

Creativity is the capacity to find, define and solve problems/challenges and find solutions that add value. Creativity is an innate ability that can be developed and nurtured. Importantly:

- Creativity precedes innovation. A creative attitude requires the ability to see multiple perspectives, critically and effectively chose the best solutions.
- Creativity has a collective dimension too and is critical at the company level. For companies, it is essential to take advantage of the creativity of all the people who work in it: people capable of producing proposals, establishing objectives, evaluating priorities and generating alternatives.

In the policy document (Vitoria-Gasteiz, 2019), creativity is not explicitly defined but seen in relation to innovation. Especially because of the importance of innovation for the digital era, creativity is viewed as fundamental for new jobs. Creativity can be taught and together with imagination, products and services can be designed to solve real problems in a variety of contexts. Creativity, therefore, is also strongly linked to problem-solving.

Other concepts that creativity is linked to in IDEATK documents include:

- Parallel thinking;

- Design thinking;
- Divergent and convergent thinking;
- Socio-emotional learning.

Pedagogical approaches and methods promoted

It is not clear from the documents whether a more holistic method is followed at the Institute. However, trainers who implemented activities in VET centres were taught the Mindful Emotional Attachment Model (VEC) developed by Roberto Aguado, which is based on neuroscience and the theory of conscious emotional bonding/management. The model states that humans need to fit and adapt their emotions better with their goals and situations. Training emotional management skills favours the creative process since fear can lead students to shy away from exploring creative ideas, while feeling safe and motivated makes it easier for them to sustain creative intensity.

Furthermore, pedagogical approaches and/or methods that the VET trainers learned and taught others (to apply them in classrooms) were:

- Edward de Bono's six hats techniques;
- Applied creativity;
- Design thinking;
- AMIA and SCAMPER.

The six hats technique is well-known, but the project documents do not explain the AMIA and SCAMPER techniques. Applied creativity is explained as a method to deploy creative problem-solving within the entrepreneurial setting. The creative process must not end with the generation of ideas. Ideas are designed, tested and evaluated in an environment that supports the collaboration between teachers and students of different specialities/disciplines with machines and digital manufacturing tools. The method not only links creativity to problem-solving but also adds a time element. It is argued that digital solutions help students solve problems as quickly and effectively as possible. Applied creativity regards the process where students are encouraged to produce creative outputs and companies in new and creative settings.

Assessment approaches and methods promoted

There were no described assessment methods in the policy or project documents, besides from a description of indicators to measure the impact of the programme on making creativity and innovation established practice in the organisations (see Impact). In the training document (Ikuspe/IDEATK, 2016), two design thinking sessions were analysed and assessed according to whether they met the needs and wants by the user.

Results

Key outputs were:

- Brand image and the corporate identity manual;
- A complete PDF guide as help and tool for students; in training sessions given to teachers;
- Creative process development plans for VET centres.

According to the Basque Government, responsible for the VET plan, 500 people participated in teacher training run by IDEATK by 2017. Furthermore, all VET teachers in the region now have a plan (see the section on outputs) for working on creative thinking, emotional intelligence and executive intelligence.

The action plan (which IDEATK is integral to) was expected to have positive impacts on:

- Training the human talent needed to face the technical changes and the future of work;
- Enabling the active and reflective participation of workers;
- Allowing for new approaches and the development of cross-cutting competences (21st century competences), e.g. multi-disciplinary teamwork, rapid adaptation to change, and complex problem-solving;
- Encouraging creativity to face new situations in uncertain contexts;

- Boosting entrepreneurship, new jobs and activities.

Lessons learned	Although IDEATK was an ambitious initiative within the VET policy plan, from a policy perspective, it appears to be more efficient to have one institution mainstreaming creativity in VET. IDEATK has therefore recently been included and fed into the other VET institution TKNIKA.
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KC-MEM: Acquiring Key Competences through Local Memories in Non-Formal Adult Learning

Objectives	The objectives were: - To develop an educational framework based on innovative educational practices, e.g. initiative-based and dialogic learning, to improve the quality, creativity and innovation in adult learning; - To foster the acquisition of transversal competences such as critical and analytical thinking, teamwork, communication, key competences and specific skills such as management, research and interviewing; - To introduce the multi-perspective of History and historical thinking in adult education by focusing on local history and local memories; - To include a European dimension to the local memories in order to strengthen the European identity and empathy between local communities in Europe; - To narrate local memories by the use of different formats such as digital stories, exhibition and performance, to develop specific competences of learners as well as to share the findings from the initiatives with the rest of the community; - To strengthen local identity and local civil community by stressing the collective memory and common values and beliefs, fostering social cohesion and active citizenship, also in the framework of the European identity building.
Timeframe	The initiative ran between 2014 and 2015.
Target group(s)	Adults, cultural organisations, local authorities and civil society
Level of implementation	International
Geographical scope	Spain, Cyprus, Poland, Slovenia, the UK and Italy
Sector(s), level(s) and settings of education and training covered	Adult learning, community settings
Key actors involved and their roles	Central to the initiative were the following organisations with their respective expertise areas: - Aranzadi Society of Sciences in San Sebastian acted as an Initiative Coordinator - Frederick University in Nicosia (expertise in innovation in education) - FUTURA in Persiceto (expertise in adult learning) - Adam Mickievicz University in Poznan (expertise in local history and education) - Kranj City Library in Kranj (supporting research into local history) - Royal armoures in Leeds (supporting research into local history)
Key activities/	Key activities were:

measures	- Identifying and recruiting a target group of adult learners; - Identifying a relevant topic to focus the research into local memories on (the process involved learners since they are typically more motivated to do things they choose themselves); - Identifying sources of memory, e.g. local archive or museum collections, and confirming access details; - Creating a detailed plan, based on the KC-Mem methodology and teaching plan, also identifying ways to share the findings with the community. Five stages of the initiative were: - Phase 1: introduction to the topic; - Phase 2: Identification of memories; - Phase 3: Analysis and narrative building; - Phase 4: Creative output; - Phase 5: Sharing with the community.
Funding arrangements	Funded by the Erasmus+ (Lifelong Learning Programme 2007-2013, Grundtvig - one of the seven programmes brought together by Erasmus+).
Conceptualisation of creativity	Creativity was defined based on the 21st century skills framework developed by the Partnership for 21st century Learning. Creativity was defined as the ability to: - Use a wide range of idea creation techniques; - Create new and worthwhile ideas covering both incremental and radical concepts; - Elaborate, refine, analyze and evaluate one's ideas; - Develop, implement and communicate new ideas to others effectively; - Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work; - Demonstrate originality and inventiveness in work and understand the real-world limits to adopting new ideas; - View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes; - Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur. Creativity was linked to: - 21st century skills (3Rs x 7Cs); - Critical thinking; - Problem-solving; - Collaboration; - Innovation; - Soft skills overall such as teamwork skills, self-reflection and awareness, communication and decision-making capacity; - Design and ICT. Components of creativity and innovation: - New knowledge creation; - understanding 'best fit';

- Design solutions;
- Artful storytelling.

Pedagogical approaches and methods promoted

The pilot initiatives used a range of teaching methods following a personalised and participatory approach to narrative-building. Cultural organisations and institutions collaborated to transform individual memory accounts into collective historical memory. Most of the pedagogies were, therefore, inspired by their methods:

- Object-based learning: introducing new topics or bringing out new perspectives on an existing topic by use of historical or material objects that act as triggers for memories and discussion;
- Collaborative learning strategies: group activities involving shared experiences, such as site visits, meeting witnesses, conducting interviews or working with objects; active research was encouraged to stimulate critical collective thinking and for participants to discover conflicting views or information;
- Initiative-based learning: focused on specific tasks and participants had the responsibility for their learning; peer- and self-evaluation were conducted;
- The participants and partners learned that dialogic learning (DL) and learning by doing are the most successful methods in the field. DL focuses on a dialogue between trainer and trainees, involving critical thinking and learning skills. One must learn how to connect ideas, challenge assumptions, absorb and reflect on information and be able to convey this knowledge in a range of different forms. Learning-by-doing didactic effects are achieved through practice and self-perfection, involving hands-on experience, thinking ahead, problem-solving, and repetition.

Assessment approaches and methods promoted

Not applicable

Results

Key outputs were:

- Guide on the use of memory in the adult learning environment;
- Using Historical Memory in Adult Learning: A guide for organising an educational KCMEM initiative;
- A kit for validation and recognition of skills in non-formal adult education;
- Pilot experience summaries;
- Books, videos, articles and blogs produced by the participants;
- KCMEM conference programme;
- Dissemination report;
- Memory of exploitation activities.

The attempt to recreate the success story of the methodology at the school level in the adult learning context was positively evaluated. The dissemination approach helped to ensure that the activities reached a thousand people in each country, and findings were successfully shared with the local communities. The documentation of pilots suggests that creativity as a transversal skill was fostered. The participants who were of all age groups (up to 80) made use of divergent thinking, and a wide variety of techniques including game-based learning, problem-solving, design thinking and ICT solutions. Critical thinking was fostered, especially during the planning period, since participants were challenged to choose historical memories that brought together a variety of people and also represented different voices. From a pedagogical perspective, critical thinking around belonging and identity was fostered as a form of civic awareness.

Contacts made during the research stage of the initiative helped to increase the impact of the

initiative, ensuring good knowledge of specific and relevant target groups. For example, the methodology and material was used in a big-scale anthropological initiative funded by the Basque Government. Overall, the initiative contributed to the modernisation of adult learning in the respective countries by being a good example of how adult learning over time can be effectively organised and gain visibility.

Lessons learned

Some of the participating organisations argued that incorporating individual memories and history interferes too severely with ideology, and are therefore not impartial. Nevertheless, the majority of organisations involved were of the opinion that historical memory is indispensable because it represents a foundation for creativity, new knowledge and competencies. The logic is that reflecting on history, what went right and wrong, and how it shaped society, can bring new ideas to life.

Also, elderly people stated that the values and habits of their current lives are formed by history and memories of the years when they were most active and creative in the society. Memory accounts could bring back to life the habits of creativity for those that have forgotten or have gotten used to a more conform and rigid way of thinking.

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The website of the initiative, which is no longer in use.

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Creative Partnerships as implemented in Lithuania ('Kūrybinės partnerystės')

Objectives	The key goal was to expand and enrich conventional learning processes by involving creative professionals from different fields such as art or science, and in this way develop the creativity of teachers and learners. Specific objectives included: - To develop the creativity of young people, boosting their aspiration and achievements; - To develop creative work skills of teachers, and encourage their collaboration with creative professionals; - To develop a creative approach to learning in Lithuanian schools and improve school communities' attitudes towards opportunities offered by culture, creativity and collaboration.
Timeframe	The initiative ran between 2011 and 2015.
Target group(s)	School students (in grades 1-12)
Level of implementation	National
Geographical scope	Lithuania
Sector(s), level(s) and settings of education and training covered	Primary and secondary school education, institutional settings
Key actors involved and their roles	Led by the Ministry of Education and Science, implemented by the Education Development Centre, supported by the following partners: - Creativity Culture & Education: in 2002-2011, managed Creative Partnerships in the UK, which set the ground for the programme in Lithuania. CCE offered services based on the principles of and learning from Creative Partnerships - British Council: patronised the project, initiated and implemented a pilot 'Creativity, leadership, innovation and culture' - Bernardinai.lt published programme news online A project management team was established to monitor and support project implementation and continuity, approve school selection rules and results, advise on project promotion, communication messages and channels. The team collaborated with 9 regional partners, who helped to ensure the project implementation and promotion in Lithuanian regions.
Key activities/ measures	Central to the initiative was the implementation of a creative partnerships model in schools. The model rests on direct and indirect collaboration between teachers, creative professionals and schoolchildren. First, each selected school mapped its needs and together with the appointed creative agent developed its creative learning project. Second, each school implemented its creative learning project, regularly reflecting on the results. Third, once the project was finished, a creative agent assessed it with students, teachers and creative professionals that had taken part. Finally, individual project results were documented and shared with the national management team. In some cases, the results of a creative partnership were presented in tangible forms (song, play, creative surroundings), in others they had intangible value (solving social problems, developing

	competences of teachers and students, improving the motivation of learners and microclimate at school).
Funding arrangements	Co-funded by the European Union (through the European Social Fund) and Lithuanian Government. The total value of the project was almost 16 million Lt.
Conceptualisation of creativity	Creativity was defined as a universal ability to doubt, question, think critically, discover links, solve problems through innovation, and work persistently to achieve goals. The programme's approach to creativity is based on the five habits of mind, i.e. creativity means being: - Imaginative: playing with possibilities, making connections, and using intuition; - Inquisitive: wondering and questioning, exploring and investigating, and challenging assumptions; - Persistent: tolerating uncertainty, sticking with difficulty, and daring to be different; - Collaborative: cooperating appropriately, giving and receiving feedback, and sharing the product; - Disciplined: reflecting critically, developing techniques, and crafting and improving.
Pedagogical approaches and methods promoted	Some key ideas behind the creative partnerships model: - Creativity is a universal ability: creativity manifestations may differ across fields, but the basis of the creative process is always the same. - Creativity can be learned: levels of creativity among people vary, but creativity can be learned by changing attitudes, creating stimulating environments, providing experience and learning creation strategies and techniques. - Creativity is multidimensional: creativity is assessed based on results, but these are influenced by a creative process. The latter can be individual, but inspired by a collective experience. The model integrates different aspects of creativity, including the development of personal attitudes and capabilities, collaboration and exchange of experience. - Development of creativity is not an objective just for the sake of it: at school, fostering creativity can help to increase the attractions of learning, joy and self-worth of students and teachers, improve relationships within a community, help to discover new meanings, etc. The model integrates rather than contrasts creativity and learning. - Inquiry-based learning: creativity-based learning is active, experimental, reflective, resulting in fundamental changes in understanding, capabilities and attitudes. Both teachers and students are exploring. - Teaching is a creative profession: teachers have to be creative as they create lesson scenarios, make situational decisions, and contribute to their school community life and their students' future. The model offers teachers the support of creative professionals. - Every decision is unique: the model does not offer standard solutions. Each project is tailored to individual schools and their unique problems and implemented with the support of unique personalities - creative professionals. Key pedagogic practices of the collaborative partnerships are provocation, use of artefacts, moving out of the classroom, making an occasion, use of the 'texts of our lives', the self as a teaching resource, costume, use of the body, different classroom discourse patterns, the creation of a rich narrative environment, the use of professional norms, alignment with disciplinary expectations, the valorisation of collective endeavour, managing behaviour differently, the use of routine, flexibility in pacing, the use of open-ended challenges, building commitment to the community, and permission to play.

Assessment approaches and methods promoted	Not applicable
Results	138 schools and almost 9,000 schoolchildren participated in the project. Over 2,000 teachers improved their professional competences in the field of creative learning. 163 creative practitioners and 114 creative agents (including movie directors, journalists, interior, fashion and graphic designers, actors, dancers, geologists, etc.) joined the initiative and worked with schools. Based on the programme evaluation results, Creative Partnerships in Lithuania: - Helped to develop schoolchildren's skills such as learning to learn, cooperation, and creative thinking - Altered schoolchildren's attitudes, i.e. increased their interest in the teaching subject, apprehension of the importance of science, and intentions to learn about and improve their skills - Allowed for the integration of teaching subjects, and in turn, helped schoolchildren to understand the links between theoretical knowledge (acquired in classrooms) and its application in daily activities - Stimulated the schoolchildren to go out of their comfort zone and take an interest independently, improving their skills, work in pairs or groups - Allowed for work with people from outside of school, who, using non-traditional methods of information gathering and presentation, encouraged schoolchildren to choose more liberal forms of communication, offering more freedom and self-confidence - Changed schoolchildren's attitudes towards themselves and education process (in the beginning stage, learning to learn was understood as related to discipline, apprehension of the importance of science, concentration, efforts and diligence; in the course of the project, the focus shifted towards perseverance, courage, curiosity, achievement of goals, collaboration, self-confidence, interest, etc.) - Encouraged teachers to place more emphasis on schoolchildren's willingness to act in a complex environment, leadership, and communication - Allowed for the participation of teachers and learners in same activities, and this provided teachers with opportunities to develop closer relationships with their students, and acquire a reputation of those who are easy to communicate with and able to understand - Allowed for the application of new teaching methods and environment change, which strengthened the apprehension of the practical benefits of the knowledge acquired, encouraged curiosity and willingness to dig deeper into the subject - Based on teacher feedback and monitoring results, improved student achievements and attendance - Helped to improve the general psychological climate (emotional environment, tolerance, encouragement of thought diversity and critical thinking, communication and playfulness) - Altered approaches to student assessment (the focus shifted from the final outcome to interim achievements, which are not necessarily graded; some alternative methods were employed, e.g. self-assessments and evaluation by peers) However, after the project teachers continued to rarely discuss with the schoolchildren class progress, the way students felt or their own accomplishments; in classes observed teachers were active and kept the initiative in their hands, giving schoolchildren the role of a performer/executer; teacher-student interactions remained more frequent than student-student ones; teachers were

interested in new methods, but planned to use them on their own in the future to a limited extent only.

Lessons learned

Some of the lessons the project revealed are:

- Developing creativity through the process of education as well as the collaboration of experts in different fields, yield considerable results even in the short term.
- Favour and approval of the headmaster and administration are very important and makes a positive influence on the project results as well as continuity of the creative partnerships ideological values.
- It is easier to deliver creative partnerships principles to younger pupils because they are more open to new ideas.
- Inappropriate selection of teachers and creative professionals could present the development of the creative partnerships ideas at schools.
- Lack of time for project activities, antagonism of project participants and inadequate expectations were the biggest challenges to the project.
- Educational, pedagogical and psychological preparation of the creative professionals is important.
- Publicity, involvement of parents and external partners, competences and motivation of school coordinators, and scope of the involvement of schools are all very important.
- The key factor preventing teachers from using new methods is the ratio between the time the preparation requires and expected results. Teachers realise that to observe student creativity, it is not enough to formulate a task for schoolchildren, it is also crucial to dedicate time for the process. This stops many teachers from applying the methods that help to develop creativity.

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Innovation Laboratories for the quality assurance of vocational education and training (i-Labs)

Objectives	The major objective of the project was to improve the quality of vocational education and training through the use of innovation laboratories (i-Labs) in the didactic learning processes. Specific objectives were to: - Transfer innovative solutions to EU countries (DE, SI, RO) and facilitate its adaptation to the new conditions of VET; - Develop an original software supporting i-Lab sessions; - Develop the competences of employees of newly established Innovation Laboratories and partner organisations; - Develop the competences of students through the pilot application of i-Labs in vocational education practice; - Identify new applications for i-Labs in VET and develop Good Practice Guide; - Develop an International Innovation Laboratories Users Net.
Timeframe	The initiative ran between 2012 and 2013.
Target group(s)	Students, teachers, trainers and institution managers of VET
Level of implementation	International
Geographical scope	Germany, Greece, Poland, Slovenia and Romania
Sector(s), level(s) and settings of education and training covered	VET, adult learning, institutional settings
Key actors involved and their roles	Central to the initiative were: - Instytut Technologii Eksploatacji - Panstwowy Instytut Badawczy, Poland (coordinator) - Continuing training institution Sachsische Bildungsgesellschaft fur Umweltschutz und Chemieberufe Dresden mbH, Germany - Continuing training institution Solski Center Ptuj, Slovenia - Aintek Symvouloi Epicheiriseon Efarmoges Ypsilis Technologias Ekpaidefsi Anonymi Etaireia, Greece - Uniwersytet Rzeszowski, Poland - Universitatea “Dunarea de Jos” din Galati, Romania
Key activities/ measures	The main activities of the project were the creation of the i-lab software tools and cooperation and dissemination of related material over international workshops among the partner countries. This application provides users a shared, web-based platform to enhance creativity. In this platform,

users are gathered in a Social Group in which they can share ideas, comments, documents and links around. This application is part of a physical environment which provides users with a number of tools to stimulate their creativity. If problems arise in the creative process, then the application provides facilities for a coordinator who can use different methods to unlock brainstorming progression.

The technology involved in iLabs consists in a set of computers with multimedia peripherals and special software designed to allow anonymous participation to discussions, and easy recording of ideas. The third term of the sum in the equation that defines an iLab, facilitation is the overall management of the resources, along with influencing the group dynamics in order to obtain the most of the group's creative capabilities.

The software is one of the essential elements of an i-Lab. It allows for assistance in the realisation of brainstorming processes in an i-Lab (collecting ideas, voting on ideas, reporting). Virtual Brainstorm (VBS) software, developed in the Institute for Sustainable Technologies – National Research Institute in Radom, is used there in the i-Lab. In the course of the project, the software was upgraded with new language versions (English, German, Slovenian, and Romanian) and made available to the project partners for the purposes of new i-Labs. Software implementation was preceded by a training course in software operation and administration for the partner institutions' representatives.

Funding arrangements

Funded by the Erasmus+ (under Erasmus+, Lifelong Learning, Leonardo da Vinci)

Conceptualisation of creativity

The partners defined creativity as a personality quality and specific to each person and is also influenced by personal experience. Furthermore, they argued that 'creative people create inventions, imagine different situations or things, solve problems in various fields, create and communicate using innovative methods.

Creativity was linked to:

- Collaboration;
- Communication;
- Diversity;
- Problem-solving;
- Context.

Pedagogical approaches and methods promoted

The environment ('place') is known to be one of the four fundamental Ps of the concept of creativity. Based on Davies et al. (2013), the partners found that the environment is key to developing creativity and especially these factors:

- Flexible use of space and time;
- Availability of appropriate materials;
- Working outside the classroom/school;
- Opportunities for peer collaboration;
- Non-prescriptive planning.

By adding two more elements to this environment, software tools designed to facilitate communication and teamwork, and a 'facilitator', the iLab method is described as the combination of an extraordinary environment, technology and facilitation techniques. The innovative character and the supremacy of solutions applied in i-Lab result from using specially designed computer software supporting the brain storming process.

The philosophy behind iLab is derived from the so-called 'construal level theory' (CLT) (Trope, Y., & Liberman, N. 2010), which states that an increased psychological distance – defined as perceptual detachment from a certain problem or context- can positively influence creativity. The iLabs attempt to artificially increase the psychological distance by inducing to the users the feeling of being 'somewhere else'. Using collaborative software can stimulate communication with other persons, anonymous or not. This allows participants to share their ideas honesty and frankly,

breaking down the traditional hierarchy and caution sometimes found in traditional meetings. The iLab software allows attaching comments to ideas, thereby stimulating communication between participants.

Assessment approaches and methods promoted	Not applicable
Results	Key outputs were: - New laboratories of innovation; - New language version of Virtual Brainstorm Software (VBS); - Qualified facilitators - staff with proven skills; - Good Practice Guide expanded by new descriptions and examples of i-lab applications in new language versions; - Expanded network of i-lab users; - Innovative methods of training and education; - Promotion and dissemination materials; - Local dissemination seminars; - Final conference. Data collected during the creative sessions using dedicated software shows that in the creative sessions held in the dedicated space of iLab on average more ideas than in a normal space were developed. Data collected and processed following sessions of creativity iLab is encouraging in terms of showing that creativity is stimulated in a particular environment using collaboration. There is a direct proportion between the number of ideas and the number of comments, so the conclusion is that collaboration through debating between participants encourages to create more ideas. Increasing the period of a session allows participants to have enough time to move their thinking from the proposed topic in the specially designed space of iLab and to encourage communication between participants.
Lessons learned	A strength of the iLab derives from its feature of anonymous brainstorming sessions: this allows users to focus on the ideas rather than persons. The only weakness of this concept is its relatively high cost of implementation.
Sources of information	i-Lab Consortium. (n.d.). *i-Lab 2: Transfer of Innovation.* Retrieved 12 September, 2020, from http://www.ilab2.eu/ Erasmus +. (n.d.). *Innovation Laboratories for the quality assurance of vocational education and training.* Retrieved 12 September, 2020, from https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2012-1-PL1-LE005-27430 Susnea, I., Pecheanu, E. & C. Tudorie. (2015a). *Initiatives towards an education for creativity*. In Education facing contemporary world issues [conference presentation]. The 6th International Conference Edu World, Pitesti, Arges, Romania. Susnea, I. Pecheanu, E. & A. Cocu. (2015b). *Stimulating Creativity through Collaboration in an Innovation Laboratory.* Procedia - Social and Behavioral Sciences, 182, 173 – 178.

PROACTIVE: Fostering Teachers' Creativity through Game-Based Learning

Objectives	The purpose of providing teachers with a context, a game, for creating real-world learning scenarios for their students was, first of all, to stimulate the creativity of teachers and trainers working in the Lifelong Learning Programme's (LLP) sub-programmes, and doing so by: - developing a conceptual framework for integrating different learning metaphors; - introducing innovative ICT-based experiences in teaching and training practice, adapting and enhancing the game editors as well as integrating five learning metaphors; - implementing co-design creativity sessions and pilot sites for addressing school, university and vocational education scenarios; - validating the proposed approach as a means of learning and evaluate its impact on teachers' creativity and students' outcomes. The achievement of these objective were assessed by the community of teachers and trainers who participated in workshops and events.
Timeframe	PROACTIVE was launched in 2010 and ended in 2012.
Target group(s)	Teachers and trainers of Comenius, Erasmus and Leonardo Da Vinci sub-programmes.
Level of implementation	International
Geographical scope	Spain, Italy, UK and Romania.
Sector(s), level(s) and settings of education and training covered	School education, VET and HE, institutional settings
Key actors involved and their roles	Central to the initiative has been the University of Barcelona, which acted as initiative coordinator. Sapienza Universita di Roma - Department of Psychology of Development and Socialisation processes, Centre for Advances Software Technology Limited, Universita di Napoli Federico 2 - Department of Social Relations, Natural and Artificial Cognition Laboratory, Universidad Complutense de Madrid - Department of Software Engineering and Artificial Intelligence and Universitatea din Bucuresti - Distance Education Department were all contributing to tasks related to their area of expertise.
Key activities/ measures	- Educating teachers on how to become game editors (within training workshops, teachers were trained in 1) 'e-Adventure' - a tool for creating adaptable 2D point and click adventure games for educational applications, and 2) 'EUTOPIA' - a tool for creating learning scenarios in 3D virtual worlds); - Organising a competition to reward the best game-based learning scenarios by assessing learning, gaming and technical aspects of each scenario; - Organising a conference on game-based learning; - Creating an online repository of 60 game-based learning scenarios.

Funding arrangements	Funded by the Erasmus+ (Lifelong Learning Programme).
Conceptualisation of creativity	PROACTIVE defines creativity as an imaginative activity that needs to produce outcomes that are both original and of value. It draws on three main sources to build a comprehensive understanding of the dimensions, elements and components of creativity. - The definition developed by the UK National Advisory Committee on Creative and Cultural Education (1999). This conceptualisation recognises four characteristics of creative processes: thinking imaginatively; making imaginative activity purposeful; generating something original; having an outcome of value in relation to the objective. - The initiative was inspired by the manifesto 'European Ambassadors for Creativity and Innovation' (2009), particularly the statement 'to be creative means to imagine something that did not exist before and to look for new solutions and forms'. Creativity is thus linked with innovation and problem-solving. - The initiative consortium adopted the 4Ps (Person, Process, Product, Press) theory about the dimensions of creativity (Rhodes, 1961). The 'person' concerns the creative abilities of an individual, e.g. divergent thinking. The 'process' refers to the procedure used by the person to develop the product, e.g. brainstorming. The 'product' is the result of the creative process, which usually has to be both novel and useful for innovation to take place. Lastly, 'press' is the environment in which the person operates that can be conducive or prohibitive to creativity, e.g. organisational culture or resources.
Pedagogical approaches and methods promoted	The initiative tackled creativity primarily as mediated by the pedagogy of game-based learning. It required creativity to be taught by: - embedding creativity through ICT tools. The tools need to stimulate novel learning and teaching strategies into active learning approaches such as creative problem solving, discovery, learning by doing, experiential learning, critical thinking, and co-designing 2D or 3D learning games; - creating learning scenarios for students that mimic the real-world. In real-world learning situations, learners combine several approaches to learning: imitation, participation, acquisition, exercise and discovery. The game design process was guided by these five metaphors of learning. - promoting a constructivist approach to game-based learning (i.e. game design) that allows for flexibility, learner autonomy and, subsequently, more effective learning. - covering the four stages of game-based learning: designing game-based learning, creating game-based learning scenarios, game-based teaching, and game-based learning.
Assessment approaches and methods promoted	Not applicable
Results	Key outputs of the PROACTIVE were: - 18 deliverables, of which 14 were reports and 4 products, software and website; - Several public events to disseminate the findings from initiative; - Two game editing versions specifically tailored for the initiative (prepared based on the analysis of user needs); - A collection of templates and libraries for the production of creative game-based

learning scenarios;

- A handbook for the production of creative game-based learning scenarios that contains tutorials for designing and developing these scenarios as well as tutorials for using the produced tools;
- Evaluation framework, which identifies tools and procedures for validating the proposed methodology for lifelong learning;
- A community of teachers and trainers interested in game-based learning;
- ProActive psycho-pedagogical framework for fostering teacher's creativity through the design of GBL scenarios prepared based on literature review.

The attendance to the workshops and feedback from participants suggest that the initiative had several positive outcomes. First, more than 3000 participants attended the workshops and events, created 22 educational games and 60 game-based learning scenarios. Secondly, students and teachers involved in the initiative evaluated the use of game-based learning positively. One reason highlighted was that the tools and methods prompted provided flexibility for and collaboration among the teachers involved (learner autonomy).

The initiative also had a positive impact on a higher level. The initiative contributed to the development of quality lifelong learning in the three sectors of the Lifelong Learning Programme (school education, higher education and vocational education and training). It successfully promoted collaboration in the sector and among EU countries on how game-based learning can promote creativity as a transversal skill: using real-world scenario making in games to enhance creativity, imagination and real-world problem-solving. Not only did it plant a seed of knowledge through the dissemination of new knowledge and challenging the participants' prior beliefs, but it seeded a community of teachers that continued to collaborate and be passionate about GBL for creativity.

Lessons learned

Some success factors of the initiative were:

- Having a multidisciplinary and international team consisting of teachers, psychologists and computer scientists that could draw on best practices from their own countries;
- Creating guidelines and frameworks, e.g., the psycho-pedagogical framework, that the participants can use for their game-based learning in the future.
- The five learning metaphors (acquisition, imitation, experimentation, participation, and discovery) did not just guide the game design process, but also fostered the educators' reflection on new ways of teaching creatively.

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