CreatiVET

CREATIVITY FOR VET

A collection of content, instruments, and creative good practice examples for VET

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Creativity for VET Brochure

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Preface

Our project, CreatiVET, is built up around the philosophy of creativity as a 21st-century skill for employment and a pathway to social inclusion, as one of the objectives of ET 2020 — the EU's Strategic Framework for Education and Training 2020 is "creativity, innovation and entrepreneurship at all levels of education and training".

The project stimulates creativity in VET and follows the principle that creativity can be learned. VET professionals active in work-based learning activities in creative industries must be creative themselves in their methods of teaching, organizing and delivering the training.

Course 1 Creativity for VET

This brochure contains the experience and resources we've gathered during a course held in Magdeburg, Germany with 19 participants from 5 different countries. Everybody contributed with work, ideas and good practice examples to gather content for this project output.

The goal of the course was to identify ways to support and develop the careers of creative VET students particularly through work based-learning. Participants explored ways of making creative courses that lead to career development and ensure skills for gaining or creating employment, especially for disadvantaged trainees.

It provides resources and ideas to stimulate creativity and implement Creative problem solving methodology and Web 2.0 tools in Vocational Education Training.

The Goals of the Course:

- encourage creative working with learners with special needs at the organizational, local, regional, national and European level
- identify ways to support and develop the careers of creative VET students particularly through work based-learning.
- provide resources and ideas to stimulate creativity and implement Creative problems solving methodology and Web 2.0 tools for creativity in
- provide opportunities to build or rebuild creative collaborative capacities through reflection, playing with ideas and being playful.
- Participants will rethink, re-design and develop content. They will improve and design learning and evaluation tools to create programs, including training in the workplace, to support the social integration of disadvantaged learners.

1. Introduction

Creativity, as a 21st-century skill, has gained more interest in past years and has become one of the key competencies to be implemented in classrooms. Digitalization and Industry 4.0 require creativity in all professional fields

While robots are great at solving problems and optimizing existing ideas, organizations most need employees who can imagine and create innovative solutions for tomorrow.

Develop the creativity, innovation and leadership capabilities you need to adapt to change, stay competitive, improve business performance and make a positive difference in the world.

Can creativity be learned?

The short answer is yes. A study by George Land reveals that we are naturally creative and as we grow up we learn to be uncreative. Creativity is a skill that can be developed and a process that can be managed.

In 1968, George Land conducted a research study to test the creativity of 1,600 children ranging in ages from three-to-five years old who were enrolled in a Head Start program. This was the same creativity test he devised for NASA to help select innovative engineers and scientists. The assessment worked so well he decided to try it on children. He re-tested the same children at 10 years of age, and again at 15 years of age. The results were astounding.

Test results amongst 5 year olds: 98%

Test results amongst 10 year olds: 30%

Test results amongst 15 year olds: 12%

Same test given to 280,000 adults: 2%

“What we have concluded,” wrote Land, “is that non-creative behavior is learned.”

2. Creativity, how to measure and stimulate creativity

What is creativity?

Following the IGI Global research we can provide the 132 definition of creativity:1

Here are some ideas and views on creativity:

Creativity is a complex of traits, skills, and capacities, including the ability to work autonomously, curiosity, unconventional thinking, openness to experience, and tolerance of ambiguity[2]. Highly creative adults exhibit deep knowledge of and a strong bond with their subject matter, as well as intrinsic motivation[3].

Creativity is a complex skill that allows the generation of original and innovative ideas in resolving various situations in the daily lives of human beings, and is, thus, an essential skill in the process of adaptation of the individual in a rapidly-changing society[4].

Creativity is signaled by divergent thinking, a thought process in which the mind's typical thought process is opened in all directions allowing for a wide range of newly possible ideas. This sort of originality and efficacy is like a muscle. As children, the creative muscle is continuously flexed— imaginary friends, playing pretend, creating new languages. Children are forever expressing their creativity. However, as adults, people's experience at being able to tap into that childlike creative mindset is less and less available. But do people actually become less creative with age? Although life can get more structured with age, that doesn't necessarily mean that a person's creative capabilities have dwindled.

Creativity is the ability of a person to create, perform, or think of something in a way that has not been done before.

Per the Harvard Business School professor, Teresa Aambile, there are three components of creativity: Expertise, creative thinking skills, and motivation. The most creative people are also innovators. They spend countless hours learning, honing their skills, and thus, acquiring expertise.

1 https://www.igi-global.com/dictionary/creativity/6166
2 Adams-Price 1998; Albert 1996
3 Amabile 1996; Keegan 1996
4 Cassotti, Camarda, Poirel, Houdé, & Agogué, 2016

Creativity is defined as the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and others[5].

Three reasons why people are motivated to be creative:

1. need for novel, varied, and complex stimulation
2. need to communicate ideas and values
3. need to solve problems

In order to be creative, you need to be able to view things in new ways or from a different perspective. Among other things, you need to be able to generate new possibilities or new alternatives. Tests of creativity measure the number of alternatives that people can generate and the uniqueness of those alternatives. The ability to generate alternatives or to see things uniquely does not occur by change; it is linked to other, more fundamental qualities of thinking, such as flexibility, tolerance of ambiguity or unpredictability, and the enjoyment of things heretofore unknown.[6]

Creativity is any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one...What counts is whether the novelty he or she produces is accepted for inclusion in the domain."[7]

Ways that "creativity" is commonly used:

1. Persons who express unusual thoughts, who are interesting and stimulating - in short, people who appear to unusually bright.
2. People who experience the world in novel and original ways. These are (personally creative) individuals whose perceptions are fresh, whose judgements are insightful, who may make important discoveries that only they know about.
3. Individuals who have changes our culture in some important way. Because their achievement are by definition public, it is easier to write about them. (e.g., Leonardo, Edison, Picasso, Einstein, etc.)8

5 From Human Motivation, 3rd ed., by Robert E. Franken p. 396
6 Creativity - Flow and the Psychology of Discovery and Invention by Mihaly Csikszentmihalyi p. 394
7 Creativity - Flow and the Psychology of Discovery and Invention by Mihaly Csikszentmihalyi p. 28
8 Creativity - Flow and the Psychology of Discovery and Invention by Mihaly Csikszentmihalyi p. 25-26

Characteristics of the creative personality:[9]

1. Creative individuals have a great deal of energy, but they are also often quiet and at rest.
2. Creative individuals tend to be smart, yet also naive at the same time.
3. Creative individuals have a combination of playfulness and discipline, or responsibility and irresponsibility.
4. Creative individuals alternate between imagination and fantasy ant one end, and rooted sense of reality at the other.
5. Creative people seem to harbor opposite tendencies on the continuum between extroversion and introversion.
6. Creative individuals are also remarkable humble and proud at the same time.
7. Creative individuals to a certain extent escape rigid gender role stereotyping and have a tendency toward androgyny.
8. Generally, creative people are thought to be rebellious and independent.
9. Most creative persons are very passionate about their work, yet they can be extremely objective about it as well.
10. The openness and sensitivity of creative individuals often exposes them to suffering pain yet also a great deal of enjoyment.

9 Creativity - Flow and the Psychology of Discovery and Invention by Mihaly Csikszentmihalyi p. 58-73

Keys to enhancing your creativity

Psychologist and author Mihalyi Csikszentmihalyi, says people focus their life activities by responding to two powerful motivations.

One is the ability to enjoy being creative for the sake of exploration and invention which has over generations enhanced human society's ability to survive in an unpredictable world.

The other is to derive pleasure from comfort and relaxation which allows us to rejuvenate ourselves and to recover our energy to maintain overall health and well-being. A balance of these two motivations can lead to enhanced creativity.

Csikszentmihalyi offers suggestions for enhancing creativity:

1. Try to be surprised by something every day.
2. When something strikes a spark of interest, follow it.
3. Recognize that if you do anything well it becomes enjoyable.
4. To keep enjoying something, increase its complexity.
5. Make time for reflection and relaxation.
6. Look at problems from as many viewpoints as possible.
7. Produce as many ideas as possible.
8. Try to produce unlikely ideas.

Engaging in an enjoyable creative activity just once a day can lead to a more positive state of mind and an enhanced state of well-being, according to a study published in the Journal of Positive Psychology[10]. The effects of this activity will permeate other aspects of your life. The key is to be creative and make the activity enjoyable.

Linguistic expert and a passionate writer on creativity, Dr. Munir Shuib said despite all the wonders towards understanding creativity, humans can actually be taught to develop creativity.

"It can be taught, learnt and developed. There have been many studies and findings that have demonstrated that

10 Tamlin S. Conner, Colin G. DeYoung & Paul J. Silvia. Everyday creative activity as a path to flourishing Journal of Positive Psychology 2016

creativity can certainly be cultivated. For instance a study recently reported in the Creativity Research Journal demonstrates that employees from a business organisation in California who attended creativity training seminars were able to increase their rate of new idea generation by 55 per cent which had led to about USD 600,000 in new revenue to their organisation," he said during an interview.

It is fairly easy, according to Munir, to differentiate those who are creative from those who and not. These are among the five main traits of a creative person according to Munir and you might be surprised that you have all the five:

They are risk takers

Creative thinkers are risk takers. They just love taking risk. In fact they would be very eager and excited to take up a project with high risk potential rather than going through routine tasks they considered as mundane. Risky environments force them to challenge themselves to seek multiple solutions.

They have the dare to fail attitude

Failure for them is a learning curve. They learn from all the mistakes made and all those mistakes actually stimulate a higher sense of curiosity in them. They have an open-mind view of things that there are many other doors that would lead them towards a solution they are looking for in facing current challenges. Elon Musk, known for having to revolutionise every industry he has touched (Paypal in electronic cash, Tesla in automotive and SpaceX in rocket technology) invested over $100 million of his own money into SpaceX and experienced a series of rocket launch failure. He kept pushing despite all the failures in order to explore the possibilities of building human settlements in Mars by 2060.

They are willing to be different

In fact, they like to be different from the masses. Remember how Mark Zuckerberg has always been noticed wearing the almost identical round neck t-shirt nearly every day? And Steve Jobs with his turtlenecks? Zuckerberg was reported having to explain that clothing is a 'silly' decision that he doesn't want to spend too long making as he wants to dedicate his energy on how best to grow his business and help to serve the community. What people think of them is not really a matter of concern as they have a very clear objective in life.

They choose to become a divergent

They will do things that may challenge the boundary of normal thinking and perspective. They think outside the box (and they really, really do think outside the box) where they see opportunities and solutions from all sorts of angles that remained unnoticed to many others. They are also highly curious and inquisitive. Founder of amazon.com, Jeff Bezos is one great example of a divergent. They see the world as a laboratory and they continually seek to answer the 'what-if' questions as they search for new solutions. This often leads to the birth of many innovators.

They are impulsive, fickle and change their mind quite often

Too often creative thinkers are being exposed to new experiences, leading their minds in constant mode of thinking. They gauge huge amount of thoughts and opinions towards a problem they try to solve. This then resulted into them revising their understanding of a matter in an amazingly fast cycle and often decisions too. They tend to be fickle in many aspects of life as they are deeply engaged in the creative thinking process. Adding to the result, they tend to make impulsive decisions in accordance to their own ways of thinking, which is then misunderstood by many and interpreted as 'not having a stand'.

Defining creativity as the ability to generate new ideas, Munir however said that highly creative people must also learn to create a balance by enhancing their ability in critical thinking which relates to the ability to judge (of which is often misunderstood by us). This will create the necessary balance to avoid excessive creativity. Excessive creativity, according to him, may result in disaster.

"Robots for example, were initially created to increase our efficiency. But now we have sex robots and some humans are married to them! With the rise of the 4th Industrial Revolution, people are facing new challenges each day as the world is anticipating the declining rate of jobs for humans since robots are now becoming far more superior than they were years ago," he said, adding that freedom is a must if we want to allow people to build on their creativity.

3. Creative teaching skills

Numerous scientific studies show that different parts of the brain are activated and deactivated when you are engaged in different types of creative thinking:

Convergent thinking

Where you judge ideas, criticise them, refine them, combine them and improve them, all of which happens in your conscious thought and focus.

Divergent thinking

Where you imagine new ideas, original ones which are different from what has come before but which may be rough to start with, and which often happens subconsciously as new pathways are spontaneously explored deep within the brain.

Creative education is when students are able to use imagination and critical thinking to create new and meaningful forms of ideas where they can take risks, be independent and flexible.11

11 Wikipedia

Creative education

Why is creativity important in education?

- While robots are great at solving problems and optimizing existing ideas, organizations most need employees who can imagine and create innovative solutions for tomorrow.
- Develop the creativity, innovation and leadership capabilities you need to adapt to change, stay competitive, improve business performance and make a positive difference in the world.
- Creativity can be used to compensate for the lack of skills and grow the employability of disadvantaged groups.
- Creativity motivates trainees to learn.

A good classroom environment always has some elements of creativity which makes the lessons more interesting and interactive. The right mix of creativity along with curriculum helps students to be innovative and also encourages them to learn new things. Students can grow up as good communicators in addition to improving their emotional and social skills. Creative classrooms can really transform the way students acquire education and how they apply it in their real life. In fact, creative expression plays a key role in a student's emotional development.

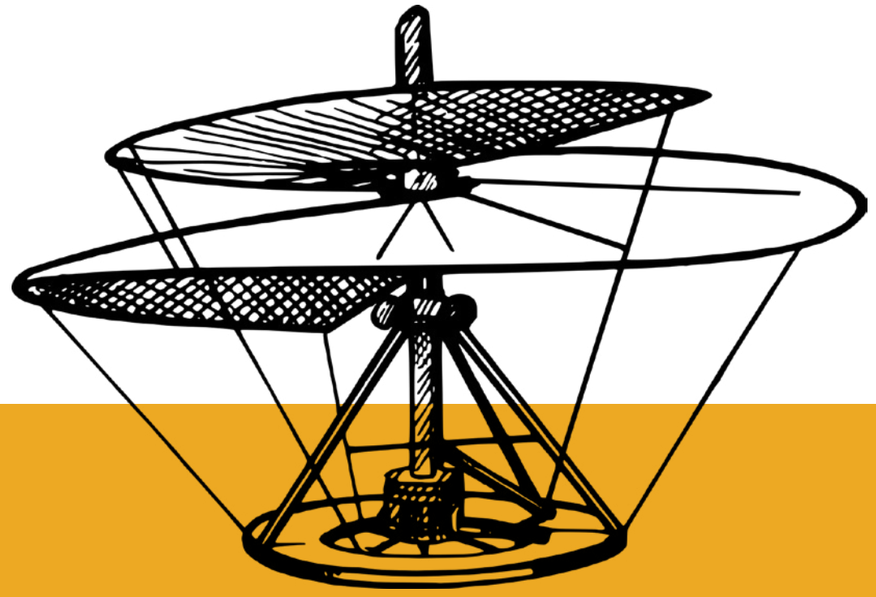
How To Foster Creativity In The Classroom

When children are very young, they are often encouraged to use their imagination, draw, dance and create stories. But once school begins, the emphasis shifts to learning and reciting facts. And then onto tests and exams which grade you on being able to give the right answers to specific questions. As we get older, the importance of each set of these exams also grows (from passing a year, to getting into university, to getting the grade for the career you want). The effect of this is that throughout their development, children are taught that giving the right answer is what is important, which is in line with convergent thinking only.

Divergent thinking, which can result in a whole list of incorrect answers, is drilled into us as being dangerous and to be avoided.

“Describe the tongue of a woodpecker,” wrote Leonardo Da Vinci on one of his to-do lists, next to sketching cadavers, designing elaborate machines, and stitching costumes.

- Da Vinci filled over 7,000 notebook pages with questions, doodles, observations, sketches, and calculations.
- He nurtured creativity as a habit and skill every day—and it paid off.
- Da Vinci’s work reshaped multiple disciplines, from science, to art, to engineering



Develop your students’ creativity in the classroom

Do your students regularly display and develop their creativity while in your classroom? Are you in touch with your own creativity as a teacher? Creativity requires a safe environment in which to play, exercise autonomy, and take risks. As teachers, it’s up to us to establish this kind of supportive classroom.

Here are some suggestions for how to develop and nurture your students’ creativity:

- Create a compassionate, accepting environment. Since being creative requires going out on a limb, students need to trust that they can make a mistake in front of you.
- Be present with students’ ideas. Have more off-the-cuff conversations with students. Find out what their passion areas are, and build those into your approach
- Encourage autonomy. Don’t let yourself be the arbiter of what “good” work is. Instead, give feedback that encourages self-assessment and independence
- Re-word assignments to promote creative thinking. Try adding words like “create,” “design,” “invent,” “imagine,” “suppose,” to your assignments. Adding instructions such as “Come up with as many solutions as possible” or “Be creative!” can increase creative performance.
- Give students direct feedback on their creativity. Lots of students don’t realize how creative they are, or get feedback to help them incorporate “creative” into their self-concept.
- Help students know when it’s appropriate to be creative. For example, help them see the contexts when creativity is more or less helpful—in a low-stakes group project versus a standardized state assessment.
- Channel the creativity impulses in “misbehavior.” For students who are often disturbances, see if you notice any creativity in their behavior. Perhaps that originality could be channeled in other ways?
- Protect and support your students’ intrinsic motivation. Relying on rewards and incentives in the classroom can undermine intrinsic motivation to complete a task—an effect called “overjustification.” To avoid this, Beth Hennessey, a professor of Psychology at Wellesley College, suggests that educators try to limit competitions and comparison with others, focusing instead on self-improvement. Experiment with monitoring students less as they work, and provide opportunities for them to pursue their passion when you can.
- Make it clear to students that creativity requires effort. The creative process is not a simple “aha” that strikes without warning. Tell students that truly creative people must imagine, and struggle, and re-imagine while working on a project.
- Experiment with activities where students can practice creative thinking. Many teachers have suggestions for creative activities they’ve tried as warm-ups or quick breaks.

Teachers, develop and nurture your own creativity

As creativity scholars Scott Barry Kaufman and Carolyn Gregoire write in their book Wired to Create: “Creativity isn’t just about innovating or making art—it’s about living creatively. We can approach any situation in life with a creative spirit.” Teaching is, through and through, a creative profession.

Teachers who can model creative ways of thinking, playfully engage with content, and express their ideas, will beget creative students. Students need to see teachers who have passions, whether it’s drawing, mathematics, painting, biology, music, politics, or theater. That contagion of passion and positive emotion is a hotbed for creative thought. Creatively fulfilled teachers may also be happier teachers. One study in the Journal of Positive Psychology suggests that engaging in a creative activity—doodling, playing a musical instrument, knitting, designing—just once a day can lead you into a more positive state of mind.

This positive state of mind will sustain you, and spread to your students.

Some ways teachers can develop and nurture their own creativity

- Be aware of your own limiting misconceptions about creativity. Examine your own attitude toward creativity and help yourself grow by thinking about alternative solutions.
- Experiment with new ways of teaching in the classroom—could you try a new arts integration lesson you’ve always been afraid to try? What about trying a new hands-on STEM investigation?
- Take a risk to express your creative side. Often, I’ll doodle something on the board as an attention-getter, or to deliver the morning message. Having a meerkat or a dragon telling students to put their backpacks away is much more likely to amuse, plus it’s a chance for me to challenge myself artistically every day.
- Treat lesson planning as the creative exercise it is. Every day, you face new constraints in the form of the needs and preferences of the specific learners in your classroom. Have you heard your students debating a certain issue during recess or in the hallway? Have you noticed their attention focused on a particular new gadget, fad, or current events issue? Find a way to weave it into a lesson.
- Develop personal creative rituals. In her classic 1992 book on developing personal creativity, The Artist’s Way, Julia Cameron writes about the “artist’s date”: “a block of time, perhaps two hours weekly, especially set aside and committed to nurturing your creative consciousness, your inner artist.” As Cameron puts it, “the artist date is an excursion, a play date that you pre-plan and defend against all interlopers. … A visit to a great junk store, a solo trip to the beach, an old movie seen alone together, a visit to an aquarium or an art gallery—these cost time, not money. Remember, it is the time commitment that is sacred.”
- Try meditation practices that encourage creative thought, such as “open-monitoring” meditation. One study found that those who practiced focused-attention meditation performed better on a test of convergent thinking, while those who practiced open-monitoring meditation performed better on a test of divergent thinking.
- Seek solitude. Spending time in solitude is essential to nourishing your creativity. Set aside some time to be alone, away from the distractions of technology and others who may rely on you.
- Travel. One study found that cross-cultural experiences can increase measures of creative thinking.
- Switch up your daily routines. Challenge your conventional ways of thinking by taking a different route to work, listening to a new genre of music, go to a museum and check out a style of art you’re unfamiliar with. Changing your environment and breaking out of habitual thought can shake your mind out of its rut.
- Embrace ambiguity. You’re probably teaching your students to embrace error, take risks, and learn from failure. See your own teaching as an extension of the same process. Embrace the gray areas, the ambiguities. “Ambiguity tolerance” is a key component of creativity.

Eight steps to becoming a more creative teacher

By Marisa Constantinides[12]

Step one: become a knowledgeable teacher

Today, it's easier than ever before to learn about teaching. There are lots of books, training courses, free online courses, online resources, and university programmes that can help us develop as teachers.

Learning about other things is important too. Creative teachers bring more to class than just a knowledge of teaching. They are educated in other areas, and can draw on their experiences and outside interests.

Using songs in the classroom, for example, is very motivating for learners and can help them process the language and improve pronunciation. Including drama techniques and integrating them into your syllabus is another great way of allowing a hobby to enrich your teaching.

12 https://www.britishcouncil.org/voices-magazine/eight-steps-becoming-more-creative-teacher

Step two: connect with other teachers

Although formal training will help you develop as a teacher, it's important to connect with others in your field. Inspiration can come from the big-name speakers and writers, but just as often, it comes from teachers like you and me.

It's never been easier to find inspiring teachers to follow on Facebook, Twitter and in the blogosphere. Follow and read their blogs, join a teacher's association and attend talks and workshops live or online.

Inspiration rubs off and will create in you the desire to imitate these teachers in your daily teaching practices.

Step three: become a collector of teaching ideas

It doesn't matter if you don't use the ideas you collect straight away. The important thing is to collect and organise them in a way that makes it easy to try them out when the right opportunity presents itself. It's these ideas that will nudge you along the road to creativity, especially as you begin to adapt and experiment with them.

When discovering new ideas online, be sure to use the various bookmarking and curation tools available today, and follow the curated collections or lists of others.

Curation will also help you to be more resourceful: you'll have ideas and activities at your fingertips in case things go wrong!

Step four: share your learning

In my experience, teachers (like learners) can pick things up from others as they go along, but there comes a point when they find they have to make a commitment or a contribution.

If you have training days in your school, offer to lead a session and then research the topic, so that you feel confident about sharing your knowledge with your peers. This can be a daunting but momentous moment in the life of a teacher, and you'll be amazed by how much you learn in the process.

Start a teaching journal or a blog. The act of blogging and describing your teaching ideas generates conversations with other teachers, and those conversations stimulate more ideas; they are a great bridge to creative teaching

Step five: remove the blocks to creative thinking

Many people are confident about their creative potential and are not afraid to dip their toes in the pool, but lots of us at various times have felt we cannot do it. In those moments, we might feel we lack the imagination, that we're not clever enough, young enough or talented enough, and so on.

No-one can claim that every person has the same skills and abilities as everyone else, but all people have the potential to be creative. Look what we do with language! Using a finite vocabulary, each of us creates original utterances, never articulated in quite the same way before, every time we speak.

Work on your self-esteem; be around supportive colleagues who share the same interests and goals and make you feel good about yourself.

Step six: practise your creativity

Just as athletes maintain their ability through continual training, our brains also benefit from regular exercise. What do you do to exercise your mind? Do you enjoy crosswords, Sudoku or jigsaw puzzles? These and similar 'brain-training' activities have been shown to increase our concentration and boost creativity.

We often tell our students that practice makes perfect, but it's important that we apply this to ourselves. Skilled people in all fields, from dancers to chefs to teachers, reach the highest levels through practice – they didn't get there overnight. But practice takes discipline and patience.

When practising anything, it's a good idea to set your mind to the process rather than the goal. In other words, take satisfaction in what you're doing in the present moment rather than worry too much about what you have yet to achieve.

Step seven: start experimenting and reflecting on your teaching

A sure-fire way to burn out as a teacher is to stick to the same ideas and techniques without trying something new. This approach is bound to demotivate your students at some point too.

Learners respond positively to teachers who don't follow the same old steps in the same old way day in and day out. As much as learners like teachers who are patient, tolerant and able to explain things well, they appreciate teachers whose lessons have surprises and elements of fun.

Try out new ideas or adapt old ones, but remember to stop, think and evaluate the experience when done. Learn from your successes and your mistakes, and try to make this a regular part of your teaching.

Step eight: make creativity a daily goal

Being creative can help you solve problems. This is useful to teachers because problem-solving is what teachers do every moment of their working day, from deciding on teaching materials, procedures and grades, to adapting an activity that learners are not responding to, and helping individuals who are not progressing as they should.

To keep developing these skills, you need to make creativity part of your daily routine rather than an occasional activity. Look at everything you do with a critical eye and consider how your lessons could be made more motivating, productive and interesting for your learners.

Above all, give yourself time and don't judge yourself harshly. Developing one's creative thinking abilities, just like developing any other cognitive ability or skill, is not a straight and smooth progression but requires patience, dedication, and a passion for excellence.

4. Web 2.0 tools for creativity in VET

Facilitating creativity can be rewarding and exciting. Integrating creativity into the curriculum can be engaging to the learner. Creativity can be fostered by smell of a new crayon, the engagement of being able to tinker, the excitement of relaxing and creating, or some amazing technology already in your classroom. It allows student to go beyond the role of being curriculum consumers and blossom into curriculum producers. Creativity allows classrooms to go to the top of Bloom's Taxonomy in the vivid and colorful action verb each step was meant to be.[13]

The progress in WEB 2.0 for VET rests partly on research, however a large part of best practices arise from ongoing VET evolution based upon positive/negative experiences by VET teachers' craftsmanship. In summary, we can say that WEB 2.0 has affected VET has a catalyst; It has sped up the transformation of VET from course- and tutorial-based into blended learning where working, exploring and learning. Its most dominant effect is that the trainer role has migrated from teacher into one of mentor and coach.

13 https://21centuryedtech.wordpress.com/2013/01/22/part-2-creativity-in-the-digital-classroom-web-2-0-tools-are-they-in-your-school/

Creativity tools

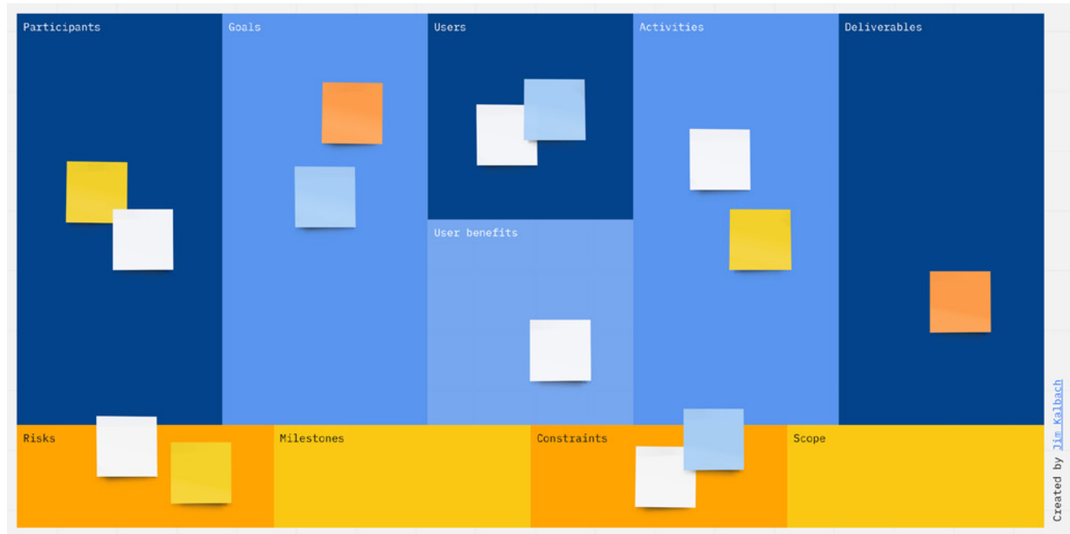
Miro

Miro is the online collaborative whiteboard platform that enables distributed teams to work effectively together, from brainstorming with digital sticky notes to planning and managing agile workflows.

With Miro, you can take advantage of a full set of collaboration capabilities, make cross-functional teamwork effortless, and organize meetings and workshops: use video chat, presentation, sharing, and many other features.

Empower your design, development, and engineering teams to align and innovate in a platform that makes it all possible in real-time. Create concepts, map user stories or customer journeys, or conduct roadmap planning easily, enabling you to focus on delivering the right products for your customers.

Miro empowers remote, in-office, and hybrid teams to communicate and collaborate across formats, tools, channels, and timezones — without the constraints of physical location, meeting space, and whiteboards.



a free Miro template
You can start using Miro for free on their website:
https://miro.com/

Mind Mapping

What is it

Mind mapping (or "idea" mapping) has been defined as 'visual, non-linear representations of ideas and their relationships' (Biktimirov & Nilson, 2006). Mind maps comprise a network of connected and related concepts.

Why it is useful for VET?

Mind-mapping software can be used to organize large amounts of information, combining spatial organization, dynamic hierarchical structuring and node folding. Software packages can extend the concept of mind-mapping by allowing individuals to map more than thoughts and ideas with information on their computers and the Internet, like spreadsheets, documents, Internet sites and images. Naturally, the new trend is making these tools available to iPhone, iPad and Android mobile platforms.

How

Buzan makes the following recommendations when mind mapping[14].

1. Place an image or topic in the centre using at least 3 colours
2. Use images, symbols, codes, and dimensions throughout your Mind Map.
3. Select key words and print using upper or lower-case letters.
4. Each word/image is alone and sitting on its own line.

MindMeister

MindMeister is an online mind mapping application that allows its users to visualize, share and present their thoughts via the cloud. MindMeister was launched in 2007 by MeisterLabs GmbH, a software company founded by Michael Hollauf and Till Vollmer.[15]

https://www.mindmeister.com/

Mind maps are graphical representations of information. Ideas are organized with the title/ main idea always located in the center of the map. Related ideas branch off from the center in all directions, creating a radial structure.

MindMeister uses smart technologies to ensure your mind maps are:

Attractive. MindMeister includes expertly-designed themes and extensive customization options, as well as the option to add images and icons to your maps.

14 Buzan & Buzan, 2000
15 Wikipedia

Collaborative. Users are able to create maps together in real time, or easily share maps inside or outside of an organization via sharing links and user groups.

Integrated. MindMeister integrates seamlessly with a range of popular softwares to allow externally-stored information in your mind maps, or to export your maps to other locations.

For everyone. Mind mapping is an important creativity aid in business and is proven to improve recall and comprehension in education. MindMeister's packages for business and education focus on the features most needed by each group.

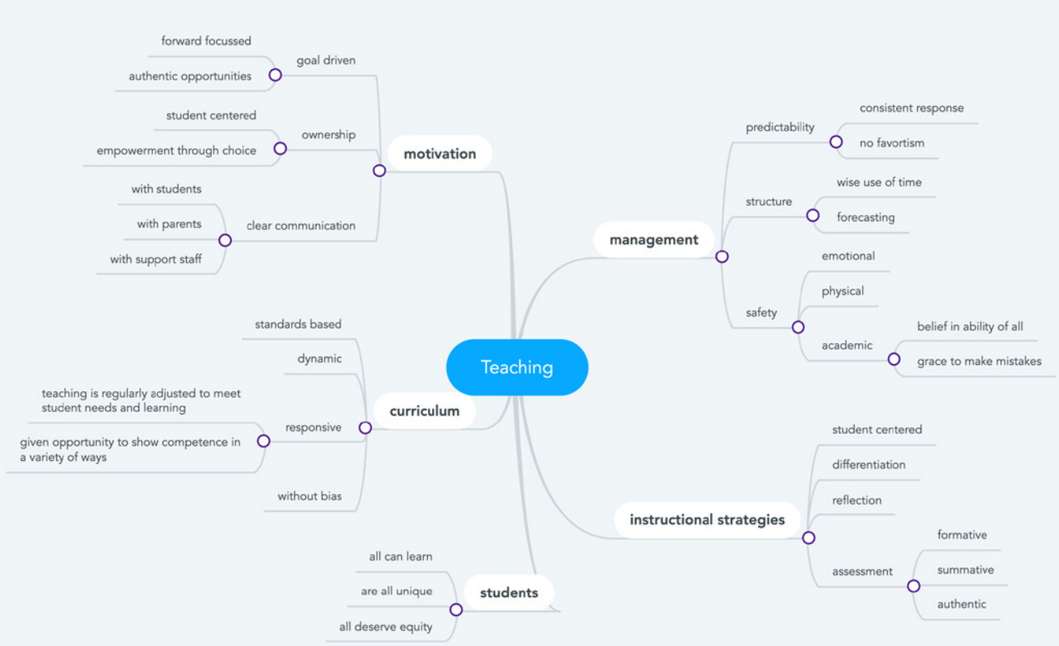
How Can I Use MindMeister?

Mind mapping with MindMeister has a wide range of potential applications. Some of the most popular are:

Brainstorming. Start from a single central topic and develop your ideas using a logical, hierarchical structure that groups topics by subject and allows you to draw connections between ideas. Map solo or with your team, at work or in the classroom.

Project planning. Use mind mapping to define what needs to be done in your project and to delegate action items to team members via MindMeister's integration with MeisterTask.

Meeting management. Use mind maps as an alternative to linear meeting minutes and easily share notes with participants after the discussion ends. Alternatively, use MindMeister's presentation mode to present information more effectively.



mind map about teaching, designed with MindMeister
MindMeister offers a library with many more mind map examples here:
https://www.mindmeister.com/mind-map-examples

Prezi

What is it

Prezi is a web-based presentation software, created in Budapest (Hungary) in 2009. The word Prezi is the short form of “presentation” in Hungarian.

It is a visual storytelling software alternative to traditional slide-based presentation formats. Prezi presentations feature a map-like, schematic overview that lets users pan among topics at will, zoom in on desired details, and pull back to reveal context.

Prezi is t is compatible with most modern computers and web browsers and it is an HTML5 application which runs on JavaScript. It is available in English, Portuguese, Spanish, Korean, Japanese, German, Italian, French, Hungarian.

Why is it useful for VET

Because it is designed for people who aren’t designers and could be started with several templates.

Conversational Presenting: the term was coined by the company in 2015 to describe the organic flow of information Prezi enables. By letting presenters adapt the order of their content delivery, this method allows questions and concerns to be addressed as they arise, rather than according to a scripted path.

How to

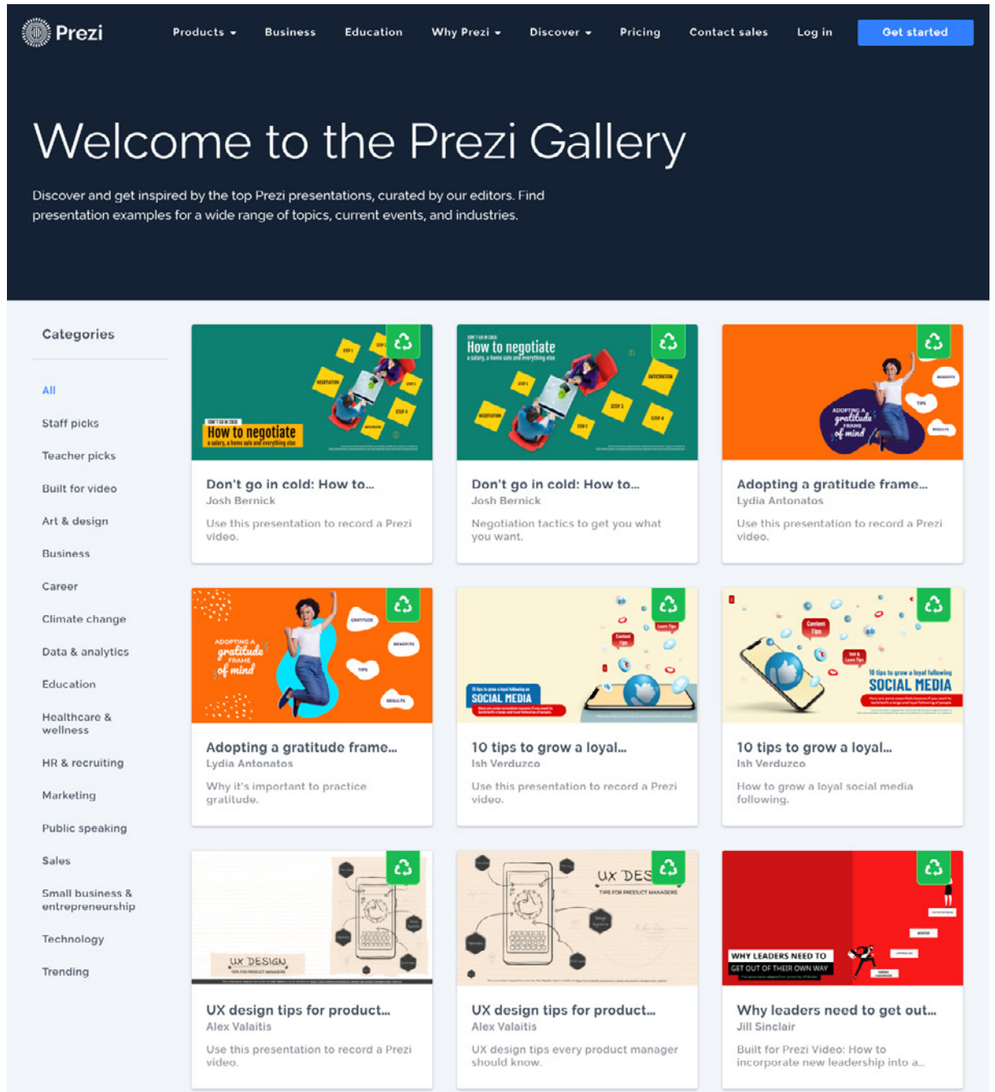
Creation: thanks to a creative and intuitive interface Customise: by choosing a designer template, selecting a wide range of fonts and colours, importing media, adding photos, videos, and PDFs.

Insert charts: by creating charts and zoom in to reveal the stories behind your data with supporting text, images, or videos.

Collaboration: work in cloud together with others

Present: deliver your presentation on desktop, mobile devices (via APPs)

Analyse the data thanks to Prezi Analytics (Premium)



The Prezi Presentation Gallery
You can see many presentation examples and use them as templates on this web page:
https://prezi.com/gallery

Google slides

What is it

Google Slides is a free online tool to create, edit, collaborate and present, wherever you are.

It is based on online Google Docs package products and it includes a variety of presentation themes, hundreds of fonts, embedded video, animations and more. All free of charge.

It permits the access to the presentations anywhere, at any time – from the phone, tablet or computer even when there's no Internet connection. It is also possible to work together in the same presentation at the same time. It is compatible with MS PowerPoint

Why is it useful for VET

Because it is integrated with other Google Docs package products (Google Docs, Google Sheets and Google Forms) and also with Gmail and all APPs developed by Google. It is perfect way to access to several themes, fonts and materials free of charge.

How to

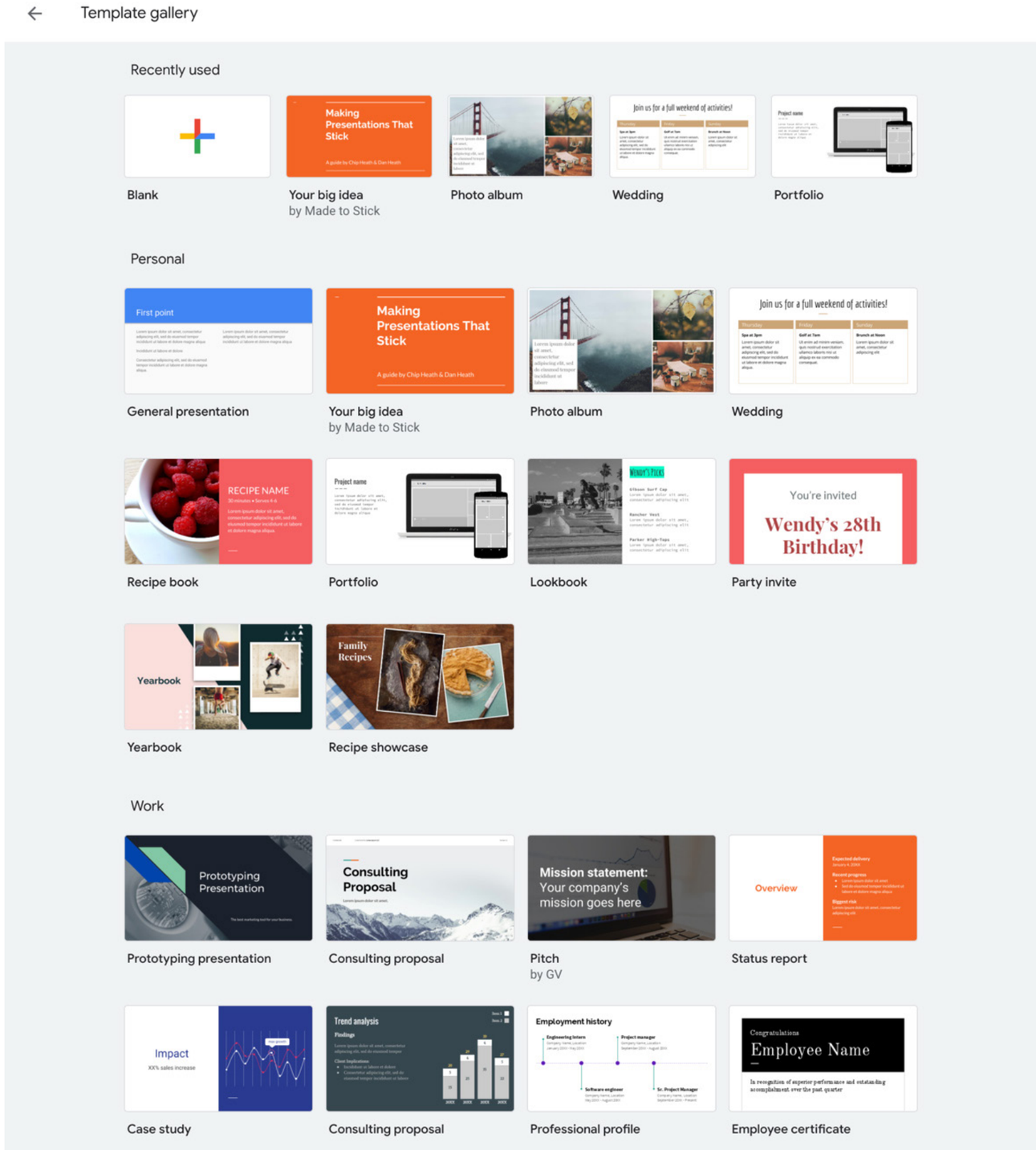
Access from your PC or download the APP for Android and iPhone/iPad

Start a new presentation or select a template from the gallery

Edit the form as MS PowerPoint

Share the form online thanks to the integration with Google Drive cloud

Save, download, export in MS PowerPoint, PDF



Google Slides Template Gallery
https://docs.google.com/presentation/u/0/

Infographics

What are they

Infographics are visual representations of information. Instead of having blocks of texts and boring tables that people will never read, you can give the same information in a different way by using an infographic that it is more friendlier and easier to understand.

Why are they useful for VET

Infographics offer engaging options for spicing up presentations and encourage creators to apply skills in everything from graphic design to math. These apps and websites for creating and designing infographics can help people communicate their ideas and demonstrate learning, visual and conceptual thinking while cultivating valuable design skills.

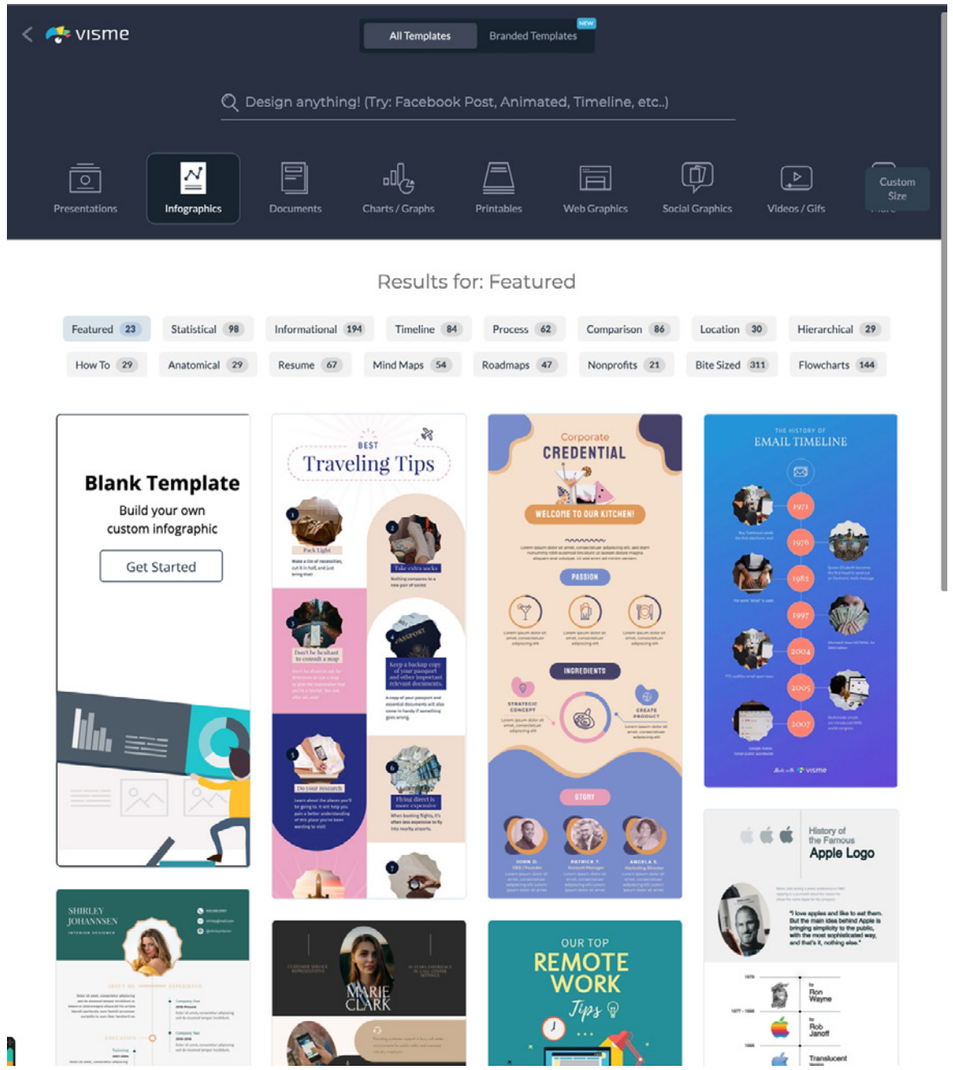
Infographics are easy to digest, fun to share and extremely engaging. By employing the tools of colourful imagery, distinctive movement, and eye-catching content, infographics help retain complex and large data easily.

A collection of infographics with great design on Pinterest by Make A Website Hub
https://pin.it/2anGZw3

Infographic Web Tools:

Visme

Visme promises to help you 'speak visually'. You can also use it to build presentations, but it's especially geared towards creating engaging infographics. This free tool includes over 100 free fonts, millions of free images and thousands of quality icons, and there's options to include video and audio (including the ability of record a voiceover directly in the editor – handy!). You can also animate your content to make things clearer.

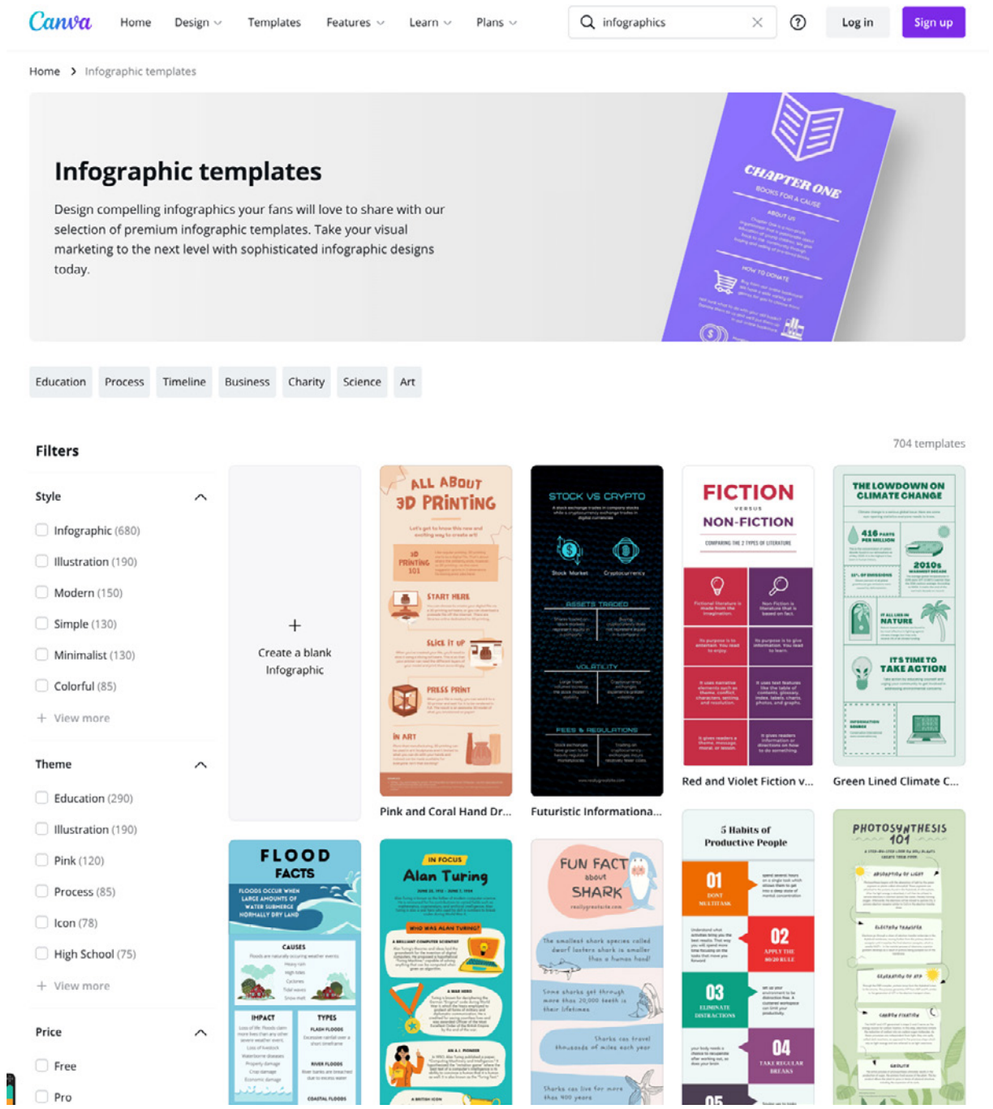


Visme free infographic templates gallery
https://my.visme.co/templates

Canva

Canva is a powerful and easy-to-use online tool that's suitable for all manner of design tasks, from brochures to presentations and much more besides. It also offers users a vast library of images, icons, fonts and features to choose from.

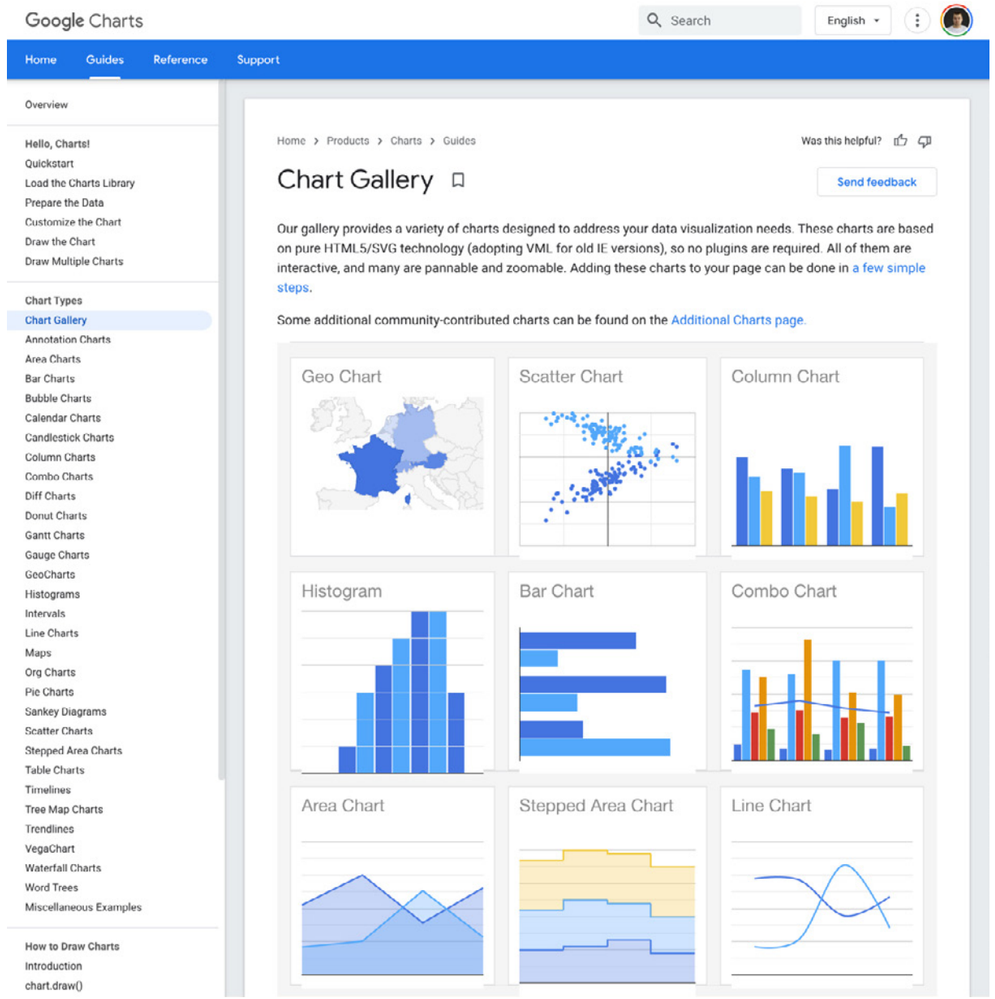
It features a dedicated infographic maker that you can use for free, with hundreds of free design elements and fonts at your fingertips, and many more premium elements that you can buy for up to $1. You can either use it in the browser or download the Canva iPad app to design on the move.



Canva infographic templates gallery
https://www.canva.com/infographics/templates/

Google Chart Tools

Google's chart tools are powerful, simple to use, and free. You can choose from a variety of charts and configure an extensive set of options to perfectly match the look and feel of your website. By connecting your data in real time, Google Charts is the perfect infographic generator for your website.



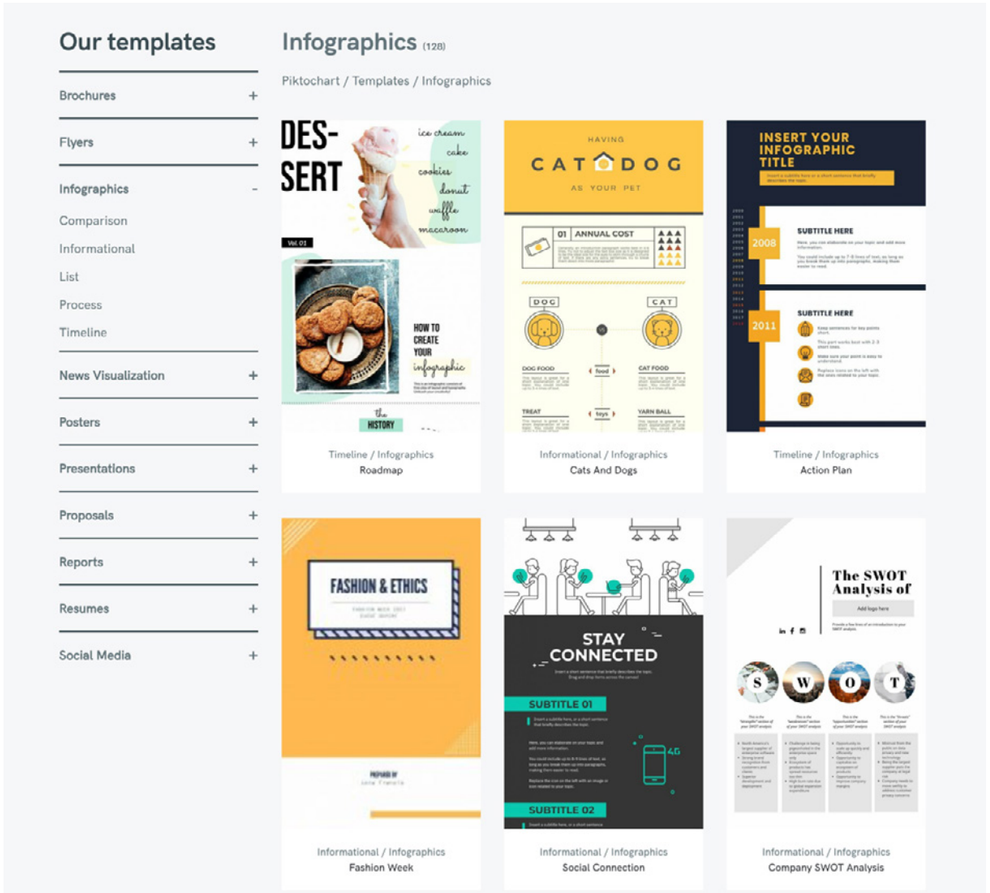
Google Chart Tools Gallery
https://developers.google.com/chart/interactive/docs/gallery

Piktochart

Piktochart is an infographic and presentation tool that enables you to turn boring data into engaging infographics with just a few clicks. Piktochart's custom editor lets you do things like modify colour schemes and fonts, insert pre-loaded graphics and upload basic shapes and images. Its grid-lined templates also make it easy to align graphical elements and resize images proportionally.

There's a free version offering three basic themes, a Lite pricing plan for $15 per month or a Pro account that costs $29 per month.

This free web-based infographic tool offers you a range of templates to start you off, all of which are easily customisable. You get access to a library of things like arrows, shapes and connector lines, and you can customise the text with different fonts, colours, text styles and sizes. The tool also lets you upload your own graphics and position them with one touch.



Piktochart Infographic templates gallery
https://piktochart.com/templates/infographics/

5. Creative problems solving methodology

According to the World Economic Forum, creativity is a top skill needed for the 21st Century workforce to succeed. As Franklin D. Roosevelt said, "We may not be able to prepare the future for our children, but we can prepare our children for the future."

Creative Problem Solving (CPS) unlocks creative thinking and teaches critical thinking processes that transform creativity into action. The CPS process also builds confidence, resilience, and tolerance for ambiguity because once learned, students know that whatever they face, they have clear steps to apply to get through any challenge. https://www.creativeeducationfoundation.org/educators/

If you search the Internet for "Creative Problem Solving," you'll find many variations, all of which may be traced back to the work started by Alex Osborn in the 1940s and nurtured at Buffalo State College and the Creative Education Foundation. The diversity of approaches to the Creative Problem Solving process that have developed since is a testimony to the power of the idea.

CPS = Creative Problem Solving

CPS is a proven method for approaching a problem or a challenge in an imaginative and innovative way. It helps you redefine the problems and opportunities you face, come up with new, innovative responses and solutions, and then take action.[16]

16 https://www.creativeeducationfoundation.org/what-is-cps/

CPS begins with two assumptions:

- Everyone is creative in some way.
- Creative skills can be learned and enhanced

Osborn noted there are two distinct kinds of thinking that are essential to being creative:

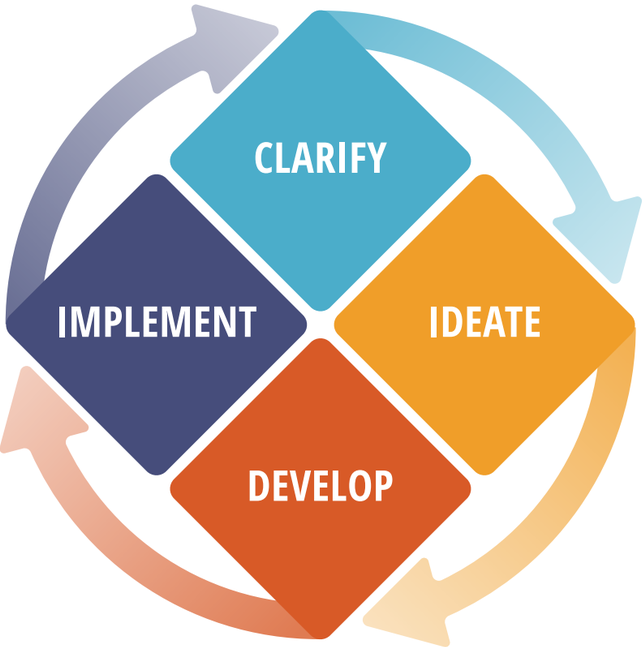
Divergent Thinking

Brainstorming is often misunderstood as the entire Creative Problem Solving process. Brainstorming is the divergent thinking phase of the CPS process. It is not simply a group of people in a meeting coming up with ideas in a disorganized fashion. Brainstorming at its core is generating lots of ideas. Divergence allows us to state and move beyond obvious ideas to breakthrough ideas. (Fun Fact: Alex Osborn, founder of CEF, coined the term “brainstorm.” Osborn was the “O” from the ad agency BBDO.)

Convergent Thinking

Convergent thinking applies criteria to brainstormed ideas so that those ideas can become actionable innovations. Divergence provides the raw material that pushes beyond every day thinking, and convergence tools help us screen, select, evaluate, and refine ideas, while retaining novelty and newness.

The CPS Process



Learner’s Model based on work of G.J. Puccio, M. Mance, M.C. Murdock, B. Miller, J. Vehar, R. Firestien, S. Thurber, & D. Nielsen (2011)

Clarify

Explore the Vision.
Identify the goal, wish, or challenge.
Gather Data.
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.
Generate ideas that answer the challenge questions.

Develop

Formulate Solutions.
To move from ideas to solutions. Evaluate, strengthen, and select solutions for best “fit.”

Implement

Formulate Solutions.
To move from ideas to solutions. Evaluate, strengthen, and select solutions for best “fit.”

The Core Principles of Creative Problem Solving

- Everyone is creative.
- Creative skills can be learned and enhanced.
- Divergent and Convergent Thinking Must be Balanced. Keys to creativity are learning ways to identify and balance expanding and contracting thinking (done separately), and knowing when to practice them.
- Ask Problems as Questions. Solutions are more readily invited and developed when challenges and problems are restated as open-ended questions with multiple possibilities. Such questions generate lots of rich information, while closed-ended questions tend to elicit confirmation or denial. Statements tend to generate limited or no response at all.
- Defer or Suspend Judgment. As Osborn learned in his early work on brainstorming, the instantaneous judgment in response to an idea shuts down idea generation. There is an appropriate and necessary time to apply judgement when converging.
- Focus on “Yes, and” rather than “No, but.” When generating information and ideas, language matters. “Yes, and…” allows continuation and expansion, which is necessary in certain stages of CPS. The use of the word “but” – preceded by “yes” or “no” – closes down conversation, negating everything that has come before it.

Other definitions

Creative problem-solving (CPS)[17] is the mental process of searching for an original and previously unknown solution to a problem. To qualify, the solution must be novel and reached independently.[18] The creative problem-solving process was originally developed by Alex Osborn and Sid Parnes.

Creative problem solving (CPS) is a way of using your creativity to develop new ideas and solutions to problems. The process is based on separating divergent and convergent thinking styles, so that you can focus your mind on creating at the first stage, and then evaluating at the second stage.[19]

Creative Problem Solving (CPS) involves breaking down a problem to understand it, generating ideas to solve the problem and evaluating those ideas to find the most effective solutions. It uses techniques to make the problem solving process engaging and collaborative. What is the creative problem solving CPS model?

Creative Problem Solving (CPS) involves breaking down a problem to understand it, generating ideas to solve the problem and evaluating those ideas to find the most effective solutions. It uses techniques to make the problem solving process engaging and collaborative.[20]

17 https://en.wikipedia.org/wiki/Creative_problem-solving#cite_note-:0-1
18 https://en.wikipedia.org/wiki/Creative_problem-solving#cite_note-2
19 https://www.mindtools.com/pages/article/creative-problem-solving.htm
20 https://www.iom.int/sites/g/files/tmzbdl486/files/staff-welfare/creative_problem_solving.pdf

6. Treasure Hunt

Creative Problem Solving Application

During our course we tested out a CPS improving game. The participants, divided into teams, were shown some photos of locally recognizable landmarks and they were asked to find each of them in the city. After finding each objective, the teams had some specific instructions for taking photographs or videos with the landmarks. Because the participants were not given any other information except photos of the landmarks, the task would test their problem solving skills on multiple levels.

Learning Objectives

- To developpersonal creativity, problem solving skills, team workand entrepreneurial initiative
- To actively use together problem solving and creative thinking to completea task
- To be able to work ingroups and communicate in an effective and fruitful way
- To be able to be more self-confident
- To be able to learn moreabout history and culture in a creative way

Intended learning outcomes

- Techniques of management and coordinationand work in teams
- Analyse the challengeproposed from different points ofview and establish priorities
- Ability to apply creative thinking andproblem solving ina real-life situation
- Ability to use problem solving skills in a group to createa plan for action
- Critically develop, evaluate and follow aplanfor the completion of an activity
- Abilityto analyse different problem solving strategies and develop a conclusion
- Abilityto communicate in a team
- Improve self-esteem and self-reliance
- Improve sense of orientation and knowledge about a specific culture and its characteristics
- Ability to use digital devices for professional purposes

Trainer Preparation

- The Treasure Hunt format can be applied to different didactic areas however its application is particularly fruitful in the application in the field of art, culture and history which have proven to be highly effective for the development of problem solving and creative thinking.
- The creator has to analyse the place in which they want to carry out the activity, select the elements to include in the “treasurehunt” (they can be monuments, statues, images, places, …) and make research about that element taking into consideration also legends and stories which can be inspirational for the tasks to connect to the selected place. Each element, or step in the “treasure hunt” must be paired with a specific task (ex. Looking

for a specific element, take a photo/selfie, sing a song, make a video, ...). The activities have the objective of activating creative thinking and problem solving skills, therefore they should be described in a more or less direct way in order to stimulate creativity and problem solving. These activities will activate and develop other important skills and competences like space and time orientation, time-management, establish priorities, create a plan to follow, work and communicate in groups, stimulate the 5 senses, improve digital and communication skills, PC or other digital device (tablet or smartphone), improve self-confidence

- Once the places and the tasks have been selected is useful for the creator to carry out a trial session to verify the feasibility of the activity in terms of: distance in between elements, feasibility of the task and how much time each activity needs (on average). This will allow to improve and make changes to the original “treasurehunt” to have better results and also establish how much time it is needed to complete the activity. Once the itinerary and the tasks are completed, the creator has to develop a document including images and tasks. Print the needed number of copies.

Presentation of the activity

- Gather the group of participants together and divide it into sub-groups according to the general number of participants in the activity (different criteria can be used to divide the groups, for example: nationality, age, month of birth, ...). The gathering place will be the starting point of the activity, therefore choose accurately.

- Explain to the groups how the activity should be carried out: in the Treasure Hunt the participants have to look for the places, monuments, sculptures, images, etc. presented in the “Treasure Hunt” document and complete the tasks assigned. In order to show that the step is completed the participants need to take photos/videos and collect the result of the assignment.

- Give each group the number of printed documents needed for the activity.

- All groups can nowstart the activity.

Conclusion

In the presentation of theactivity specify a place in which all participants will gather at the end. The lead of the activity will then direct a general evaluation moment when groups can evaluate and confronttheir work. This will allow participants to see and understand the different point of views and the different methods used to complete the tasks assigned further improving their problem solving and creative thinking skills.

The lead will collect the material created (photos, videos, products of tasks) and organise them. The material created can becirculated with the participants and can serve as reference for future “treasure hunts”.

Results

The treasure hunt will have the following impact: The participant will apply in a real-life situation their problem solving and creative thinking skills and improve them. They will work in groups and understand group dynamics and how to communicate and manage a team. They will feel empowered acquiring new skills, knowledge and competences like digital skills, orientation, time-management,improved communication and storytelling all in an informal way. They feel more independent and self-confident.

Further Reading

Under a different past project, some of the partners have developed an interactive guide concerning the Creative Problem Solving Methodology with more in-depth explanaitions an sollutions. We think it's a great and easy read, so you may want to take a look.

See the Creative Problem Solving Methodology Guide

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