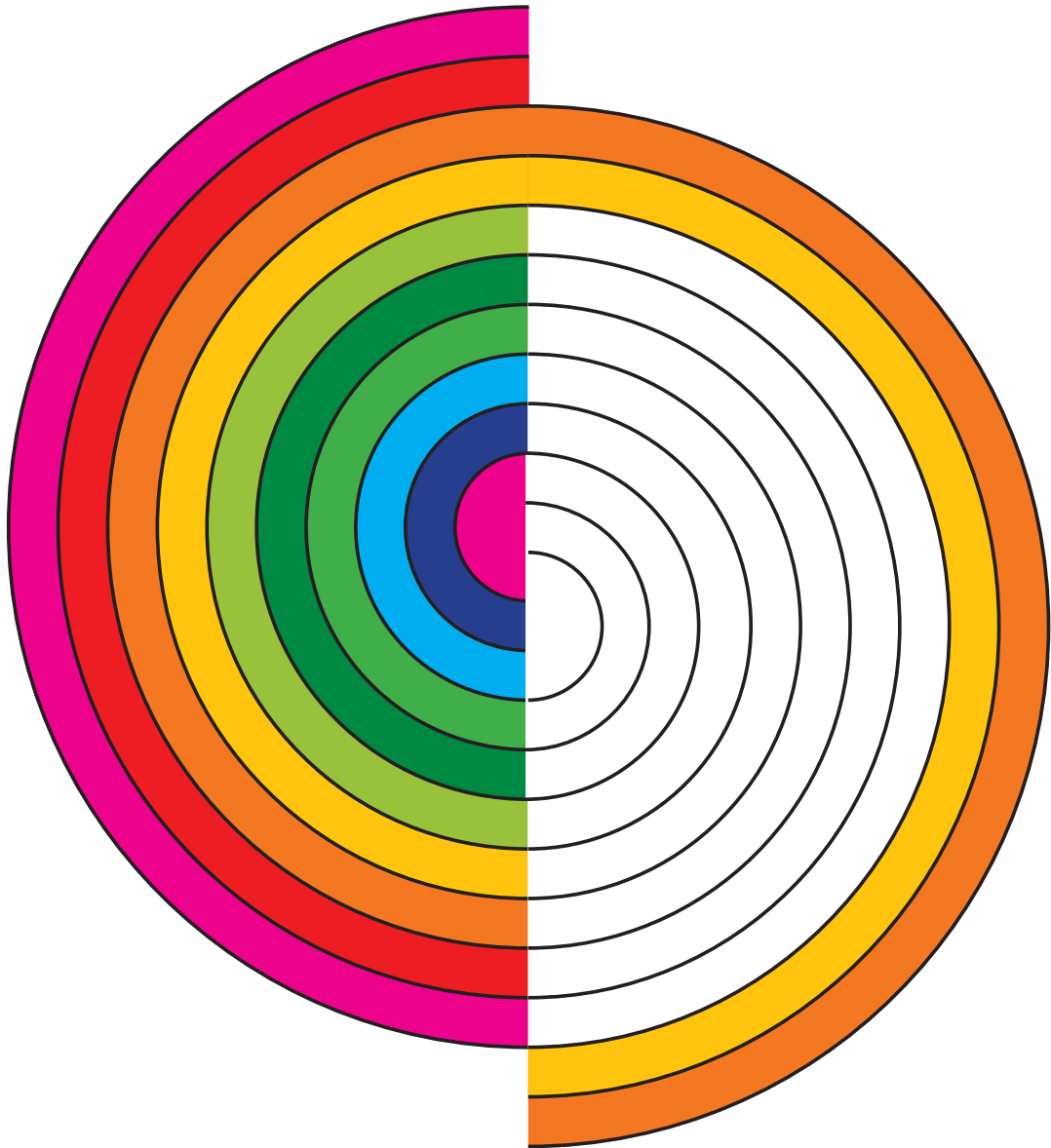


# D-Think Toolkit



# D-Think Toolkit

## Project title

Design Thinking Applied to Education and Training

## Project Acronym

D-Think

## Program

ERASMUS+

KA2 Strategic Partnerships

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This toolkit has been developed as part of the project “D-THINK - Design Thinking Applied to Education and Training” co-funded by the Erasmus+ Programme, Strategic Partnerships, Cooperation and Innovation and the exchange of Good Practices (Key Activity 2).

**ISBN:** 978-989-8829-39-9

**Project Website:** [www.d-think.eu](http://www.d-think.eu)

**Consortium:** Centro de Investigação e Formação em Artes e Design (Portugal), Advancis Business Services (Portugal), Vaasa University of Applied Sciences (Finland), Fondazione ISTUD (Italy), Akademia Humanistyczno-Ekonomiczna w Łodzi (Poland), EFMD – the Management Development Network (Belgium) and Venture Hub (Spain).

This project has been funded with support from the European Commission. This publication reflects the views of the author only, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

## Acknowledgement

The authors of this toolkit would like to thank the trainers of the pilot test for the m-Learning course who helped in its improvement:

Cristina Bifano, Teresa Sarmento, Ana Marques Silveira, Martina Podetti, Annika Hissa, Athanasia Panoutsou and Dominika Kuras.

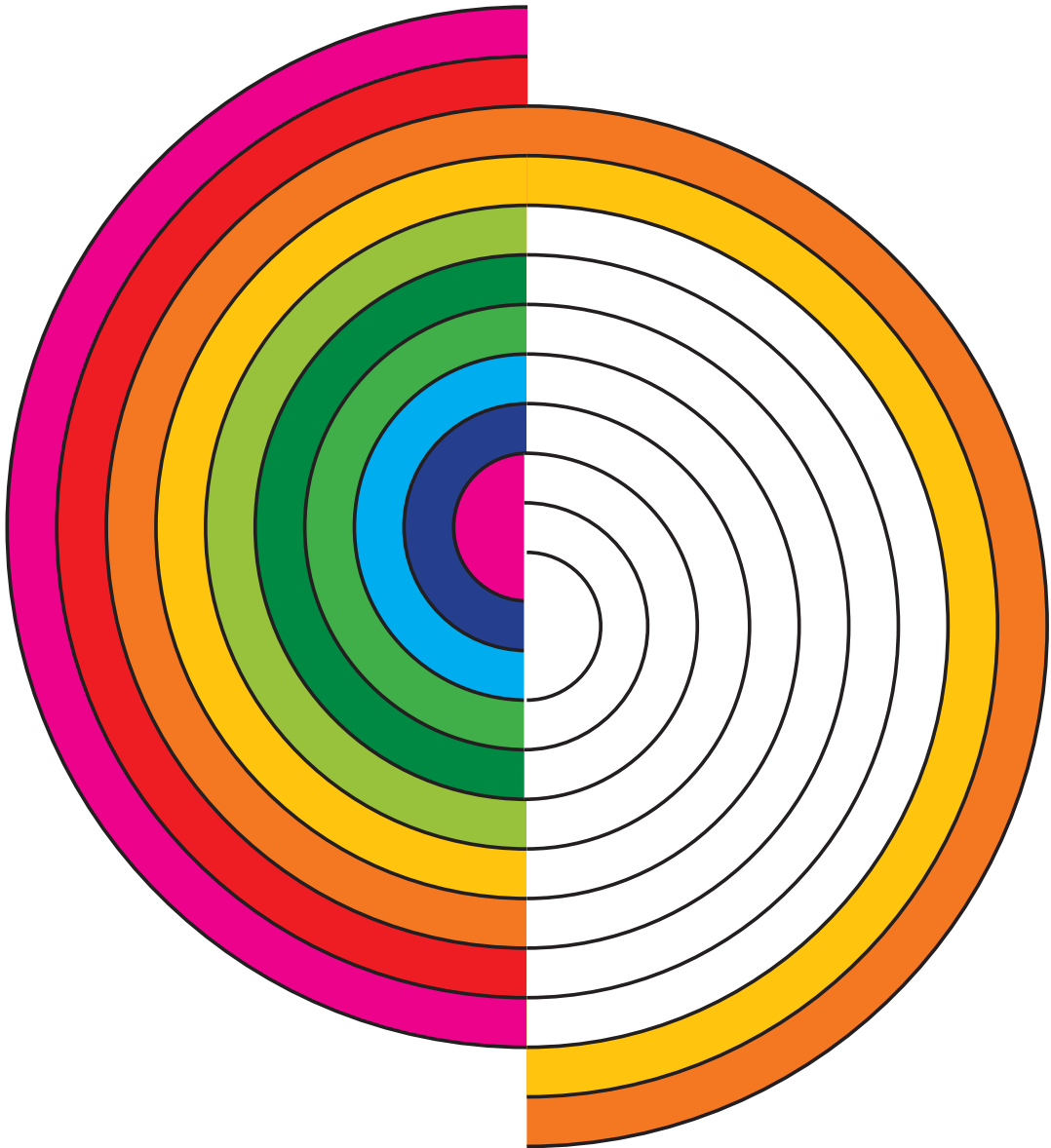
We would also like to warmly thank those who participated in the pilot course, and others, who contributed to its development.

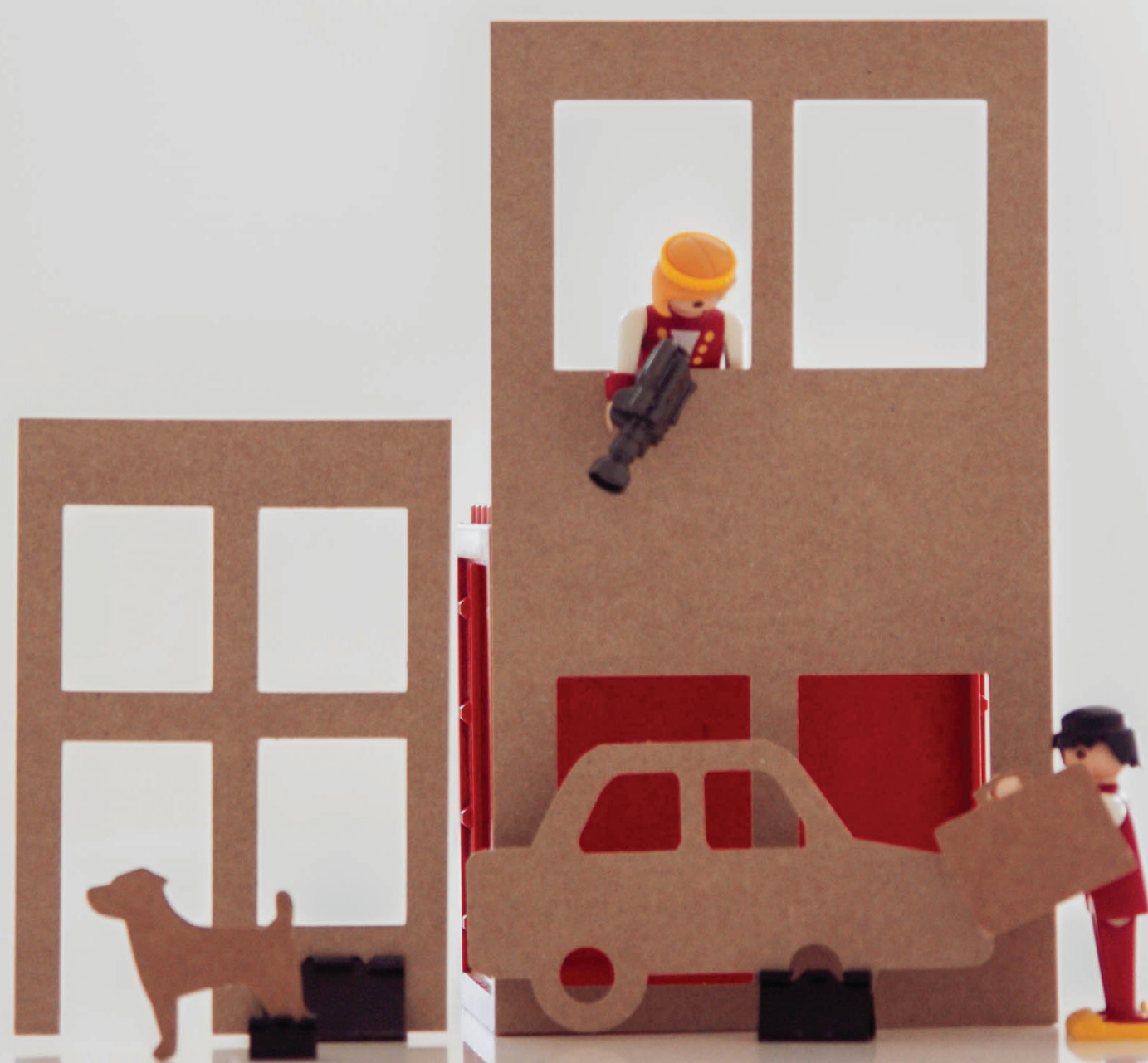
 Co-funded by the  
Erasmus+ Programme  
of the European Union



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# D-Think Toolkit





# Contents

- 06 Synoptic Map**
- 09 Introduction**
- 13 What is Design Thinking?**
- 17 Design Thinking and Education**
- 21 How to apply Design Thinking in Education?**

## Tools

**Context 1** Setting the Learning

- 27 Scenario 1 Setting the Pedagogical Framework**
- 47 Scenario 2 Setting-up and Revising a Curriculum**

**Context 2** Conceiving the Learning

- 75 Scenario 3 Developing Contents**
- 95 Scenario 4 Setting the Assessment**

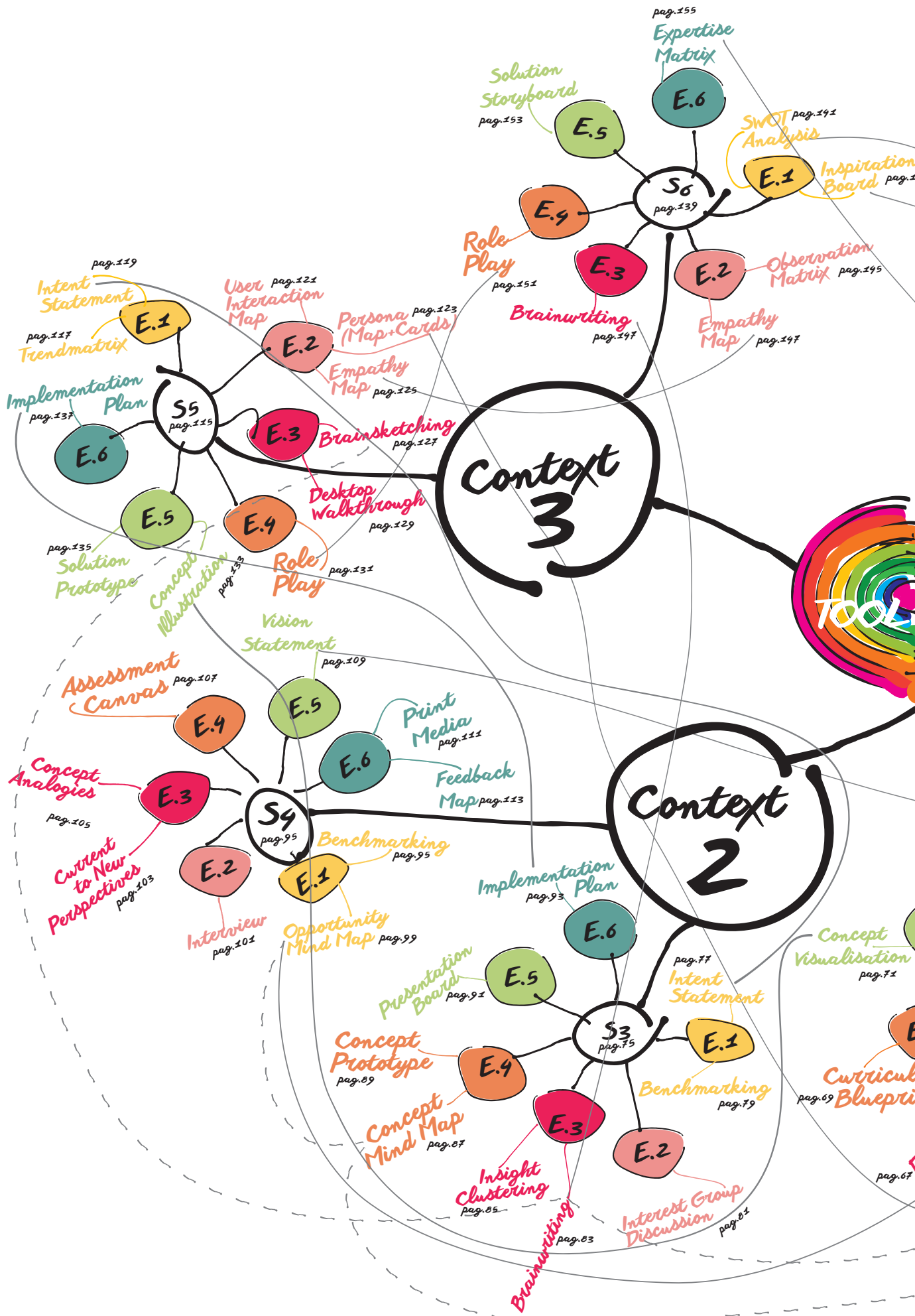
**Context 3** Facilitating the Learning

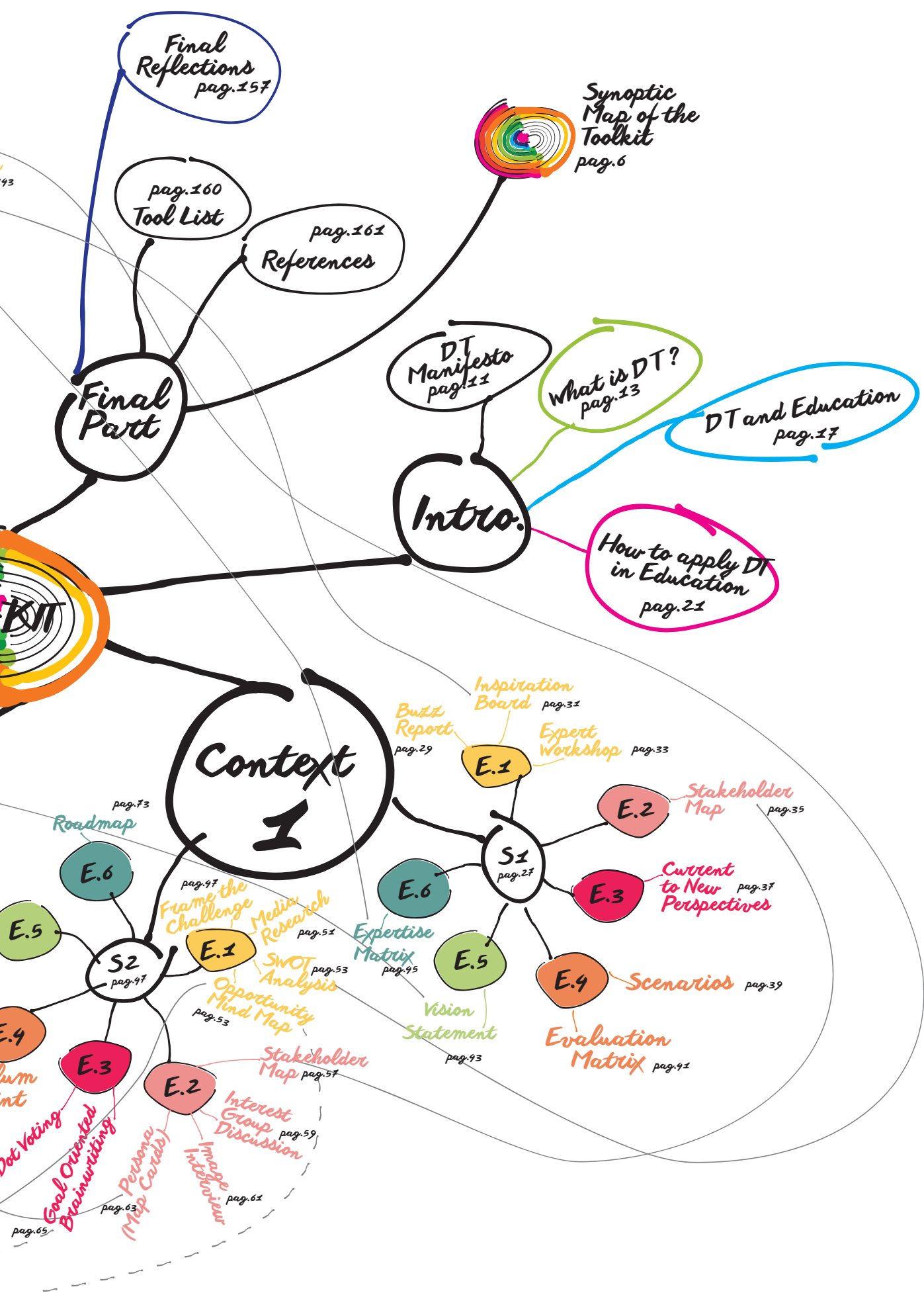
- 115 Scenario 5 Designing the Learning Spaces**
- 139 Scenario 6 The Role of Facilitator**

**157 Final Reflections**

**160 Tools List**

**161 References**





*This toolkit is  
not a textbook  
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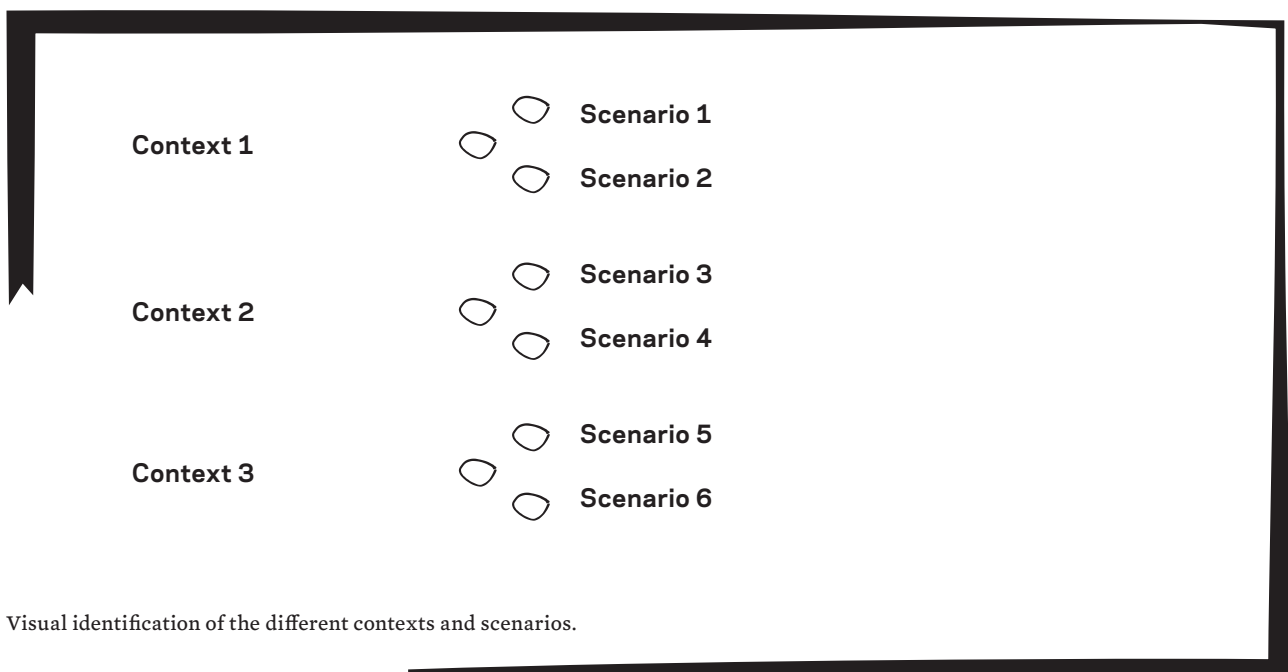


# Introduction

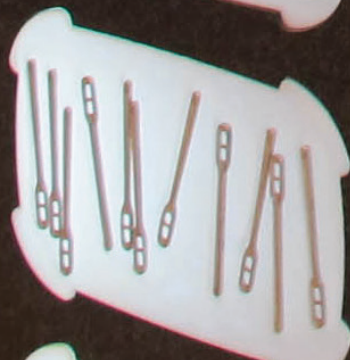
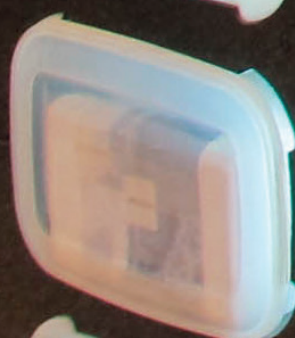
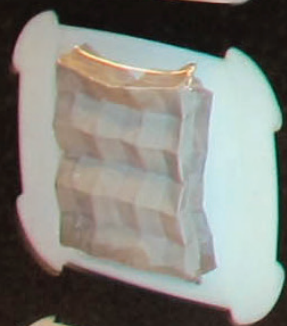
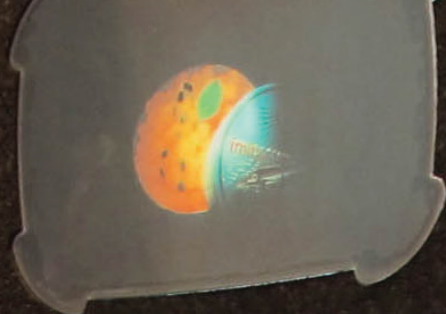
The D-THINK toolkit is aimed at educators from Higher Education and VET Institutions, and is intended to be an active toolkit to support the use of Design Thinking as a method to:

- ➔ Renew their educational approaches and methodologies;
- ➔ Update and learn how to redesign learning experiences;
- ➔ Promote the acquisition of “new skills” – such as sense making, social intelligence, novel & adaptive thinking, cross cultural competences, trans-disciplinarily, a design mindset and virtual collaboration – that nowadays are sought by employers and organisations.

This toolkit is not a textbook but a practical guide and handbook. It was conceived in a way to promote the application of the tools by educators in different and relevant educational contexts. In the following pages, we explain what Design Thinking is, outline its importance for Education and Training, and then describe dozens of specific tools that you can apply in different educational contexts and scenarios. As a practical example, this toolkit offers three contexts, with two educational scenarios from each context. In the first context, “Setting the Learning”, one scenario is related to the Pedagogical Framework, and the other to the Revision of the Curriculum, for example. To facilitate the orientation between the contexts and scenarios, we use the following symbol which will be explained later on.



Visual identification of the different contexts and scenarios.



# D-Think Manifesto

---

## THIS TOOLKIT

- ➔ helps you to foster the mindset and drive transformation
- ➔ offers educational scenarios to follow
- ➔ allows you to create your own pathway and toolkit
- ➔ allows you to select and create solutions for building upon your own experience
- ➔ is custom-made, adaptable and flexible
- ➔ is for all educators aiming to redesign their educational methods and perspectives.

---

## THIS TOOLKIT IS NOT

- ➔ about design
- ➔ about teaching you how to teach design thinking
- ➔ about replacing everything you have been doing
- ➔ a panacea for all your problems
- ➔ recipe for gurus

You may have heard the term Design Thinking before and have an idea what it might be.

Or it may be all new to you.  
So what is it?

Let's find out!

# What is Design Thinking?

*I believe that Design Thinking is something that is becoming more and more important in education because it's a mindset, it's a way of thinking that can be applied almost to every field. It's about making "tangible" and giving a "structure" to a process that has already been used (often) in an unconscious way.*

**Manuela Procopio**, Director of the Management for Creative Industries School at IED Barcelona

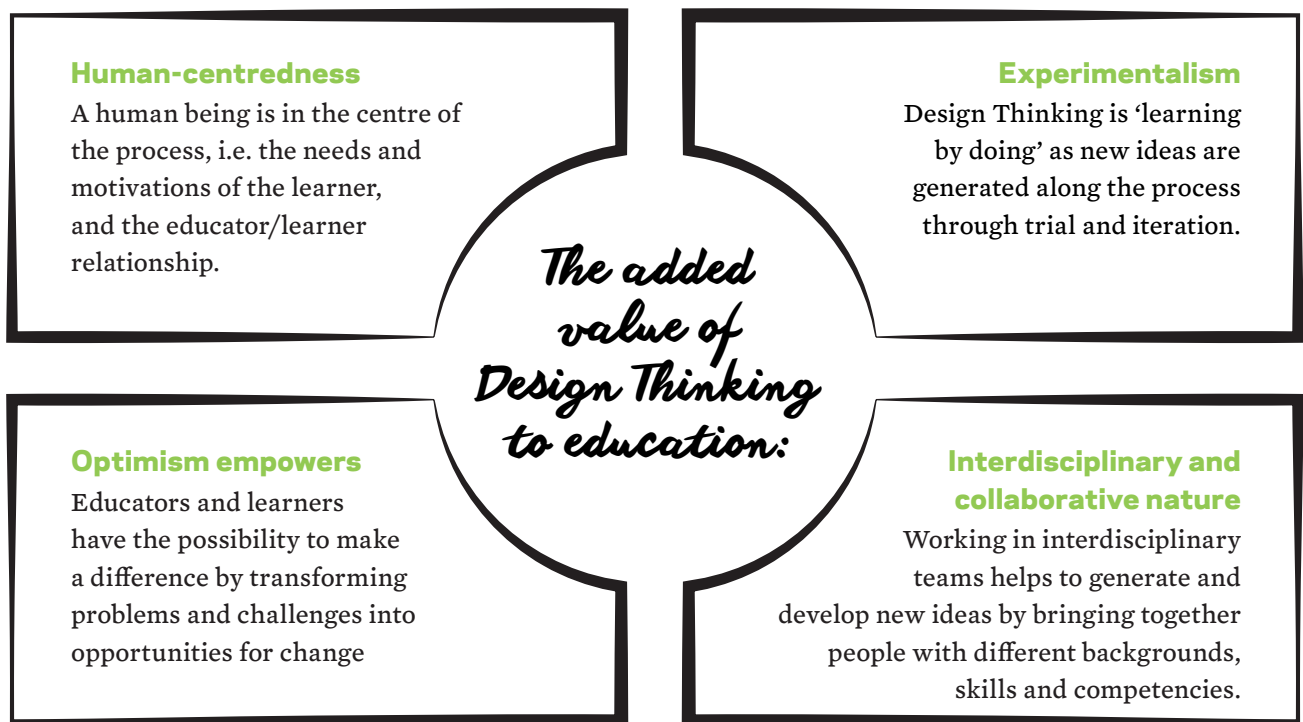
## **Design Thinking: a Mindset and a Method for Innovation**

It all begins with designers. Design Thinking derives from the designers' way of thinking, from their mindset and approach to work. It is a method that anyone can use. Design Thinking is founded on the ability to combine empathy for the context of a problem, creativity in generating ideas, insights and solutions, and rationality to analyse and match solutions to the context. Designers are at the same time analytical and empathic, rational and emotional, methodical and intuitive. They are able to remain spontaneous while being goal-oriented and can work under pressure and within constraints. This is useful as designers often tackle ill-defined problems where they have to use their creative thinking abilities.

Design Thinking is human centred and is based on understanding the needs and motivations of people. And it is optimistic; it believes that there is always a solution to be found. Design Thinking is based on an iterative process, accepting uncertainty and failure. Trying again after failing is an inherent part of the process. Design Thinking promotes a collaborative

approach. It brings people with different backgrounds, knowledge and expertise together.

In an organisation, for instance, they may be from different departments or they may be external stakeholders. In education this could be for example students, educators, experts and professionals, ordinary people or the target group of the issue in hand.



### **Design Thinking & Creativity**

Design Thinking and Creativity are often used as synonyms or as two related concepts. In the design field, creativity is seen as seminal to the design process, as it reveals our ability to deal with new problems, to look at realities in a different way, to perceive new patterns beyond the existing ones, to find new solutions, to produce new knowledge and to design new forms of being and living. Creativity, as the cognitive capacity of a person or a team to develop new ideas and to solve problems in a different way, is one of the main principles of Design Thinking.

On the other side, Design Thinking offers new models of processes and toolkits which help to improve every creative process, carried out not only by designers, but in multidisciplinary teams in any kind of organisation. Numerous Design Thinking tools, presented in this toolkit, support divergent thinking, a way of thinking with many possibilities and in various ways, one of the characteristics of creative thinking.

The concept which matches both Design Thinking and Creativity, is the concept of Creative Confidence. According to Kelly & Kelley (2013), Creative Confidence is about believing in our ability to create changes in our world. It is the combination of thought and action, the ability to generate new ideas, and the courage to try them out, even failing in the process. Design Thinking not only offers a systemised way to innovative products and services, but also helps to foster a culture of creativity. This belief in our own creative thinking capacity lies at the heart of innovation.

## Design Thinking & Innovation

Design Thinking is understood as a way of thinking which leads to transformation and innovation. Design as a discipline, was always a catalyst for innovation processes in product and service development. But today, Design Thinking is not only a motor for innovation promoted by designers, but offers new models of processes and toolkits which help to improve, accelerate and visualise every creative process, carried out not only by designers, but by interdisciplinary teams in any kind of organisation.

The qualities of Design Thinking are similar to the qualities needed for innovation:

- ➔ Collaboration and Teamwork
- ➔ Dealing with uncertainty
- ➔ Confidence
- ➔ Resilience
- ➔ Risk Taking
- ➔ Inter- and Crossdisciplinarity
- ➔ Questioning
- ➔ Problem Solving

This makes Design Thinking a useful method for innovation.

## Design Thinking & Entrepreneurship

Entrepreneurship and the entrepreneurial mindset are increasingly important in working life. They help in achieving goals and in trying out new things. There are plenty of similarities between Design Thinking and Entrepreneurship. Besides creativity and innovation, there are also other connections between Entrepreneurship and Design Thinking, such as:

- ➔ The focus on creative problem solving;
- ➔ The search for new ideas and recognising opportunities in the environment;
- ➔ The focus on how to deal with uncertainties.

Somehow entrepreneurs, even if they are not aware of it, are applying Design Thinking when moving through a creative process of problem solving, or when looking for new opportunities and challenges. With deeper insights into the dynamic and power of the Design Thinking process and its tools, entrepreneurs can improve their participation in, and their facilitation of, innovation processes.

Design Thinking and Entrepreneurship are complementary in driving competitiveness. Design Thinking can be used for enhancing and lifting entrepreneurship to the next level. It can help entrepreneurs in everyday operations, in identifying opportunities, creating new business models and in achieving business goals. Yet, its main benefit is in developing creative thinking abilities, a cultural mentality and entrepreneurship.

Today's educators  
and trainers  
are mentors,  
enablers,  
facilitators and  
collaborators.



# Design Thinking and Education

*The skills you need to work, learn and be a citizen of the 21st century have converged. It comes down to a few things: all students are going to need to learn how to think critically; it means, from my previous research... that it is much more important to ask good questions than memorising easy answers. The second skill they need is the ability to collaborate – increasingly all work is done collaboratively. The third*

*skill that they need are good communication skills, both oral and written communication but also the ability to listen. Finally, students need to be creative problem solvers.*

**Tony Wagner, Harvard Innovation lab.**

[www.youtube.com/watch?v=tYS5\\_hW4bVY&feature=youtu.be](http://www.youtube.com/watch?v=tYS5_hW4bVY&feature=youtu.be)

## **A New Learning for a New Society**

Today the world is very different from what it used to be. Competition has increased, the pace of life has accelerated, professions are changing, and we are facing a new kind of uncertainty. At the same time the world has become smaller, more connected and more international.

The new society – sometimes called the information, knowledge or networked society – is characterised by five major structural changes:

- ➔ Rapid and far reaching technological changes, especially the digitalisation of Information and Communications Technologies (ICT);
- ➔ Accelerated globalisation;
- ➔ A shift towards knowledge as the central factor of production;
- ➔ More fluid and less hierarchical organisational forms with greatly accelerated movement within and across organisations and sectors;
- ➔ Longer life expectancy allowing different generations to share the scene.

In this new society, the amount of information is overwhelming and it reaches millions of people around the world in real time. In this highly dynamic environment, leadership, innovation and adaptability are critical skills, especially the capacity to share the right knowledge with the right people at the right time in the right place. These changes create new challenges for the gaining of knowledge, competency and education, which require ‘new skills’. Among the ‘new skills’ are the adaptability to fast changes, design mindset, cooperation skills and critical and creative thinking. Of course, this has much to do with learning and teaching/training. Thus, what really needs to be addressed is diversity: the diversity of skills possessed and needed, but also the different learning styles and needs of different approaches and methods of training.



## New Learning Approaches

The new technologies, working environments, organisational structures and different forms of internal and external cooperation in the new society and in the so-called Industry 4.0 also have a great influence on education. Moreover, different generations have different learning styles. Planning and implementing different learning strategies to address diverse generational learning styles and needs, takes time and effort, but it is worth it. People learn more when the teaching method is consistent with their learning style, and their learning increases when they are occasionally pushed beyond their comfort zone.

This changes the perspective of education: a diverse learning ecosystem in which learning adapts to each learner instead of learners trying to adapt to training environments is the new paradigm for education. Learning will no longer be strictly defined by time and place: whatever the path, personalisation of learning will become the norm, with learning approaches and support tailored to each learner. This means that alternative educational methods are useful for this purpose. But the way of designing education and training events and experiences must also change. Design Thinking is one of the alternative methods that has been shown to be effective in dealing with the new training environment.

Design Thinking can help with the organising of diverse information; it helps make sense of and tackle ill-defined problems. Thus, it can be of great help in re-designing training, when traditional designing and delivering methods seem to fail their goals.

## Design Thinking fosters and enhances

- ➔ **Novel and adaptive thinking:** proficiency at thinking and coming up with novel, creative and outside the box solutions and responses.
- ➔ **Transdisciplinarity:** ability to understand concepts across multiple disciplines.

All these elements are of a great help if we need to re-design training and learning experiences.

## A New Role for Educators and a New Role of Design Thinking in HEIs and VET

Educators' work is diversifying and changing (and it will do so even more in a near future) as the roles of different learning agents supporting learning emerge:

- ➔ **A variety of digital networks,** platforms and content resources help learners and learning agents to connect and learn.
- ➔ **Design mindset:** ability to represent and develop tasks and work processes for desired outcomes.

This means that the modern educator no longer just 'stands and delivers' in the front of the class. The 21st century teacher or trainer is required to do far more than to pour information into the heads of a passive group of people whether they want it or not. And teachers are more than just highly skilled and motivated professionals that lecture or give workshops.

Today's trainers are mentors, enablers, facilitators and collaborators. They are open to new ways of thinking and are focused on continuous self-development as they develop and learn together with their learners.

To effectively play this "learning agent's role", a creative, empathic and collaborative approach is essential, and Design Thinking can be the mindset for educators and trainers in HEIs and VET to face the challenge of this new learning paradigm.

*Design Thinking  
is an approach  
to learning  
that focuses  
on developing  
Educational  
agents' creative  
confidence.*

# How to Apply Design Thinking in Education?

The DT mindset, the process and the tools, can't simply be learned by books, but have to be lived and tried out in practice. It is a learning-by-doing process which develops educational agents' creative confidence, engaging them in challenges that focus on empathy and action, increasing metacognitive awareness and fostering active critical problem solving.

In the following, the process of applying Design Thinking in an educational context will be described.

## Step 1

### Study the DT Concept and Selecting a Model

There are several models and toolkits of the DT process, and all of them can give important contributions to educators and to its application in HEI and VET institutions. The Design Thinking model used in the D-Think toolkit is the Mindshake Design Thinking Model, Evolution 6<sup>2</sup> (E.6<sup>2</sup>), developed between 2012- 2015 by Katja Tschimmel. The model has been applied in product and service development, workshops, coaching sessions, research projects, and methodology lessons.

The model is called Evolution 6<sup>2</sup> because:

- ➔ **Evolution:** The creative process is an evolutionary process, which is iterative and interactive and it involves people and situations. The graphic model of E.6<sup>2</sup> (p.23) shows that each E-phase of the model is related to the other phases in iterative cycles.
- ➔ **E6:** The model is divided into 6 phases which all begin with E: Emergence, Empathy, Experimentation, Elaboration, Exposition and Extension.
- ➔ **E6<sup>2</sup>:** In each phase of the process, there are moments of divergence (Exploration) and convergence (Evaluation).

# The phases of the Design Thinking Model: Evolution 6<sup>2</sup>

## 1 Emergence

### Identifying an opportunity or a challenge

The main aim is to discover and frame the educational challenge that you are facing. You need to acquire and analyse information, and use different and relevant tools that can support you in obtaining “specific outcomes”.

## 2 Empathy

### Knowing the context and defining the project

Empathy is the ability to identify with or understand other’s situation or feelings. In this phase of the process, those tools are applied which permit stepping into the student’s/colleagues shoes and understanding in detail the wider context of the challenge.

## 3 Experimentation

### Generating ideas and developing concepts

This phase is mainly conceptual and focuses on idea generation and experimentation. Several ideas are combined into concepts.

## 4 Elaboration

### Solution materialisation and validation

In this phase the first solutions and concepts developed in the previous phase are materialised, prototyped and validated. New solutions have to be tested and improved in iterative loops. The most promising solutions are combined into a system of ideas which work together.

## 5 Exposition

### Communication of new concepts and solution

This phase consists of the communication and dissemination of the solutions in order to present them to the educational/institutional community. Communication supports are appealing visual illustrations and emotional presentations, so that their meaning can be immediately understood.

## 6 Extension

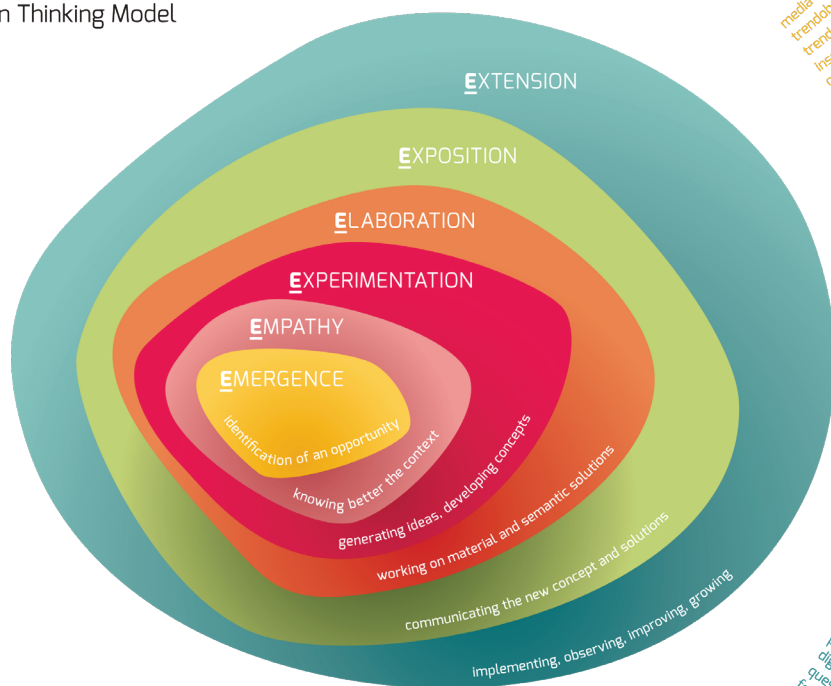
### Putting things into action

The Extension phase aims to promote and plan the implementation of the solutions envisaged.

The basis of all six phases is learning-by-doing, since Design Thinking also means Design Doing.

# EVOLUTION 6<sup>2</sup>

Mindshake Design Thinking Model



- media research
- trend observation
- treemap
- inspiration board
- opportunity mind map
- intent statement
- stakeholder map
- image interview
- persona map and cards
- empathy map
- moodboard
- user journey map
- brainwriting
- insight clustering
- experiential drawing
- semantic confrontations
- analogies
- desktop walkthrough
- role play
- proposition drawing
- rapid prototyping
- evaluation matrix
- service blueprint
- pilot testing
- solution storyboard
- concept illustration
- vision statement
- solution prototype
- presentation board
- visual business model
- implementation map
- print media
- digital media
- questionnaire
- feedback map
- roadmap

**MIND  
SHAKE**

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**The Mindshake Design Thinking Model - Evolution 6<sup>2</sup>**  
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Design Thinking aims to be a transformative method for all involved – people, institutions and systems. In order to use and apply DT in education it is necessary to be taught how to use its phases and tools and then practice and adjust it to your own needs.

## Step 2

### Select the Context and Scenario

The Design Thinking process can be used in several educational contexts and tasks:

- ➔ Development of contents for courses and modules;
- ➔ Curriculum planning and/or revision;
- ➔ Elaboration of studies and thesis using DT as research method;
- ➔ Planning, solving and managing training problems;
- ➔ Dealing with students' different educational needs and situations: e.g. combining studies with family, work, living far away, non-mandatory presence etc.
- ➔ Organising and developing coaching sessions, workshops and seminars;
- ➔ Developing educational projects;
- ➔ Conceiving pedagogical frameworks for educational institutions;
- ➔ Design of learning spaces;
- ...

It all starts with the definition of your goal. As the main aim of this toolkit is to support educators to integrate Design Thinking in learning, three educational contexts are defined in order to illustrate the application of DT. Each context presents two scenarios that explain how to use Design Thinking and its tools to achieve the desired objectives and outcomes.

Thus, you can choose between six scenarios to experiment with the DT tools in learning contexts. Each scenario section can be selected and read independently in any desired order, and organised according to one's interest and the educational needs. Before accessing the scenarios one should first get acquainted with the Evolution 6<sup>2</sup> model in order to understand the Design Thinking process and its phases.

When working with the Design Thinking process for the first time one is probably focused on the process and its phases, but gradually, as familiarity increases, so does the ability to balance the focus, not only on the process, but also on the outcomes that one aims to achieve.

**Context 1**  
Setting the Learning



**Scenario 1** Setting the Pedagogical Framework

**Scenario 2** Setting-up and Revising a Curriculum

**Context 2**  
Conceiving the Learning



**Scenario 3** Developing Contents

**Scenario 4** Setting the Assessment

**Context 3**  
Facilitating the Learning



**Scenario 5** Designing the Learning Spaces

**Scenario 6** The Role of Facilitator

Visual identification of the different contexts and scenarios.



### Step 3

#### Build your Design Thinking Team

The Design Thinking process is based on interdisciplinary teamwork, which in the educational context means, a group of educators/trainers with different knowledge background, skills and perspectives about teaching and learning.

It requires a knack to build a team in which the members complement each other's skills. For the composition of the right team, you should consider:

> **The right number of team members.**

Smaller groups are easier to coordinate, but less flexible with their available time, and obviously with less extensive knowledge than with bigger groups. With fewer than three members you cannot really speak as a group; with more than ten people there is too much confusion. The best number is between five and nine team members with one facilitator/team leader.

> **The best combination of team members.**

Look for a variety of knowledge and practical skills when you choose the people for your DT team. The best team would have various specialists and some polymaths. You need some people with vision and imagination, some with critical thinking abilities and others with practical skills.

> **The adequate role for each team member.**

So that the team works successfully together, it is essential to assign a role for everyone. Who has organisational and administrative skills? Who should be the leader/facilitator of the process? Who can be the time and rules manager in working sessions? Who is good in the visualisation of information and ideas? Who can record the whole working process (by writing a kind of diary, taking pictures, etc.)?

### Step 4

#### Organise a Space and the Necessary Materials

Design Thinking is a visual and experiential process, for which you need a particular kind of space and materials.

The room in which your team will usually meet, should be big enough to move around with ten people, with mobile furniture and a free wall on which to fix paper sheets.

The application of most of the Design Thinking tools requires the following materials:

- ➔ Roll of wide paper or big sheets (A1 or A0)
- ➔ Whiteboard or a flipchart
- ➔ Sticky notes
- ➔ Black and colour markers
- ➔ Scissors
- ➔ Adhesives which don't leave marks on the wall

A digital camera would be very useful to register the process.

### Step 5

#### Implement the Recommended Tools for the Selected Scenario

In the following pages you will be introduced to three educational contexts and six concrete scenarios, two in each context.

# Setting the learning

## Recommended tools:

### **Emergence**

*Buzz Report,  
Inspiration Board,  
Expert Workshop*

### **Empathy**

*Stakeholder Map*

### **Experimentation**

*New Perspectives*

### **Elaboration**

*Scenarios,  
Evaluation Matrix*

### **Exposition**

*Vision Statement*

### **Extension**

*Expertise Matrix*

# Setting the Pedagogical Framework



Each institution is required to have a Pedagogical Framework that should be collaboratively developed with the institution's community to ensure the high quality, evidence-based teaching practices focused on the success of the students. The pedagogical framework should include the expectations and the core systemic principles of the institution.

When considering setting or revising a pedagogical framework, for instance, the following outcomes should be achieved:

- ➔ Description of the institutional values and beliefs about teaching and learning that respond to the local environment/contexts and the desired levels of student achievement;
- ➔ Framework of processes for professional learning and leadership to support the whole institutional pedagogical practices, to monitor and increase the sustained impact of those practices on every student's achievement;
- ➔ List of procedures, practices and strategies for teaching that are aligned with the institution values and support students' improvement.

The Design Thinking tools, on the left side, are recommended to be used for facilitating the process of Setting the Pedagogy (or the pedagogical framework).



# Buzz Report

A Buzz Report is as much a tool as it is an attitude. It is a collective effort to stay up-to-date with new developments, which may or may not be directly related to the core subject of your project. It will give you and your team insights and an understanding of changing patterns and currently significant issues. Information can come from any possible source: documentaries, books, newspapers, lectures, any formal or informal source which notifies on the new and interesting. Buzz reports can be a valuable source of information for other Design Thinking tools such as Media Research or SWOT Analysis (see scenario 2).

## ACTIONS

- 01** Decide on how to collect and aggregate information and make it available to everyone in the team. There are several apps available that can facilitate the compilation of the Buzz Report (e.g. Evernote, MS One Note, Trello, Google Keeps).
- 02** Define sources of relevant information which you can visit on a regular basis.
- 03** Update the buzz report whenever opportune, but also allocate time on a regular basis to conduct your search and feed the buzz report.
- 04** Aggregate and categorize all input and tag with simple and meaningful keywords.
- 05** Discuss the most relevant topics with your team and share important thoughts about the impact on your project.



## DURATION

Ongoing.



## PARTICIPANTS

Everybody involved in the project.



## MATERIAL

A computer based platform accessible to all the participants.



## ADVICE

Collect only the most important information directly related to the goal for your project.



## ORIGIN

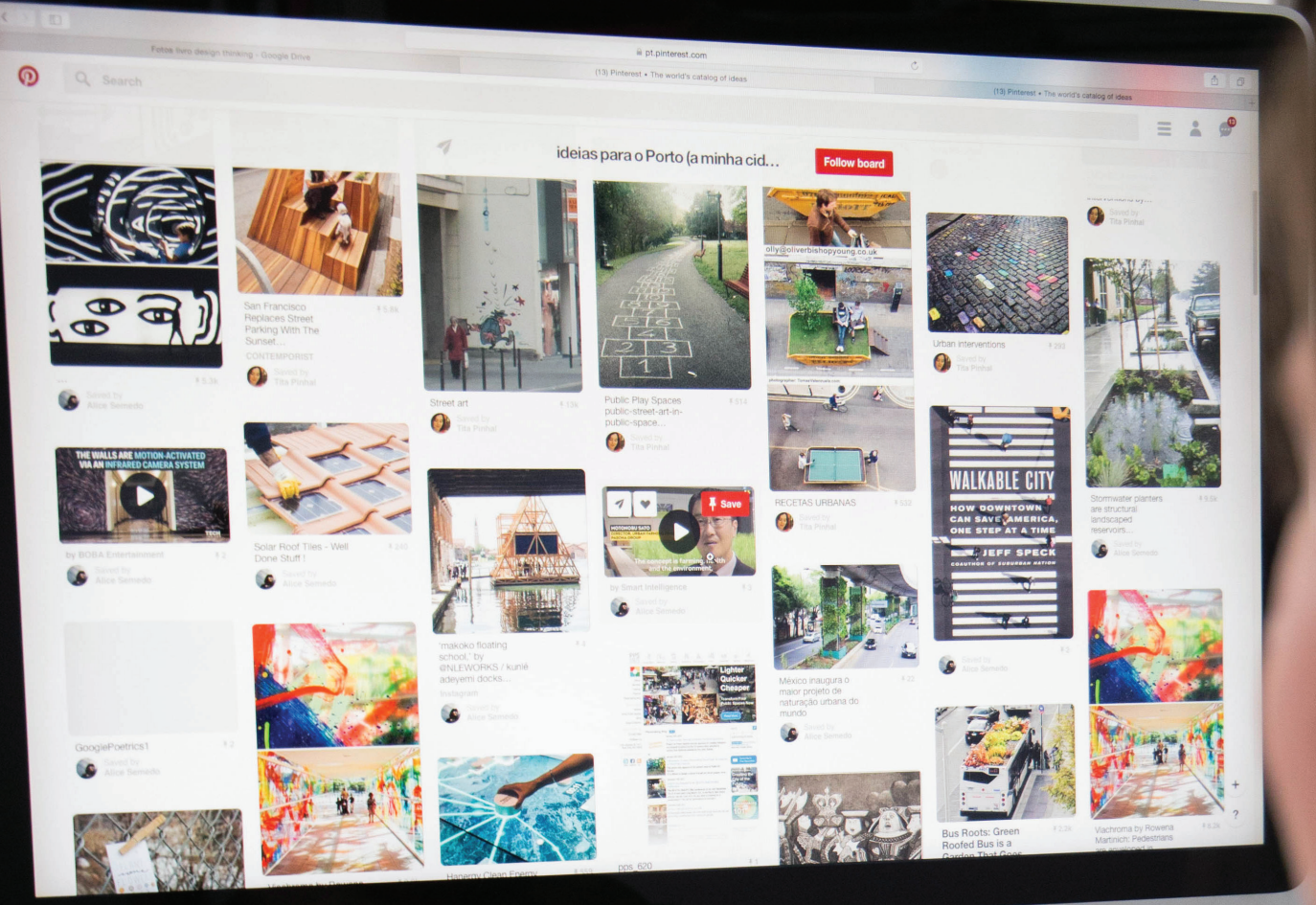
Similar to News Aggregation; originally described as Buzz Report by Kumar (2013).

## OUTCOME

An updated central repository of pertinent information. As a valuable source of information, this tool can provide basic input for a lot of other tools.

## FROM HERE TO THE NEXT STEP

Based on news from formal and informal sources, you can create an Inspiration Board to cluster images of the found information.



# Inspiration Board



Inspiration Boards are popular tools to visualise information and trends. You are probably familiar with the tool because of the Pinterest app. An Inspiration Board is a fun, risk-free and stress-free way to collect interesting images related to your project without analysing them. It is also an effective way to let go of critical and logical thoughts and to (re)discover parts of a larger picture that realistically illustrate the world of education and pedagogy.

## ACTIONS

- 01** One from the group creates a secret board on Pinterest and invites the other participants to join it.
- 02** Collect interesting images from your Buzz Report on the Pinterest Board. You also can search for inspiring pictures on other platforms using buzz words such as 'pedagogy', 'teaching' or 'learning', etc.
- 03** Everybody in the team votes for the most inspiring images by clicking on the heart.
- 04** After voting, save the best images that reflect the values and educational beliefs of your institution to a folder on the desktop of a computer. Open a document in an image editing software, or simply work with Power Point, and pull the images together in a grid, cropping and repositioning the photos as needed. It is almost like working out a puzzle; the images should fit together to achieve a cohesive outcome.
- 05** Print your Inspiration Board in an A2 format and hang it on the wall in the room where you work on the project.



## DURATION

30 min - 1 hour.



## PARTICIPANTS

Some educators from your core team, the ones who have fun playing around with images. It is helpful to have one designer or visual art educator in your team.



## MATERIAL

A computer-based platform accessible to all the participants, and a Pinterest account.



## ADVICE

Consider the creation of an Inspiration board as a game. There are no rules to organise or categorise the images which inspire your pedagogical framework.



## ORIGIN

Traditionally part of the design process.

## OUTCOME

The outcome of this tool is a board with a composition of selected images about your research subject. The main objective is to get inspiration for the project during the elaboration of the board and by looking at the result.

## FROM HERE TO THE NEXT STEP

The Inspiration Board is a great visual support for the next tool, the Expert Workshop. You can use it for inspiration at the beginning or during the workshop.





# Expert Workshop

An Expert Workshop is a generative design research method to produce knowledge and develop ideas in the context of a particular project or topic. During this workshop your initial ideas and expectations can be discussed, compared with and then contextualised within the emerging pedagogical trends and state of the art practice in building pedagogical frameworks.



#### DURATION

3-4 hours.



#### PARTICIPANTS

3-4 educators of the institution and 2-3 invited researchers in pedagogical approaches.



#### MATERIAL

Recording device, paper, pens, markers and white board.



#### ADVICE

Select the experts according to the scope of your project and the available budget. Some experts might charge a substantial fee.



#### ORIGIN

Adapted from the method “International Expert Symposium”.

#### ACTIONS

- 01** Prepare the introductory statement and the moderation of the workshop according to the initial objectives of your project. Select the members of your team who will participate in the workshop.
- 02** Invite experts according to the proposed objectives of your project and the expected outcome of the workshop.
- 03** Create a guide which includes all the topics for the moderation of the workshop. Think about how to integrate the Inspiration Board in the workshop.
- 04** Record the proceedings of the workshop, transcribe what has been said and analyse the proceedings and the material produced during the workshop with your project team.
- 05** Analyse and map the knowledge and the ideas which were generated during the workshop with all the members of your team.

#### OUTCOME

The description of the values and beliefs of your educational institution, connected to emerging tendencies of learning and teaching. The knowledge generated and the ideas collected during this workshop can be the input for most of the other tools and methods you will use in building your pedagogical framework.

#### FROM HERE TO THE NEXT STEP

After the discussion of learning and teaching tendencies and the core principles and values of your higher education (HEI) or vocational education (VET) institution, you have to decide who are the stakeholders connected to your project.



# Stakeholder Map



The Stakeholder Map is a visual representation (graphic or digital) of the various individuals and groups involved in a project. It can be created with sticky notes, written directly on a sheet of paper or created digitally. The objective is to support the development of a strategy to engage the identified stakeholders.



#### DURATION

1 hour.



#### PARTICIPANTS

3 - 4 educators with a collective awareness of all aspects of a pedagogical framework.



#### MATERIAL

A2 or A3 sheets of paper, black and colour markers, and sticky notes or a computer.



#### ADVICE

A Stakeholder Map can have different visual structures: two or more circles showing the relationship between several stakeholder groups.



#### ORIGIN

The concept of stakeholder appeared in the 18th century.

#### ACTIONS

- 01** Make a list of all stakeholders connected to your project, such as: your team, the project's managers, the management of your institution, the students, their parents, employees, etc. Decide the position of every stakeholder: target group or decision maker, direct or indirect stakeholder, internal or external stakeholder.
- 02** Draw two concentric circles and divide the stakeholders into internal and external stakeholders, or according to their importance and influence in the development of the pedagogical framework.
- 03** Identify the interest and motivation of each stakeholder and incorporate them by topics or graphic symbols in the map.
- 04** After analysing the relationship between individual and collective stakeholders, visualise the relationships with colour lines and symbols, such as a heart for a very friendly relationship, a flash or a cloud for a conflicting relationship.
- 05** Based on the relationship of the stakeholders, discuss specific strategies for motivating them on the development of your project.

#### OUTCOME

The Stakeholder Map provides an overview of shared or opposite interests of the agents involved in the project. The final objective of the tool is to improve the engagement of the stakeholders related to the project. The overview created through the map can help you find financial or administrative support for your project, and also who could be obstructive to your intentions.

#### FROM HERE TO THE NEXT STEP

After getting a better overview on the stakeholder group for the development of a new pedagogical framework, you can start the divergent Experimentation Phase of the Design Thinking Process.

PERQUE DESIGN?

### ③ REFLEXÃO

PUBLICAÇÃO DOS PROJETOS ONLINE

MENTORSHIP

FOR SUCESSO  
PENSAR ANTES PARA CONSTRUIR E SAIR DE OUTRAS MÊLAS

EMPREENDEDORISMO

'STARTUPS'

INCUBADORAS "SPIN OFF"

TEÓRICAS CONCENTRAÇÃO NAS ÁREAS DO PROJETO

CONSTRUIR UM "CARRO" E NÃO PENSAR

CADA ALUNO ESCOLHE MÓDULO S/P/ANO

MÓDULOS INDEPENDENTES

CURSO COMPLETO = X MÓDULOS

### ② CONTEXTUALIZAÇÃO

ENSINAR A APRENDER

COMUNICAR PROJETOS POR ÁREA

PROJETO TEÓRICO METODOLÓGICO ÁREAS TÉCNICAS

TEÓRICAS WORKSHOP

PARA QUE SEJA O TRABALHO

WEB DESIGN USABIL

### ESTRUTURA

FAVORECER AUTONOMIA

### ① EXPERIMENTAÇÃO

3D  
MATEMÁTICA OBJETOS PERSONALIDADE INTERACÇÃO CLAY & POLY ANIMAÇÃO

Scale online  
ÁREAS PARA MONTAR ANO 10 BOMBA SOFTWARE

SEMESTRES

FAIL FASTER LEARN FASTER PROPOZICÃO FALHAS EXERCÍCIOS BÁSICOS

1º ANO DIAGNOSTICAR AS TÉCNICAS DESENVOLVIMENTO

COMO ABERTAR UM PROJETO

AULA TEÓRICA ALINHADAS COM AS PRÁTICAS/PROJETOS NOVO DAS DISCIPLINAS

1ª GERAÇÃO DE IDEIAS SEM PROJETOS POR EX

FERRAMENTAS BASES TÉCNICAS

1 DISCIPLINA POR DIA

PUBLICAÇÃO DOS TRABALHOS ONLINE "EMPRESA"

DESENVOLVIMENTO ALGORITMIA COMPUTAR CÍRCULO

WEB - HTML/CSS - JAVASCRIPT - PHP

PROJETO DE ANIMAÇÃO + AFTER EFFECTS

VÍDEO

DESENHO + ILUSTRAÇÃO

# Current to New Perspectives

**Current to new Perspectives is a technique which questions existing teaching practices and strategies, examines the possibilities of new learning processes and analyses different values and beliefs about learning. It is an indispensable step for exploring different viewpoints and opportunities for novel pedagogical frameworks. It is essential that you and your team have a good understanding of the latest pedagogical trends. This is a tool for divergent thinking. It is important to be creative and to apply multiple perspectives.**



#### **DURATION**

2 hour.



#### **PARTICIPANTS**

Your core development team.



#### **MATERIAL**

White board, markers, and sticky notes.



#### **ADVICE**

It is important to include in your core research team those colleagues who have the authority to decide on the changes which involve implementing a novel pedagogical framework.



#### **ORIGIN**

Adapted from tools described by Kumar (From... To Exploration) and IDEO (How Might We?).

#### **ACTIONS**

- 01** Single out the topics (principles, values, beliefs, teaching practices, strategies or learning processes) which are essential and need to be updated for the building of a novel pedagogical framework.
- 02** Based on the outcome from the Emergence phase, identify the most important trends for the building of a novel pedagogical framework.
- 03** For each of the above topics, describe your current approach or perspective.
- 04** According to what you learned by analysing and discussing the current trends for each of the topics, rewrite a different outcome for each one, according to what is necessary and what is possible. You can use a simple matrix to get a better overview of all the topics in question.
- 05** Discuss how the conclusions offer you new insights on building a novel pedagogical framework.

#### **OUTCOME**

Insights to create several (different and necessary) scenarios.

#### **FROM HERE TO THE NEXT STEP**

“Current to New Perspectives” is a sort of Idea Generation and thus, in the next phase, those new Ideas/Perspectives have to be developed, which can be done through Scenarios.

TREND<sub>1</sub>

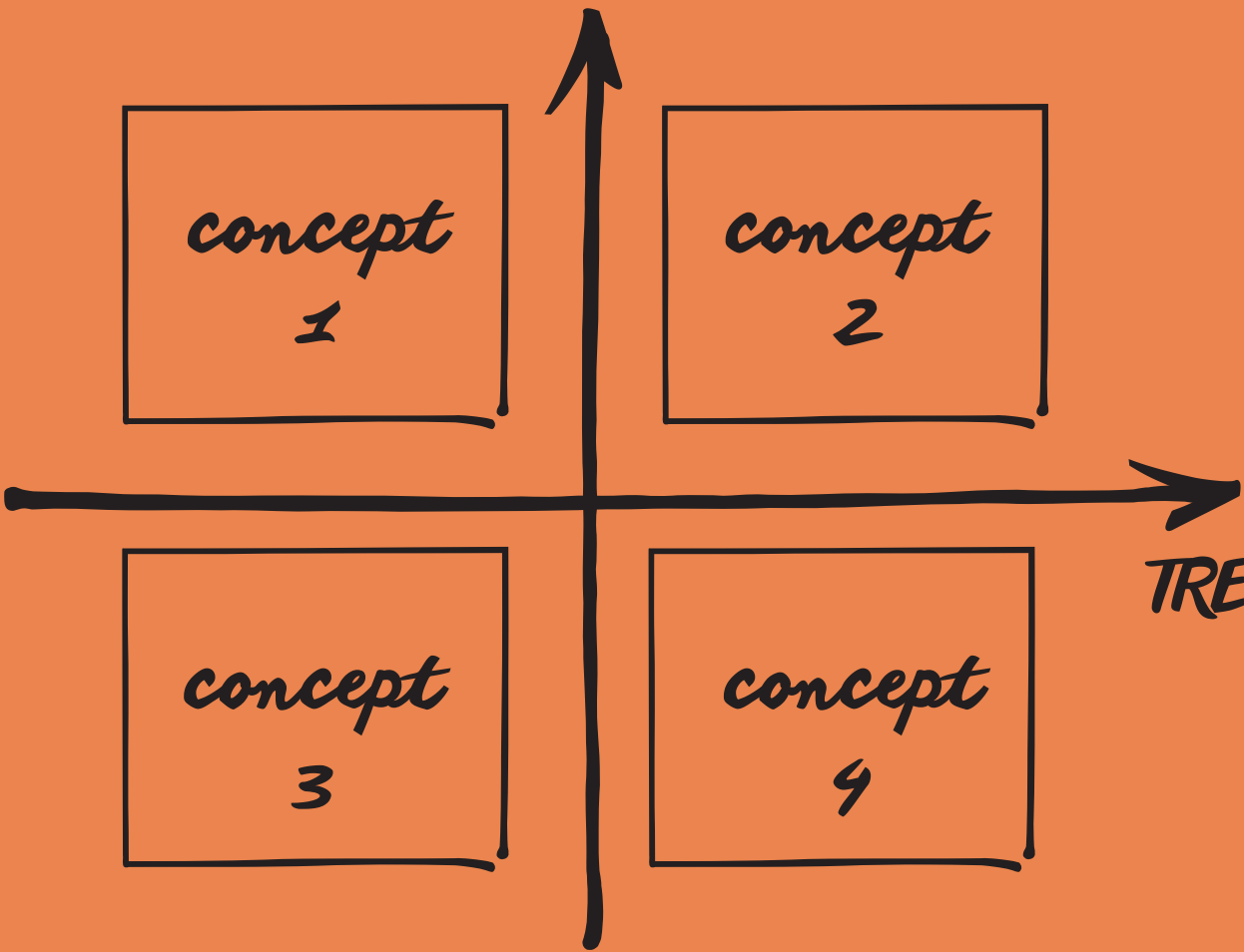
concept  
1

concept  
2

concept  
3

concept  
4

TREND<sub>2</sub>



# Scenarios



Scenarios is a method to construct and analyse different hypothetical scenarios based on emerging trends. The most significant trends, critical for the ongoing project, can be used as axes in a 2x2 matrix. For each of the quadrants a different future scenario can be elaborated. These descriptions form the basis for developing more detailed concepts.



#### DURATION

2-3 hours.



#### PARTICIPANTS

Your core development team.



#### MATERIAL

Sticky notes, pens and markers, and white board.



#### ADVICE

Try to be as concise and plausible as possible. A scenario does not need to be too complex.



#### ORIGIN

Khan, H. (1950) and Kumar V. (2013).

#### ACTIONS

- 01** Make a summary of the emerging trends in the field or subject you are working on. Select and consider the two most important trends and construct a 2 x 2 matrix, with a horizontal and a vertical axis.
- 02** Contemplate more and less challenging situations for both trends and allocate them on the extremes of the axes of the matrix.
- 03** Guided by the significance of these different situations, describe a possible future scenario for each quadrant of the matrix.
- 04** Either develop new concepts based on these scenarios or use previously generated concepts.
- 05** Combine specific concepts from whatever scenario to describe possible solutions for a future pedagogical framework.
- 06** Analyse the results within your core development team and discuss how the results of this exercise can be used most efficiently in other tools and methods.

#### OUTCOME

Ideally this method should help you to create and structure a set of different scenarios according to perspectives and insights which were generated by the previous tools.

#### FROM HERE TO THE NEXT STEP

Use the outcomes of this tool as input for an Evaluation Matrix and remember important topics for the preparation of a Vision Statement.

concepts

criteria TOTAL

	X	Y	Z	TOTAL
A	0	2	5	7
B	0	4	0	4
C	5	0	1	6
...				



# Evaluation Matrix



The Evaluation Matrix is a decision making tool for evaluating and prioritising from 3 to 20 choices. The distribution of the chosen concepts in a spreadsheet helps to compare the quality of ideas, and to apply several criteria in this validation process.



## DURATION

Depends on the number of concepts: between 10 min and 2 hours.



## PARTICIPANTS

Your core development team.



## MATERIAL

A big sheet of paper and black markers or a computer and a video projector.



## ADVICE

The evaluation criteria should be identified in the Emergence phase of the project.



## ORIGIN

Author unknown

## ACTIONS

- 01** Define the criteria that you will use to evaluate the generated concepts. This definition can also be done after the realisation of the Expert Workshop.
- 02** Create a spreadsheet with your concepts listed in the vertical column and the chosen criteria in the horizontal column.
- 03** Select a scale to score each concept against different criteria. Normally a 5-point scale is sufficient. Add up the scores for each concept and record it in the TOTAL columns at the end of each criterion.
- 04** Discuss the next steps based on these evaluations. Are you all happy with the three best evaluated concepts? Do they help to imagine your new/renewed pedagogical framework?

## OUTCOME

An overview of all selected concepts evaluated by the defined criteria. Identification of the best concepts.

## FROM HERE TO THE NEXT STEP

The three best concepts can be illustrated and presented to the audience (colleagues). The best concept will stand out after the presentation and a discussion. The next tool, the Vision Statement, will be helpful in creating communication support.

# KPEDIA

de construção aberta



## DESAFIOS

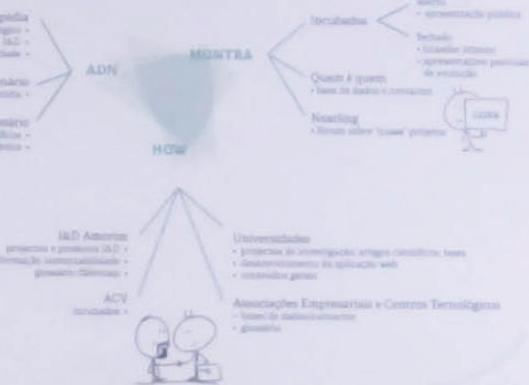
... em ADN da cortiça  
... publico-alvo alargado  
PS, ciências, património,  
empresas, etc.)  
... a nível de comunidade  
... (ex: Clube Associação)  
... chamar estratégias de  
... da cortiça e projecto-  
... e interactivamente

## SOLUÇÕES

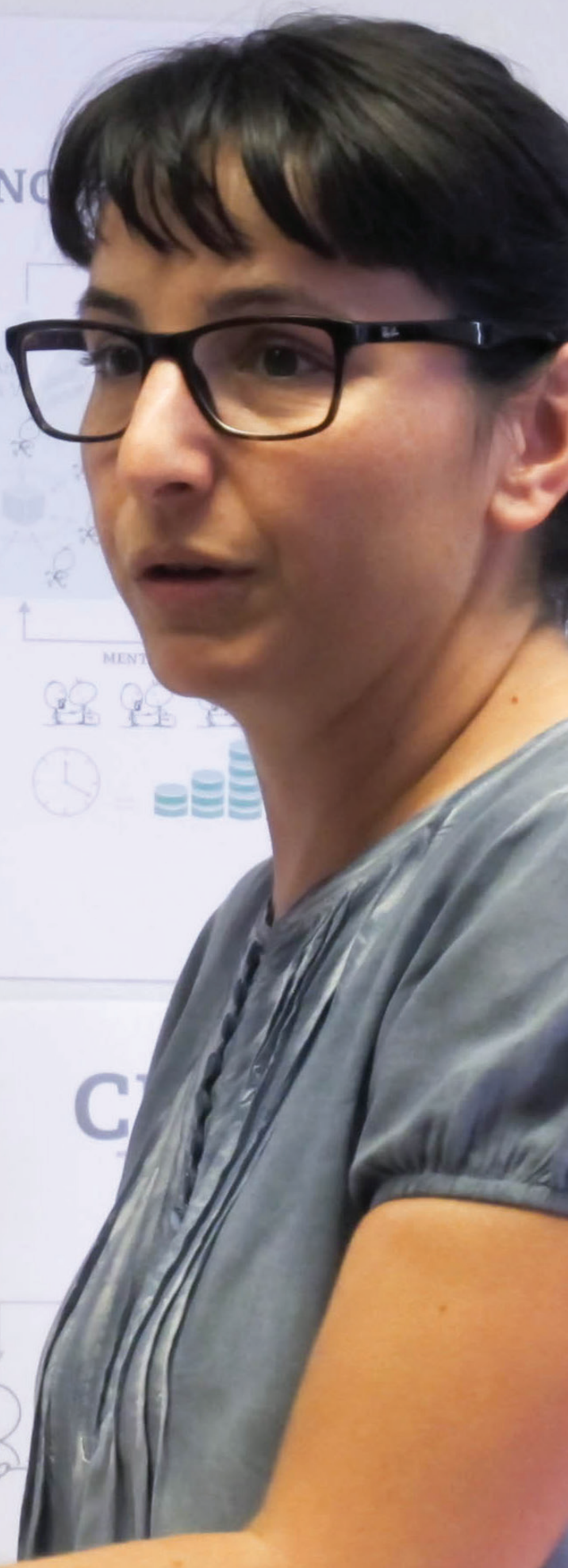
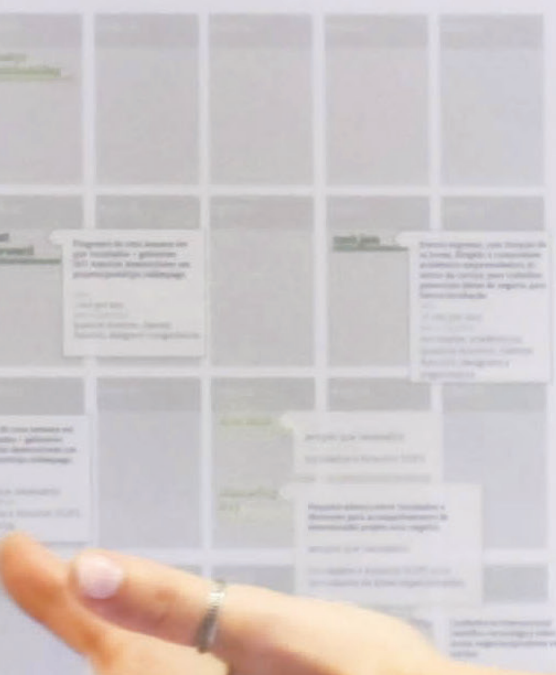
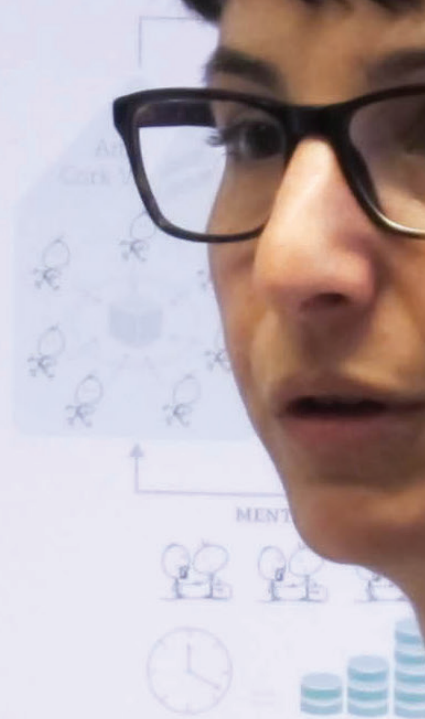
Sistemática e aglomerar toda  
a informação em torno da cortiça

Disponibilizar informação de fácil  
"navegação" (corticeira e tecnologia  
I&D, sustentabilidade...)

Envolvimento dos diferentes  
stakeholders da Associação e da cortiça  
num projeto comum



# BANC



# Vision Statement

The Vision Statement is a technique that aims to describe the results of an innovation project in a verbal-visual way. It helps to organise information and to create an overview about the project results. By making the new vision more comprehensible, the Vision Statement is of great help to communicate your project to a wider public (colleagues, the management of the institution, etc.).



#### DURATION

3-4 hour.



#### PARTICIPANTS

Your core development team and an invited designer or teacher of visual arts.



#### MATERIAL

Computer, printer (or you give the result to a professional printer).



#### ADVICE

Although the Vision Statement could be on a digital support, it is best to print it as an evocative poster.



#### ORIGIN

Author unknown; traditionally used in Design.

#### ACTIONS

- 01** Summarise the key results of your project and organise the information (core principles and values of your HEI or VET institution, teaching and learning practices and strategies, the local context of your HEI/VET, etc.).
- 02** Create an outline for your pedagogical framework's new vision. Based on the review of the project, give the Vision Statement a structure that best communicates your new framework. The outline should include: title, short description of challenges and solutions, illustration of the key benefits of the new framework.
- 03** Find a title and a short supporting tag line to concisely express the essence of the new pedagogical framework.
- 04** Write short descriptions of the identified challenges (problems) and the new solutions. How does the new vision respond to the initial challenges and what benefits and new values does it bring?
- 05** Find or create key images to illustrate the Vision Statement (diagrams, drawings, pictures, etc.).

#### OUTCOME

By elaborating the Vision Statement, you will understand clearly which are your project's and HEI/VET institution's new values. The Vision Statement will synthesise your new pedagogical framework.

#### FROM HERE TO THE NEXT STEP

Once you have received positive feedback from your colleagues, you can start to develop a Competencies Plan.

COMPETENCIES FACILITATORS CHARACTERISTICS  INITIATIVES/ACTIONS	C1	C2	C3	
i1				
i2				
i3				
i4				

# Expertise Matrix

An Expertise Matrix helps to identify the required competencies for the implementation of the project. Actions or initiatives are listed on the vertical axis and competencies are listed on the horizontal axis. The cells are used to describe the expertise your organisation needs to implement and effectively comply with your pedagogical framework. You can use internal competencies if available, otherwise you need to acquire them from external sources or search for strategic partnerships. An Expertise Matrix also gives a good overview on the critical competencies needed to successfully implement your project.

- 01 ACTIONS** Make a comprehensive list of all the actions and initiatives required to successfully build your pedagogical framework.
- 02** Analyse and discuss which expertise or competencies you need to effectively implement each initiative.
- 03** Organise the matrix with the initiatives as row headings and the competencies as column headings.
- 04** For each cell where specific skills are required to comply with an initiative, analyse and describe how the existing expertise from within your organisation can be efficiently applied, or how you can successfully search for complementary competencies from external sources. Define if this particular initiative is critical for the overall success of your project.
- 05** Discuss the expertise overview with all the stakeholders of the project in order to devise an action plan.



#### DURATION

Not defined.



#### PARTICIPANTS

Members of your core project team.



#### MATERIAL

Sticky notes, pens and markers, and white board.



#### ADVICE

A detailed Expertise Matrix is essential for the productive implementation of your pedagogical framework.



#### ORIGIN

Orig. described as Competencies Plan by Kumar (2013).

#### OUTCOME

A comprehensive overview of all the expertise required for the successful construction of a pedagogical framework, how this expertise is going to be applied or acquired and a clear understanding of which competencies are critical for the accomplishment.

#### FROM HERE TO THE NEXT STEP

After having completed the Expertise Matrix, you can implement the necessary changes in your pedagogical framework. To support this step, you could realise an Implementation Plan (see scenario 3 and 5) and a Feedback Map (scenario 4).

# Setting the learning

## Recommended tools:

### **Emergence**

*Frame the Challenge,  
Media Research,  
SWOT Analysis,  
Opportunity Mind Map*

### **Empathy**

*Stakeholder Map,  
Interest Group,  
Image Interview,  
Personas*

### **Elaboration**

*Curriculum Blueprint*

### **Exposition**

*Concept Visualisation*

### **Experimentation**

*Brainwriting,  
Dot Voting*

### **Extension**

*Roadmap*

# Setting-up and Revising a Curriculum



Developing or Revising a Curriculum usually starts with understanding where and how the course fits within a broader programme or an educational system. For example, Benchmarking similar courses, their contents, structure and activities, assists in the task. Setting the learning goals and outcomes for the course should be the main element in defining the activities and the assessment. This includes showing how the study programme fits together and how it helps students to achieve the goals of the programme. Programmers and institutions outline what their programmers aim to achieve, how students accomplish them, and how students and educators recognise the achievement of the defined goals.

When using Design Thinking as a process for generating and developing new ideas, and for setting up or revising a curriculum, one can apply a set of different tools in the process to help in obtaining the objectives/outcomes.

The following objectives and outcomes need to be achieved when devising a curriculum:

- ➔ Better understanding students' needs and characteristics;
- ➔ Better understanding of employees and labour market needs;
- ➔ Defining learning outcomes;
- ➔ Defining the learning and teaching context;
- ➔ Selecting learning and teachings strategies;
- ➔ Understanding and selecting technologies;
- ➔ Evaluating and improving the curricula.

TO PLAN  
GAMEBASED  
LEARNING  
CURRICULUMS

USE INCLUS  
GAMING TO FAVOR  
TO FACILITATE  
GROUPS  
OF

TO TEACH  
TRAINERS  
HOW TO

CURRICULA  
PLANNING

INNER  
KNOWLEDGE

TIME  
MANAGEMENT

emotional  
learning

Like  
learning  
soft  
skills

Acile





# Frame the Challenge



Launching a project with a clear understanding of why you want to start the project in the first place and what are your goals and the expected results, is critical for its success. Everybody in your team needs to be focused. Write down and describe why you started the project, what is expected and how this could be achieved. This document is essential to keep the development of the project on the right tracks. A well-framed challenge will help you to focus on the correct implementation of other design tools.



**DURATION**

No longer than 90 min.



**PARTICIPANTS**

Your complete team.



**MATERIAL**

Paper, white board, pens and markers.



**ADVICE**

Keep it simple.



**ORIGIN**

Tool described in “Field Guide to Human Centered Design”, IDEO, 2015.

**ACTIONS**

- 01** Make the first attempt to formulate the reason why you started the project and what you want to do in a single unambiguous sentence. Consider questions such as: What is the problem? Who has the problem? What is the context? What is the goal?
- 02** Reflect on the expected outcome and discuss how this can best be achieved. Be aware neither to set a too broad or abstract goal, and nor to restrict the scope of the project too much, therefore leaving no room for exploration.
- 03** Try to frame different trajectories to approach the challenge and discuss these proposals within your team.
- 04** Reformulate your initial statement and produce a document which can be used as a reality check tool during the project development.

**OUTCOME**

A structured description of the problem and the final outcome, together with a clear understanding of the project goals and how you plan to achieve results in the most competent manner.

**FROM HERE TO THE NEXT STEP**

After framing your challenge, you can start to research new information for further inspiration.



# Media Research



After determining the goals and expected results of your curricula project, you should do some **Secondary and Visual Research** to investigate similar courses in other HEI or VET Institutions. In **Media Research** you explore various media sources, such as: websites of other HEI and VET institutions, social networks, TV programmers, educational magazines, journal articles, databases, conference proceedings, etc.



#### **DURATION**

Not specified, but can last up to a few days or it can be “ongoing”.



#### **PARTICIPANTS**

Your research team.



#### **MATERIAL**

Computer, library.



#### **ADVICE**

There are many sources of Media Research: some more popular and visual, others more scientific and verbal. Be divergent and explore several sources.



#### **ORIGIN**

Media research has existed since the emergence of media sources.

#### **ACTIONS**

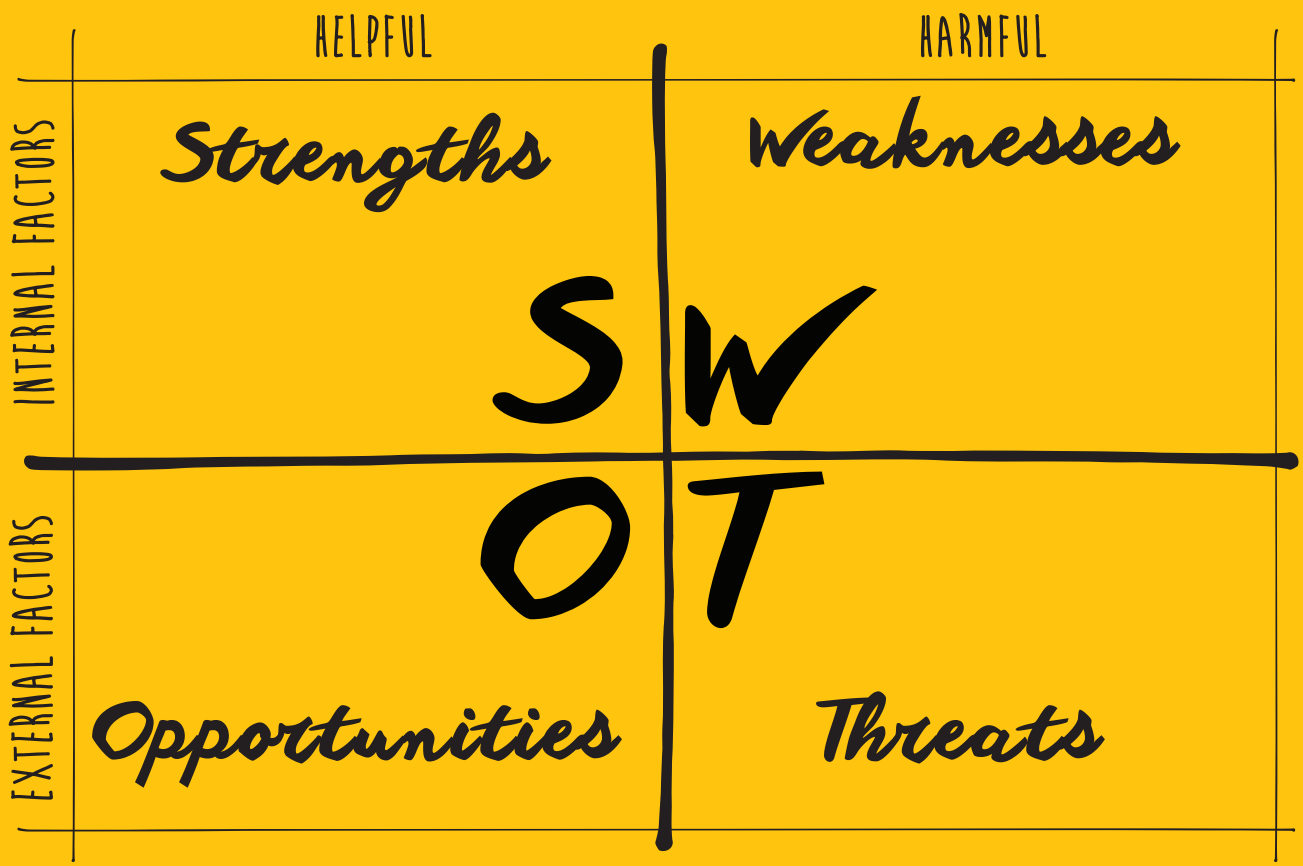
- 01** Identify topics and buzz words that are the most relevant to your project.
- 02** Find sources of insightful information. Look for what has been written on curricula in your knowledge domain on educational websites, blogs, magazines, journals and proceedings. Select information as notes, or use screen captures, scans or photocopies to create your own media library for ‘setting up curricula’.
- 03** Look for patterns in the most important media sources you find. These patterns provide a general sense of the current and emerging trends about curricula.
- 04** Find adjacent topics. Sometimes emerging educational tendencies on a different topic can influence what may happen in the field of your curriculum project.
- 05** Summarise your findings and identify opportunities. The results of the Media Research will help you to define the categories in the Opportunity Mind Map.

#### **OUTCOME**

The Media Research helps you to better understand your project’s context and give it a heading. You find new perspectives and opportunity for innovation of your curriculum, that will be explored further in the Opportunity Mind Map.

#### **FROM HERE TO THE NEXT STEP**

After getting new insights through the Media Research you can work with the SWOT analysis or go directly to the Opportunity Mind Map, which will help you to create an overview of all researched information.



# SWOT Analysis

A SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats) is a tool to synthesise insights for strategic planning and to create awareness of interesting opportunities. It helps to understand the strength of your curriculum programmer, what you are doing well, what makes you stand out, gives advantages, and what are the weakness of your program in comparison to similar programmers or institutions. A SWOT analysis maps elements from external sources to help you recognise opportunities to exploit, and it points out threats which could hinder attaining your objectives. SWOT is typically done within a multidisciplinary team involving students, teachers and staff.



#### DURATION

Up to 3 hours.



#### PARTICIPANTS

3-4 educators, 2 staff, 2 students.



#### MATERIAL

White Board or Flip Chart paper, sticky notes, pens and markers.



#### ADVICE

Do not make your lists too short or too long, 4-10 items per category is desirable. Items must be clearly defined and as specific as possible. Rely on facts and not opinions — it does help to do some prior research.



#### ORIGIN

Albert Humphrey at Stanford University, 1965.

#### ACTIONS

- 01** A SWOT analysis is usually registered on a template: a map with a four-square quadrant with Strength and Opportunities in the left and right top corners, and Weakness and Threats on the left and right lower corner of the map. Draw the SWOT template on a white board or using four sheets of flip-chart paper.
- 02** Use a standard set up of a regular Brainstorm session, generating ideas (write them on sticky notes) for Strengths, Weaknesses, Opportunities and Threats.
- 03** Check that every idea is in the right quadrant. Start to sort the ideas based on their affinity with the other ideas.
- 04** After the sorting and clustering is complete, start a group conversation to create a broad category for each smaller cluster.
- 05** Choose the most important categories from each quadrant for revising or setting up your curriculum by applying Dot Voting. The most voted Strengths and Opportunities can be transported to the Opportunity Mind Map.

#### OUTCOME

A SWOT matrix will give you a deep understanding of what exactly you will have to change, or not, according to the current trends in curriculum design.

#### FROM HERE TO THE NEXT STEP

The results of a SWOT analysis give you a better focus on the revising or setting up of a curriculum, and is essential for the efficient application of the other tools in later stages of the project, such as The Opportunity Mind Map, the Interest Group Discussion or the Image Interview.



# Opportunity Mind Map

The Opportunity Mind Map is a Mind Map that helps to identify opportunities for innovation through the visual organisation of selected information. The main objective is to create an overview of a theme, in this case of everything related to the curricula: knowledge domain contents, identified problems, the learners profile, pedagogical practices, etc. The data visualisation will help to reveal opportunities and guidelines for the setting up or revision of the curriculum. The radial organisation of the data will help to find connections between information, upcoming ideas and opportunities.

**DURATION**

60 min. + 30 min. +

**PARTICIPANTS**

4-7 educators

**MATERIAL**

Scenario paper (sheet which corresponds to A0 or more), black markers and colour markers.

**ADVICE**

An Opportunity Mind Map can be constructed over several work sessions.

**ORIGIN**Mindshake Evolution 6<sup>2</sup> model, 2015, adapt. of the Mind Map method from Tony Buzan, 1990s.**ACTIONS**

- 01** Write (or draw) your topic (for example: CURRICULA) in the centre of a blank sheet (A0 or even bigger).
- 02** Choose 5-7 main associations which describe a category (contents, methods, objectives, etc.) and put them around the topic in the centre. Identify these categories by size, colour or another graphic expression.
- 03** Expand the map with associations (key words) and sketches (symbols) in a visual logic of a tree or a cell. Make connections between the branches. Use colours to mark important information and ideas.
- 04** After 60 minutes of work, leave the map and let the ideas incubate. Also look for complementary information and images.
- 05** Return to the map and complete it with new information and insights. Repeat this several times. Mark the most interesting opportunities for the setting up or revision of a curriculum.

**OUTCOME**

By the end of the task you will have a big map with organised information and ideas about the topic 'curriculum'. The group will have learned about and discussed new educational tendencies and new learning approaches. You will have discovered opportunities to work on the development of a new curriculum for a course.

**FROM HERE TO THE NEXT STEP**

Having identified the area you want to revise in your new curriculum, you will next try to better understand the employees/the market and your student's context, in the Empathy phase.

# EXTERNAL

SMEs

# INTERNAL

SID/MASER  
STUDENT

TEACHERS  
LECTURERS

RESEARCHER

MARKETING  
TEAM

ACCOUNTING  
TEAM

PIT  
TEAM

PUBLIC  
SECTOR

E.G.  
HOSPITAL

OTHER  
SCHOOLS

PRINTERS



# Stakeholder Map



The Stakeholder Map is a visual representation (graphic or digital) of the various individuals and groups involved in a project. It can be created with sticky notes, writing directly on a sheet of paper or digitally. The objective is to support the development of a strategy to engage the identified stakeholders.



#### DURATION

1 hour.



#### PARTICIPANTS

3-4 educators with a collective awareness of all aspects of a curriculum.



#### MATERIAL

A2 or A3 sheets of paper, black and colour markers, and sticky notes or a computer.



#### ADVICE

The Stakeholder Map can have different visual structures: 2 or more circles which position to each other show the relationship between several stakeholder groups.



#### ORIGIN

The concept of Stakeholder appeared in the 18th century.

#### 01 ACTIONS

Make a list of all stakeholders connected to your project, such as: your team, the project's managers, the management of your institution, the students, their parents, employees, etc. Decide the position of every stakeholder: target group or decision maker, direct or indirect stakeholder, internal or external stakeholder.

#### 02

Draw two concentric circles and divide the stakeholders into internal and external Stakeholders, or according to their importance and influence in the development of the pedagogical framework.

#### 03

Possibly the interest and motivation of each stakeholder and incorporate them by topics or graphic symbols into the map.

#### 04

After analysing the relationship between individual and collective stakeholders, visualise the relationships with colour lines and symbols, such as a heart for a very friendly relationship, a flash or a cloud for a conflictual relationship.

#### 05

Based on the relationship of the stakeholders, discuss specific strategies for motivating them on the development of your project.

#### OUTCOME

The Stakeholder Map provides an overview of shared or opposite interests of the agents involved in the project. The final objective of the tool is to improve the engagement of the stakeholders related to the project. The overview created through the map can help you find financial or administrative support for your project, or also who could be obstructive to your intentions. Have a look to the Stakeholder Map about the D-Think Project in the *D-Think Research Report*, p. 39.

#### FROM HERE TO THE NEXT STEP

After getting a better overview on the stakeholder group for the development of a new pedagogical framework, you can start the divergent Experimentation Phase of the Design Thinking Process.



Meet the Teachers,  
Assessments,  
Students,  
Guest Speakers,  
& Practitioners

# Interest Group Discussion



Content development is a complicated endeavour. Many involved in your educational environment have strong personal opinions about crucial issues regarding the content of a course. Organising a debate where colleagues and stakeholders can express opinions and concerns based on their own experiences and beliefs, can wield a lot of insight on the topic. An Interest Group Discussion gives you a good overview of the topic under study.



#### DURATION

2-3 hours.



#### PARTICIPANTS

2-3 educators of your core team, 1 moderator, 7-15 guests identified on your Stakeholder Map



#### MATERIAL

A comfortable space prepared for informal conversations, white board, pens and markers.



#### ADVICE

A group discussion is not a focus group interview, neither does it substitute for individual interviews or other more focused research methods.



#### ORIGIN

D-Think Research Group, 2016, adapted from a regular Focus Group Interview.

#### ACTIONS

- 01** Select a group of participants which you might expect to positively contribute to the discussion: Educators from other HEI or VET Institutions, employees, representatives from the employment office, etc. Consult your Stakeholder Map to secure a multi-visionary input.
- 02** Prepare a space fit for an informal conversation where everybody feels comfortable. Be a gentle moderator and keep everybody on track and encourage discussion, but do not forget: this is not a Focus Group Interview.
- 03** Possibly, if too many issues are discussed at the same time, you can split the group into smaller teams.
- 04** Note important quotes and topics in order to get a clear overview of what is involved in this particular content development. There is no need to record or film the event.
- 05** Prepare the means to keep in touch with the participants and inform them about the development of the project.

#### OUTCOME

A good overview of the important topics and issues regarding the curriculum in development. You also will get a better understanding of the needs of the labor market.

#### FROM HERE TO THE NEXT STEP

The conclusions of the Interest Group Discussion supports the rightful application of many tools in further stages, in particular idea generation in the Experimentation phase.



# Image Interview



The Image Interview is a technique that combines aspects of a common unstructured Interview and a Photo Interview. Talking with your target group — the students — about their perception of an ongoing curriculum, helps you to learn about the student's mindset, their needs and learning experiences. Introducing chosen images about the learning context stimulates more spontaneous and emotional comments from the students.



## DURATION

60 - 90 min with preparation.



## PARTICIPANTS

3-6 educators, around 20 students.



## MATERIAL

Paper, pens, photo camera, and 5 expressive images (photographies, cartoons, illustrations, etc.)



## ADVICE

One thing is what the students will tell you, another what they really think and feel when you are questioning them. Do not forget to observe the students' body language and the surroundings. Only take pictures after getting written permission.



## ORIGIN

Mindshake Evolution 6 model, 2015.

## ACTIONS

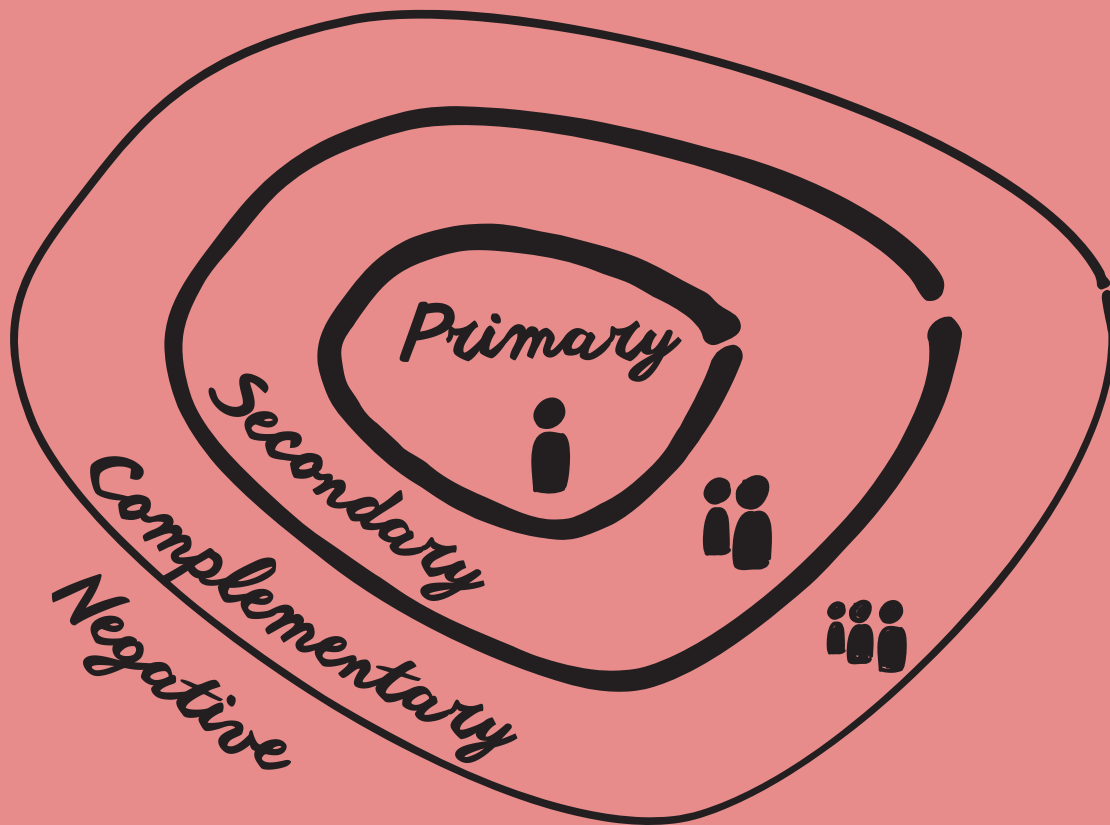
- 01** Prepare a set of questions based on the results of the Opportunity Mind Map and the Interest Group Discussion. The Interview does not have to be structured, but a kind of open guide is helpful when you compare the results of the interviews. Prepare some broad questions you can ask to start the conversation and some questions to go deeper into the topic. Find five expressive images which contextualise your questions.
- 02** Choose around 20 students to be interviewed. Two or three educators should conduct the interview as a team: one conducts the interview, the other takes notes and pictures (as can the third educator).
- 03** Open each interview with global, easy to answer questions to create a confident atmosphere. Then go deeper with questions about the students' learning experiences, their problems or fears. Show the five pictures and ask the students to choose three, for them to comment freely.
- 04** One of you should write down exactly what the students are answering. Frequently the most important information is in the small details.


## OUTCOME

New insights and nuances about the characteristics, learning needs and the point of view of your students.

## FROM HERE TO THE NEXT STEP

The Image Interview helped you to gain a better understanding of the particular characteristics and the students' learning needs; the next tool, the Persona Map and Cards, will permit you to organise and to go deeper into the comprehension of your students' behaviour.



<p>photo</p> 	<p>name</p> <hr/> <p>age</p> <hr/> <p>profession</p> <hr/> <p>academic</p> <hr/> <p>education</p>	<p>areas of expertise</p>
<hr/>		
<p>interests</p> <p>hobbies</p>		
<p>frustrations</p>	<p>personal story</p> <p>- a day in the life</p>	
<p>goals</p>		

# Persona (Map Cards)



The Persona tool helps to define different kinds of users (students) present in a context. Personas are fictional characters created to represent a particular group of people, based on their interests and behaviour. In this scenario, Personas provide a range of different perspectives on the learning reality of an institution. The tool also helps to discover features from the groups of students and define guidelines for the whole process of the project.



#### DURATION

2-3 hours.



#### PARTICIPANTS

3-4 educators.



#### MATERIAL

A2 and A4 sheets of paper, internet print-outs or magazines to find the fictional picture for a student, black markers, scissors and glue.



#### ADVICE

Even though you might think that the Personas are only fictional, they will exhibit the real motivations and behaviours of your interest group!



#### ORIGIN

Angus Jenkinson, 1990s.

#### ACTIONS

- 01** Based on general observations of your target-students and on the results of the Image Interviews, identify the fictional Personas: 1. the principle Persona (a typical student of your institution), 2. secondary Personas (non-typical students of your institution), 3. Complementary Personas (for example parents or teachers), 4. negative Personas (who is not a student in your institution at all).
- 02** Visualise all Personas on a Map using a picture (obtained from the internet or in a magazine): put the principal Persona in the centre of a circle on an A2 sheet; the secondary Personas in the circle around, in the next circle the complementary Personas, and outside the circle the negative Personas.
- 03** Choose four or five Personas from your map (the ones you want to explore more). Elaborate a Persona Card for each one of the selected Personas. The card should have the following elements: Name, Background (Age, Social Class, etc.), Interests, Frustrations in life, Goals in life, and write a brief narrative about a typical day at school. Have a look at the template in the D-Think Research Report, p.44-45.
- 04** Compare and analyse the different profiles and write down your conclusions, having in mind the innovation opportunities you identified in the SWOT analysis and the Opportunity Mind Map.

#### OUTCOME

A map with the different student profiles and four or five cards with a detailed description of each character. The cards help you to focus on various student groups. Data about the groups can be put in a proper context and can be understood and remembered in coherent stories.

#### FROM HERE TO THE NEXT STEP

Having obtained a better overview on the student groups of your institution, you can start the Experimentation phase of the D-Think process, looking for different perspectives and ideas for the new curriculum.

USE  
AMIFICATION  
TECHNIQUES  
IN LEARNING

TO FACILITATE  
INTER ~~DISP~~ GEN.  
TEAMS.

TO PLAN  
GAMEBASED  
LEARNING  
CURRICULUM

MENTORSHIP

INNOVATION

TECHNOLOGY

EMPATHIC  
GAMES

ARCH

NATURE  
SCIENCE

AMIFICATION

ENTREPRENEUR-  
SHIP

LIFE LONG

TIME  
MANAGEMENT

LEADERSHIP

SKILLS

ORGANIZATION

DECISION  
MAKING

OBSEVANT

TECH. SKILLS

PEDAGOGY

FINANCIAL  
AWARENESS

SOCIOLOG

CURRICULUM  
PLANNING

DESI.

life long

skills



# Goal Oriented Brainwriting



**Goal Oriented Brainwriting (GOB) is an alternative technique to Brainwriting. Its goal is to produce useful ideas. A typical GOB session is a multidisciplinary endeavour with 8-12 participants including people from your core team and other stakeholders involved in the project. A GOB session is goal oriented as it starts from a clear description of a problem, e.g. "How can we...", and makes use of a set of clearly described trends to trigger original ideas.**



#### **DURATION**

1 hour.



#### **PARTICIPANTS**

1 facilitator 8-12 persons.



#### **MATERIAL**

White board, pens and markers, sticky notes, red stickers and yellow stickers.



#### **ADVICE**

A GOB is intensive and should be efficiently moderated. It is important to work with an experienced facilitator to guarantee the best results.



#### **ORIGIN**

GOB is adapted from GPS Brainstorm by Flanders DC.

#### **ACTIONS**

- 01** Define the key problem to guide the Brainwriting. It usually begins with: "How can we....?"
- 02** Select a group of 8–12 people with a multidisciplinary background from your Stakeholders Map.
- 03** Select five trends in education directly related to your initial question. Prepare a concise description of each one of these trends and a matching illustration.
- 04** Organise six tables in a circle and place one trigger trend to each table, leave the sixth table for free flowing ideas. Divide the group into pairs and place each pair at a table.
- 05** Give the group 12 minutes for the first brainwriting session, then rotate. Give 10 minutes for the next session and rotate again. Allow for another 8 minutes and rotate. The last three sessions should only take 5 minutes each.
- 06** Cluster and map the ideas and use Dot Voting to select the top ten ideas.

#### **OUTCOME**

A typical GOB should generate up to 12 very useful ideas for further development.

#### **FROM HERE TO THE NEXT STEP**

After clustering all generated ideas according to several categories, each pair of participants votes on their top ten best ideas.

- Retirar os sinais de sinalização lateral •
  - retirar o limite de 200
  - retirar os sinais •
  - fechar todos os parques de estacionamento
  - limitar velocidade a 20 km/h •
- Lo com fiscalização!!

- circulação de camiões TIP Centro de Porto
  - acabar com transp Públicos •
  - dar incentivo económico à circulação
  - aumentar nº passeadzeiros
  - retirar nº de faixas p/vic •
  - Realizar trabalhos de pintura
  - largadas de faixas no centro
  - Realizar faixas nas "áreas" p/vic
- ou 50
- Walter





# Dot Voting

It is always difficult to select the best ideas from a great amount of ideas. A simple and effective way to converge and to priorities ideas is Dot Voting, a tool which helps to avoid long discussions. The use of round stickers makes every participant's voice heard at the phase of selection.



**DURATION**

10 - 15 min.



**PARTICIPANTS**

The same 8-12 persons of the GOB.



**MATERIAL**

Round stickers in three different colours: red, orange or blue/green.



**ADVICE**

Participants cast their votes all at once. They may vote for one idea more than once if they feel strongly about it.



**ORIGIN**

Author unknown.

**01 ACTIONS**

After the clustering of all the ideas at the end of the GOB, each pair of participants votes on their top ten best ideas. For this purpose they use the red stickers. Every participant gets seven dots which can be distributed between the ideas.

**02**

Every group brings their best ten ideas (sticky notes) to a wall or white board. From all these ideas, the whole group will select 20 ideas, again by dot voting. Every participant now gets six sticker points (in another colour, for example orange) which they can distribute on the sticky notes. They should not give more than three votes to their own ideas.

**03**

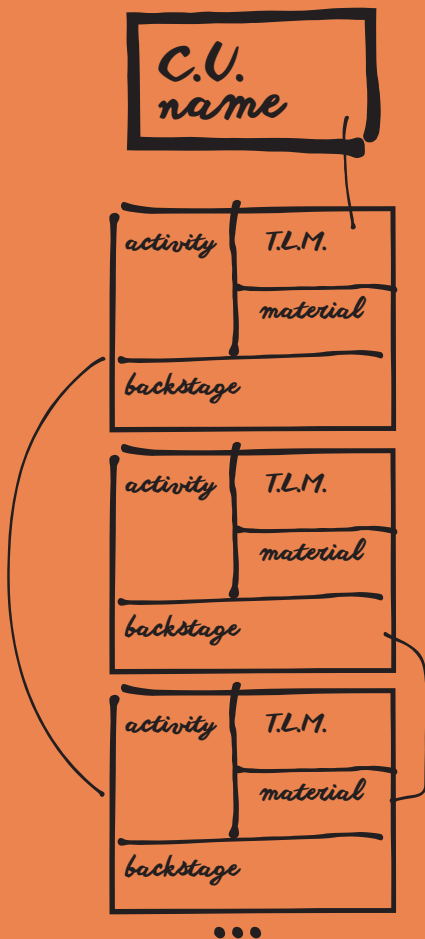
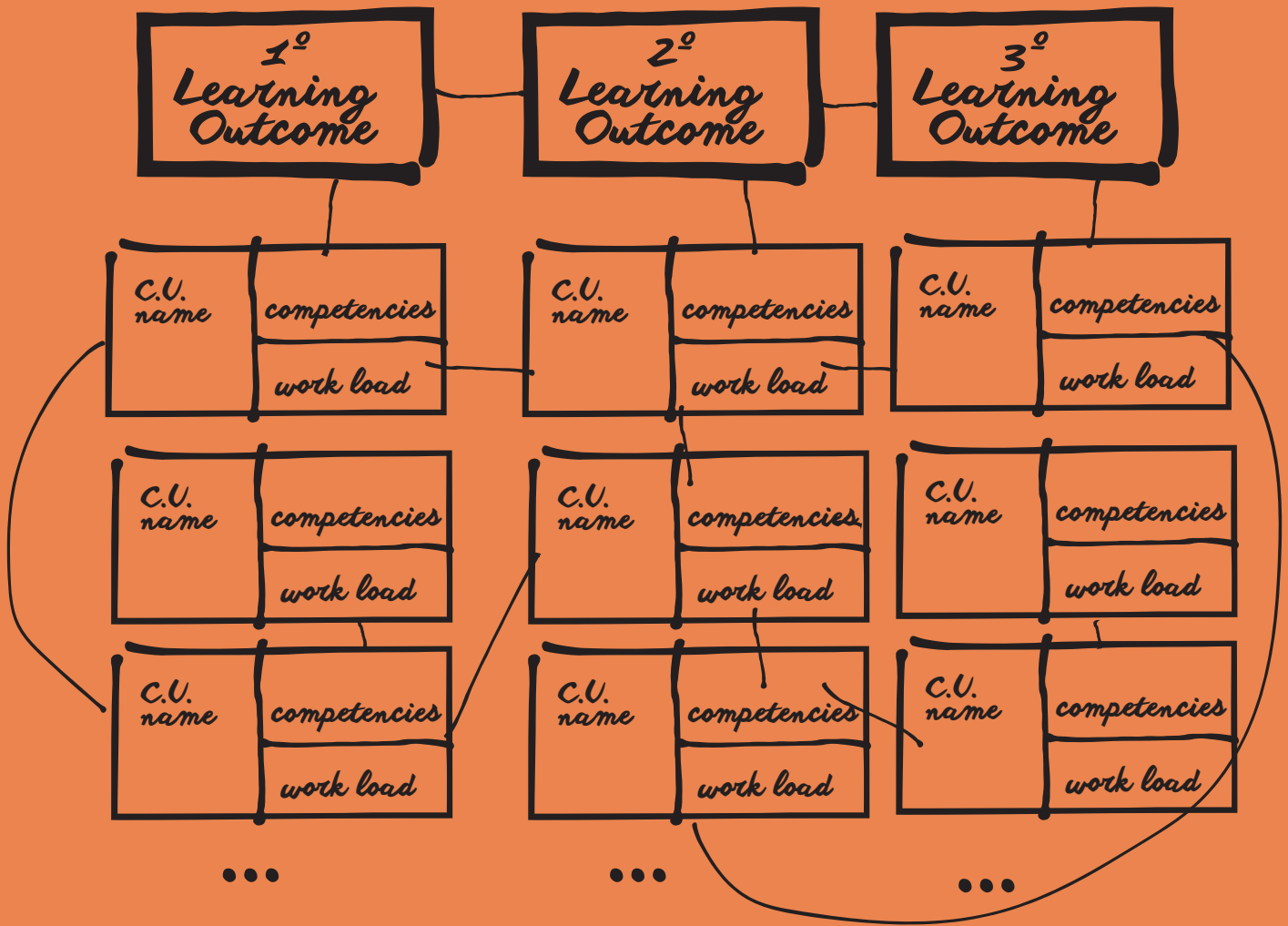
From all the ideas which were received votes, the 20 most voted ideas are marked. Now every pair of participant can vote on only three ideas. For that they get three dots in a green colour. The final compilation should render around 12 ideas.

**OUTCOME**

12 main ideas which can be developed into 8-12 concepts.

**FROM HERE TO THE NEXT STEP**

The generated ideas/concepts will be integrated and explored in the Curriculum Blueprint.



# Curriculum Blueprint

The Curriculum Blueprint is a kind of prototype. It is a way to specify and detail the learning process of a curriculum. In the Elaboration phase of revising a curriculum, the Blueprint allows the development of a new curricular structure and the distribution of disciplines over several years of the course curriculum. Producing the Curriculum Blueprint collaboratively promotes co-creation in a team of experts, educators and students. The visual schema of the Blueprint should incorporate the perspective of both, educators and students.

- 01 ACTIONS**  
Define the learning outcome for each course's year. Make a list of all subjects on your curriculum and distribute them over several study years. Discuss and reflect on the need a step by step approach to the process of learning.
- 02** Identify disciplines where the content overlaps or repeats. Think about the progressive learning process the students will undertake. Discuss the possibility of merging curricular units (CU) or creating new ones.
- 03** Draw a schemata, according to the template, with the following topics in a vertical line: learning outcome, name of the CU, competencies, work load. Put the learning outcome/curriculum year in rows in chronological order and fill all the information in columns. If you write on sticky notes you can easily move a CU from cell to cell.
- 04** After completing the matrix according to the learning outcomes, draw a new template for each CU where you define: each activity of the CU, the respective teaching/learning method (TLM), the didactic material and the backstage preparation.



#### DURATION

1 session of 4 hours, and other sessions of 1-2 hours each.



#### PARTICIPANTS

The core team of the curriculum project and eventually 1-2 students.



#### MATERIAL

A big sheet of paper (A0 in a horizontal position) or a role of sketch paper, black and colour markers, tape to fix the paper on the wall, and sticky notes in different colours.



#### ADVICE

The elaboration of a successful Blueprint takes considerable time and effort, but it is essential that you discuss and reflect on each detail.



#### ORIGIN

D-Think Research Group, 2016.

#### OUTCOME

The Curriculum Blueprint provides a systemic overview of the interaction of disciplines and their distribution over several years of study in a course curriculum. A Curriculum Blueprint can also provide you with a detailed overview of the project you are working on and can be a creative way of reporting your progress to your superiors.

#### FROM HERE TO THE NEXT STEP

The Curriculum Blueprint sets the grounds for the Pilot Testing of the revised curriculum. It needs a lot of iteration, as it is a kind of "living document". Give yourself some incubation time after the first session. Then, review and improve the Blueprint as many times as you need. Before the implementation of your new curriculum and its Pilot Test, you need to communicate the new concept to your colleagues and to the management of your institution.



# Concept Visualisation

Concept Visualisation is a popular design tool that helps you to communicate a new concept in a visual way, explaining its context and details through a story. Storytelling helps to create associations between the new content and personal identification. This makes your audience more likely to be engaged with you and your content. You can visualise a concept through a sketch, an illustration, a map or any kind of diagram.



#### DURATION

2-3 hours.



#### PARTICIPANTS

Your core project team and an invited designer or educator of visual arts.



#### MATERIAL

A big sheet of paper (A1 or A0), markers, or computer and printer (or you can give the result to a copy shop).



#### ADVICE

If you have never worked with storytelling and/or visualisation techniques, consult books or videos to learn more about both!



#### ORIGIN

Author unknown.

#### ACTIONS

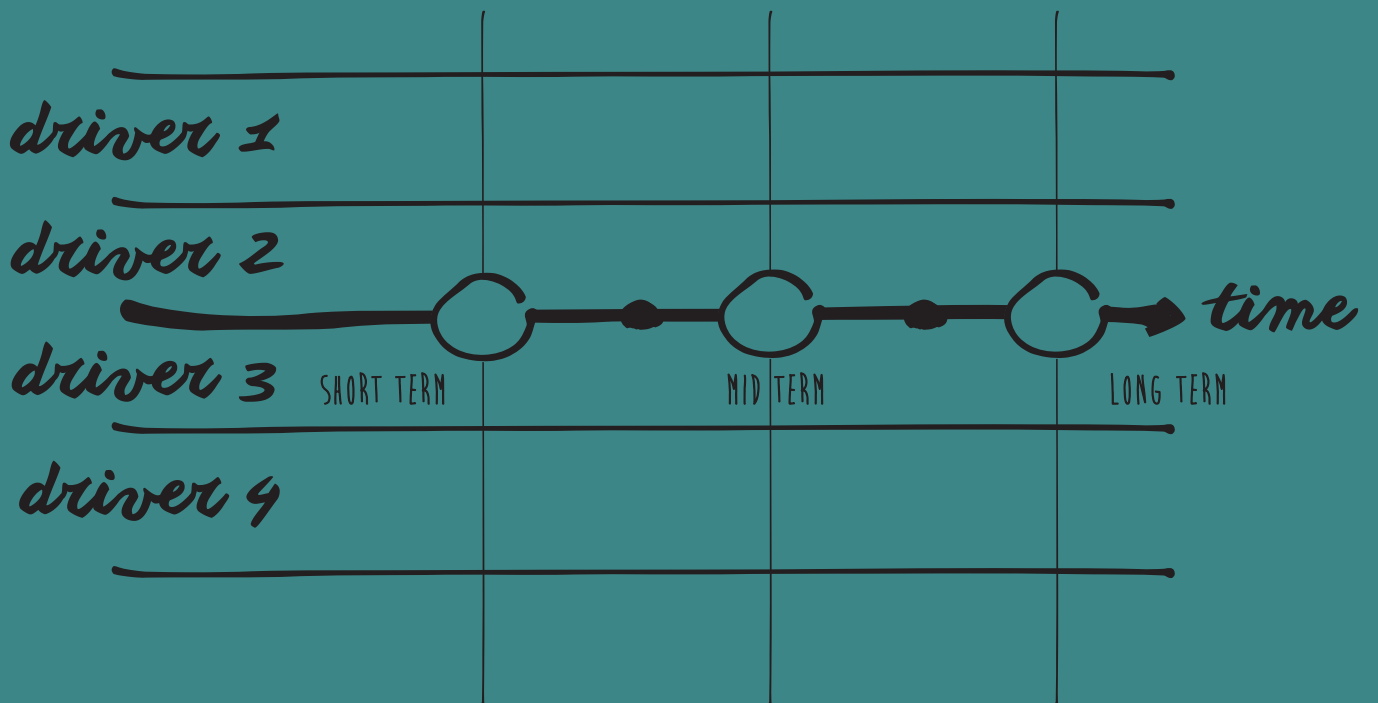
- 01** Describe the key concepts of the revised or new curriculum. Choose some details of the curriculum which are representative for the basic concept.
- 02** Think about a story through which you can present the new curriculum. In your story you should cover the following three principles: 1. Identifying a Problem: for example a problem of the old curriculum that your revised curriculum solves; 2. Identify the root causes of the problem: the conflict surrounding the old curriculum; 3. Solution: how you solve the problem with a new curriculum.
- 03** Convert words into rough sketches. Visualise the story and its content through simple drawings.
- 04** When you are satisfied with the visual outcome of your curriculum story, make a more elaborated drawing/illustration, or use a graphic software for a digital visualisation.
- 05** Present your concept to your audience using the final Concept Visualisation as a support of your verbal presentation.

#### OUTCOME

The Concept Visualisation supports the communication of your revised curriculum. Elaboration will force you to synthesise concepts of the new curriculum and to understand clearly its new value.

#### FROM HERE TO THE NEXT STEP

If your presentation convinces the direction of your HEI or VET institution and your colleagues to approve the revised curriculum, it is the moment to elaborate a Roadmap to support the implementation process.





# Roadmap



Roadmaps are a class of abstract visual representation about the future strategic direction of a project or an organisation. Frequently associated with new technology, the purpose of a Solution or a Strategic Roadmap is visual planning of the implementation process of innovation in a short-term, mid-term and long-term time spectrum.



#### DURATION

4 hours.



#### PARTICIPANTS

The core team of the curriculum project and a member of the administration board/council.



#### MATERIAL

A big sheet of paper in a horizontal position or a roll of sketch paper, black and colour markers, tape and sticky notes in different colours.



#### ADVICE

There are many styles of Roadmaps. Most examples are very complex, thus do not get frightened! Even a simplified Roadmap is a good further guide.



#### ORIGIN

Kumar, 2013, adapt. from Technology Roadmap, developed in the 1970 by Motorola.

#### ACTIONS

- 01** Review the changes generated in your curriculum. Estimate the time required to implement your solutions/changes. Place each new solution (on sticky notes) along a timeline that is divided into 3 time segments as columns: short-term for those to be implemented in the next year, mid-term for those planned for 2 to 3 years out, and long-term for those conceived for 3 to 5 years of development.
- 02** Plot the new proposals onto the timeline. Think about the full range of activities that must happen in order for a change to be implemented. Discuss in the group the initial steps that are required to “seed” an idea beforehand its implementation. Create a kind of tree diagram where each branch belongs to a change or new solution.
- 03** Review your initial order of solutions and compare it with your institution’s capabilities, finances and resources. If necessary, reorder the sticky notes on the timeline.
- 04** Be critical. Does one solution build upon another in a logical order? Why do certain solutions follow other ones? Describe the branches off the main timeline. Think how these branches contribute to the overall system of solutions and how they create value for the students, educators and the institution.
- 05** Elaborate your Roadmap graphically and share the visualisation with your colleagues and other stakeholders. If necessary, integrate their feedback into the map.

#### OUTCOME

The Roadmap offers a timeline for your curriculum implementation, as well as other associated changes in your pedagogical framework.

#### FROM HERE TO THE NEXT STEP

The Roadmap is a guide and check list for the implementation phase of your project. After Pilot Testing your new curriculum in the first year, the Strategy Roadmap should be reviewed and updated.

# Conceiving the learning

## Recommended tools:

### Emergence

*Intent Statement,  
Benchmarking*

### Empathy

*Interest Group  
Discussion*

### Experimentation

*Brainwriting,  
Insight Clustering*

### Elaboration

*Concept Mind Map,  
Concept Prototype*

### Exposition

*Presentation Board*

### Extension

*Implementation Plan*



# Developing Contents

Design Thinking can provide a rich context for learning and for developing educational contents. Contents may be varied, including printed materials such as books and newspapers, videos, television, electronic content presented via computers and mobile devices, and live performances, such as classes, games or events.

There are also several approaches to explain the design and development processes of the content development. But above all, in learning contents development, the focus should be on the construction of meaningful learning experiences that simultaneously engage and challenge students.

Design Thinking can be the primary approach to develop educational contents as it focuses on developing educators' and students' creative confidence engaging them in challenges that focus on promoting empathy, developing attitudes toward action, boosting ideation, increasing metacognitive awareness and fostering active critical problem solving. It provides a relevant contribution to the construction of meaningful experiences for the educator and the learner.

The following objectives and outcomes need to be achieved when creating and designing educational contents:

- ➔ Setting the learner experience;
- ➔ Defining the learning objectives and outcomes;
- ➔ Outlining the theme and topics to be addressed (topics flow);
- ➔ Design of the lessons and activities;
- ➔ Assessment definition.

*Intention:*

---

*Opportunities:*

---

*New Value:*

---

*Public:*

---

*Risks:*

---

# Intent Statement

Most of the time the decision to develop new content is based on a hunch, and feeling the necessity for change and improvement. Those feelings are a result of your experience as an educator. Sometimes however it is not easy to describe those early ideas in words and your concepts have to 'mature'. The elaboration of an Intent Statement helps you to clarify your determination for innovative content development. It also guides you when deciding what to produce to support the learning experience: a handbook, a card game, or a video.



#### DURATION

2-3 hours.



#### PARTICIPANTS

Core team and anyone who wants to discuss your ideas.



#### MATERIAL

A4 or A3 sheet of paper, or a computer.



#### ADVICE

Even though your initial ideas are not directly useful or applicable, they are always an opportunity to learn and build upon. It is very important to find common motivation between the participants.



#### ORIGIN

Adapted from Kumar, 2013.

#### ACTIONS

- 01** Plan a get together and discuss your ideas with some colleagues in an informal setting. Try to find someone who has similar ideas and discuss your hunches more deeply.
- 02** Form your core team for the project after a week long incubation phase. Describe your intention to innovate educational content. What is the problem? What should be the goal? What would be nice to have?
- 03** Discuss several possibilities within your team. Find a shared point of view and a common motivation.
- 04** Write your innovation intent using the following framework: What is your intention? What are the opportunities? What is the new value you are creating? What is your student target-group? What are the risks?
- 05** Elaborate on the answers to those topics in a clear and concise way. Stick the A4 paper (written by hand or printed) on the wall of your project room.

#### OUTCOME

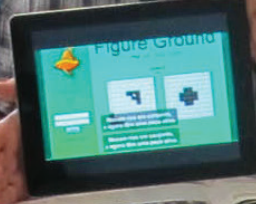
The outcomes of this tool are mature ideas to start a project, and a concise statement of your innovation intent for the development of new content. Going through the process of writing an Intent Statement is also an opportunity to select the members of your core team.

#### FROM HERE TO THE NEXT STEP

Clarifying and formulating your initial ideas is the beginning for your project: the development of educational content. The next tool, the Benchmarking, should be applied in parallel to the Intent Statement as it helps you to verify the relevance of your initial ideas.



EVOLUTION 6<sup>2</sup>



# Benchmarking



**Benchmarking is a tool to identify the characteristics of best practices in your project field, thus the comparison of existing educational contents. Benchmarking clarifies where you are at the moment and allows you to set goals at the beginning of the project. It is essentially an analytical tool providing useful information to be applied later. Beware, it can sometimes be quite difficult to obtain the right information.**



#### DURATION

Preparation can take several days but compiling all the information should not take more than 2-3 hours.



#### PARTICIPANTS

Your core research team.



#### MATERIAL

A1 sheet of paper, black markers, and spreadsheet software.



#### ADVICE

Do not try to be too detailed, compare only those factors which are essential to your project.



#### ORIGIN

Benchmarking is a standard tool used in Design, Engineering and Product Development.

#### ACTIONS

- 01** Write down your initial ideas and objectives about the project of “Content Development” you want to start. Setting goals will help you to select which HEIs or VETs institutions will most likely provide useful information to you.
- 02** Gather detailed information from those (leading) HEIs or VETs institutions, about teaching and learning content and didactical material for a specific curriculum unit (CU) or course, within a similar context as your institution.
- 03** Summarise the information and map important topics in a simple matrix structure. Place the HEI's or VET's name and a short description of the educational material in the header of each column. Place a short description of the topic or characteristic at the beginning of each row. Match amount facts first and end with a qualitative comparison of differences.
- 04** You should now have a comprehensive table with accurate information to help your team to set the goals for the project and define quantitative and/or qualitative requirements for the outcome.

#### OUTCOME

A comprehensive set of quantitative and qualitative requirements and data as a decision support for your Intent Statement.

#### FROM HERE TO THE NEXT STEP

The results of Benchmarking are part of the requirements for your project and they can be used with a variety of other tools during the later stages of the project.





# Interest Group Discussion



Content development is a complicated endeavour. Many involved in your educational environment have strong personal opinions about the crucial issues regarding the content of a course. Organising a debate where colleagues and stakeholders can express opinions and concerns based on their own experiences and beliefs can wield a lot of insight on the topic. An interest group discussion gives you a good overview of the topic under study.



#### DURATION

2-3 hours.



#### PARTICIPANTS

2-3 educators of your core team, 1 moderator, 7 - 15 guests (educators from your and other HEI or VET Institutions, perhaps some students).



#### MATERIAL

A comfortable space prepared for informal conversations, white board, pens and markers.



#### ADVICE

A group discussion does not substitute individual interviews or other more focussed research methods.



#### ORIGIN

D-Think (2016), adapted from a regular Focus Group Interview.

#### ACTIONS

- 01** Select a group of participants which you might expect to positively contribute to the discussion. You might prepare a Stakeholder Map to secure a multivisionary input.
- 02** Prepare a space fit for an informal conversation where everybody feels comfortable. Be a gentle moderator and keep everybody on track and encourage discussion, but do not forget: this is not a Focus Group Interview.
- 03** Eventually, if too many issues are discussed at the same time you can divide the group into smaller teams.
- 04** Take notes of the important quotes and topics in order to get a clear overview of what is involved in this particular content development. There is no need to record or film the event.
- 05** Prepare the means to keep in touch with the participants and to inform them about the course of the project.

#### OUTCOME

A good overview of the important topics and issues regarding the scope and the educational content you are planning to develop.

#### FROM HERE TO THE NEXT STEP

The conclusions of this tool can be used in all tools in further stages of the project.



WIPY TRIABLE

WELLBANK  
PRESENTING  
NEW SD  
STRATEGIES

PIZZLE  
PRICING

NETWORK

IMPACT

STUDENT  
FIRST  
TRUCKIT

STUDENT  
AMBIASSADORS

TRY WITH  
AMERICAN  
EMPLOYEES

WGO  
TRUCKIT  
STRATEGIES

TRUCKIT

SUPPLER  
PACKAGE

COLO  
SWITCHCASE

Product  
out of  
Front

TACKLING  
RE-DESIGN

RECYCLE  
PACKAGE

COLO  
SEATBELT

post on  
board

# Brainwriting



**Brainwriting is a tool for idea generation in groups. It is a variant of Brainstorming. Whereas in a Brainstorm session you need a facilitator, in a Brainwriting session you can work independently as a group. Ideas are not spoken aloud, but written in silence. If you write ideas on sticky notes, you can cluster similar ideas between the first and the second round.**



#### DURATION

30 - 40 min.



#### PARTICIPANTS

A multi-disciplinary group: 5-9 persons with an open and constructive mindset.



#### MATERIAL

White board or a free wall, sticky notes of the same colour, and black markers.



#### ADVICE

In traditional Brainstorming sessions more extroverted people tend to dominate with their verbal contributions. Being intentionally silent, Brainwriting gives quiet people an opportunity to generate ideas without having to be exposed to the whole group.



#### ORIGIN

Adapted from Alex Osborn, 1953.

#### ACTIONS

**01**

Explain the rules of Brainwriting to the participants: 1. Every idea is welcome. 2. Build on the ideas of others. 3. Think in extreme perspectives. 4. Hold your judgment, 5. Have fun! Start the session with a topic, a question or an image (based on your Intent Statement) put on the wall/whiteboard, where you will stick notes.

**02**

All participants get sticky notes and a black marker. Everyone should write in capital letters so the ideas are easy to read. It is important that every participant uses the same material to make it harder to remember who wrote which idea. The most important rule of a Brainwriting is that all ideas belong to everyone in the team!

**03**

Start by giving your team 10 minutes to generate ideas such as Braindumping, which means, to write on the sticky notes just about any (first) ideas that come to your mind, usually the most common and stereotyped ones. It is important to write them down, so that you can later build upon them when aiming for more original ideas.

**04**

In the following 10 minutes of Brainwriting, use the results of the Interest Group Discussion as a stimulus for more ideas.

**05**

For the last 10 minutes, force special stimuli, kind of “trigger questions” which help the participants to think out-of-the-box and in extreme scenarios. A trigger question can be: “What kind of educational material we would need if the classroom would not have walls?” or “How could we work with students if they could not sit down in the class?” Uncommon situations and extreme scenarios often trigger novel thoughts.

#### OUTCOME

More than 100 ideas for educational contents regarding your Intent Statement.

#### FROM HERE TO THE NEXT STEP

After the divergent phase of the Brainwriting a convergent phase has to follow, where ideas are categorised and selected.

Analogies

EDUCATIONAL WORKSHOP FOR COMPANIES PROMOTION

INTERNATIONAL 1/YEAR EVENT

Company Visits

EVENTS

CREATE PLEX

Sales pitch (topics)

ing storage of an.

Connect with businesses

GET SPONSORS

VENUE FOR "ANGEL INVESTORS"

PRO BONO CASES

What incentives for companies

HELP WITH GETTING FUNDED

History of success of other thesis makers

What is acceptable price for thesis?

FUNDING

CHARITY ORGANS.

bidding?

SOCIAL MEDIA ASPECT

ELABORATION OF THESIS

thesis database

Students own ideas

THESIS

credibility / level of research?

FILTERING FOR INTEREST

COLLABORATION W LAUREA

"pool of topics"

ONLINE SERVICE

VIRTUAL TREND LEARNING SPOT

THESIS TUTOR

RATING OF TUTORS

GROUP TUTOR

THESIS ON DELIVERY

LONG-TERM RELATIONS

integr. to 3rd parties?

OTHER CONTENT FOR CORPORAT.

CONCEPT

FREE PICK OF TUTOR

DATA SECURITY

LEGAL + SECURITY

ROAD-MAP

piloting & commit. of partners

inter-national or domestic?

ONLINE COMMUNITY

ENABLING PAYMENTS

FREE-MENT TEMPLATE

Intellectual Property

PRIVACY?

3. value propos.

DEMAND

THESIS TUTORS PROCESS BECOMES BETTER

SCALING?

HELP WITH MAKING AGREEMENTS

NDA topics

levels of work

CLEAR BUZ MODELS

CREATE JOB MARKET

SELLING PROMOTION OF THE S.

online iwisd.

**INTENT STATEMENT**

**INTENTION:**  
MATCHING THESIS MAKERS WITH COMPANIES/ORGANIZATIONS

**OPPORTUNITIES:** RESEARCHERS GET COMPENSATION, A TONIC OF RESEARCH AND COMPANY RESOURCES AND JOB OPPORTUNITIES. COMPANIES RECEIVE CUTTING-EDGE AND INNOVATIVE IDEAS TO IMPROVE THEIR BUSINESS.

**NEW VALUE:**  
A NEW ONLINE SERVICE TO MATCH RESEARCHERS AND COMPANIES

**PUBLIC TARGET GROUP:**  
STUDENTS, COMPANIES/ORGANIZATIONS, EDUCATIONAL INSTITUTIONS

**RISKS:**  
NOT ENOUGH RESOURCES TO MAKE IT VIABLE, THE COMPANIES ARE NOT INTERESTED

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SPONSORS INSIDE COMPANIES

INTERNATIONAL OPPORTUNITIES

PARTNER UNIVS.

RECEIVE COM

To help them find companies! Thesis work

So M L

GOOD DE AG

publ part

GET A JOB

# Insight Clustering



The tool Insight Clustering is connected to Brainwriting. It helps to move from a divergent phase to a convergent phase by categorising ideas and, at the same time, checking if the idea generation has been flexible (which means with ideas in several directions and thematic areas).



#### DURATION

20 min.



#### PARTICIPANTS

The same participants as in the Brainwriting session.



#### MATERIAL

White board or a free wall, sticky notes of the same colour, black markers, and coloured sticky points.



#### ADVICE

Insight Clustering is not just an act of organising sticky notes. The selection of ideas can be discussed and eventually new ideas can still be added during this process.



#### ORIGIN

Author unknown.

#### ACTIONS

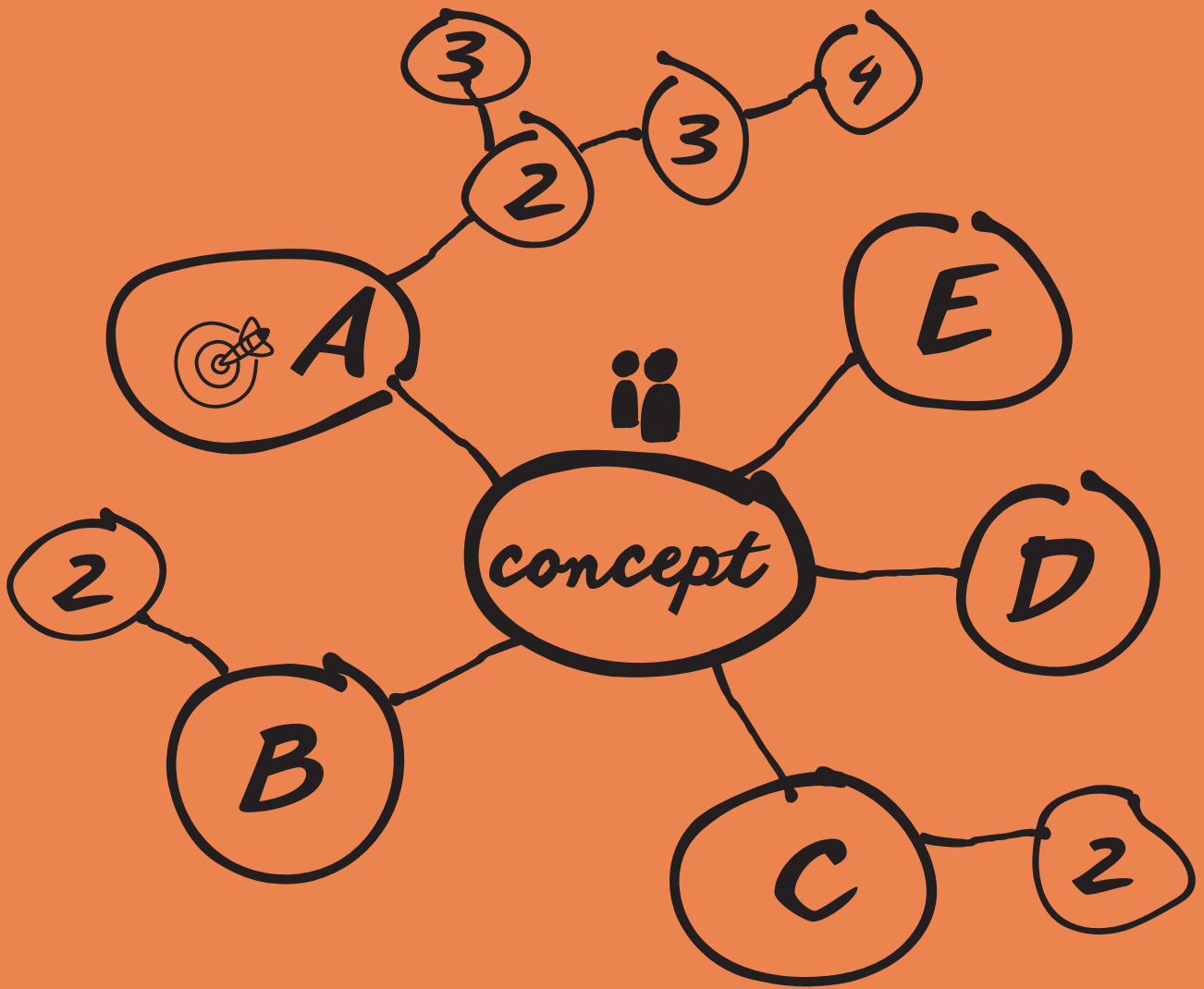
- 01** After reading (and understanding) all the generated ideas, start to sort them in clusters based on relationships. Some ideas will be redundant but this is normal, do not discard them. It is helpful to consider similar ideas (or even repeated ones) since it is an indication of thought tendencies in the group.
- 02** Create a sticky-note “parking place” close to the idea wall where you “park” the ideas which do not fit naturally in any category.
- 03** Once all the ideas are clustered, find names for the affinity clusters. Write those categories your team agrees upon near each cluster on a sticky note of a different colour.
- 04** Apply now a simple version of the Dot Voting technique, explained in scenario 2 of this toolkit. Every participant gets three or four dots, which can be distributed between the idea clusters. Fix the sticky points on the note with the category name. You can find the criteria for your selection in the Intent Statement. Follow your intuition and personal motivation in voting.

#### OUTCOME

A selection of several idea clusters, which can be developed to a coherent, compelling new concept.

#### FROM HERE TO THE NEXT STEP

Take between five and seven of the most voted for clusters with you to the next phase, the elaboration of a Concept Mindmap.



# Concept Mind Map

The Concept Mind Map helps to develop the best ideas from the Brainwriting and Insight Clustering sessions. It aims to elaborate detailed solutions and to transform the several idea clusters into coherent concepts. The Map, showing relationship and hierarchies, is a tool for the team to have a conversation about which potential solutions would be more interesting to develop. You can build multiple concepts through the Concept Mind Map, so you can, at the end, choose the ones you want to present and implement. The process of the Concept Mind Map and its rules are the same as in the Opportunity Mind Map (see scenario 2).



#### DURATION

2 - 3 hours.



#### PARTICIPANTS

The same participants as in the Brainwriting and Insight Clustering sessions.



#### MATERIAL

Scenario paper, black and colour markers.



#### ADVICE

As the Opportunity Map, the Concept Mind Map is a collective tool. You can include a graphic facilitator in the process so your map will be visually more attractive, but it is also important that everybody in your team participates actively in the elaboration of the map.



#### ORIGIN

D-Think Research Group, 2016, adapt. of the Mind Map method from Tony Buzan, 1990s.

#### ACTIONS

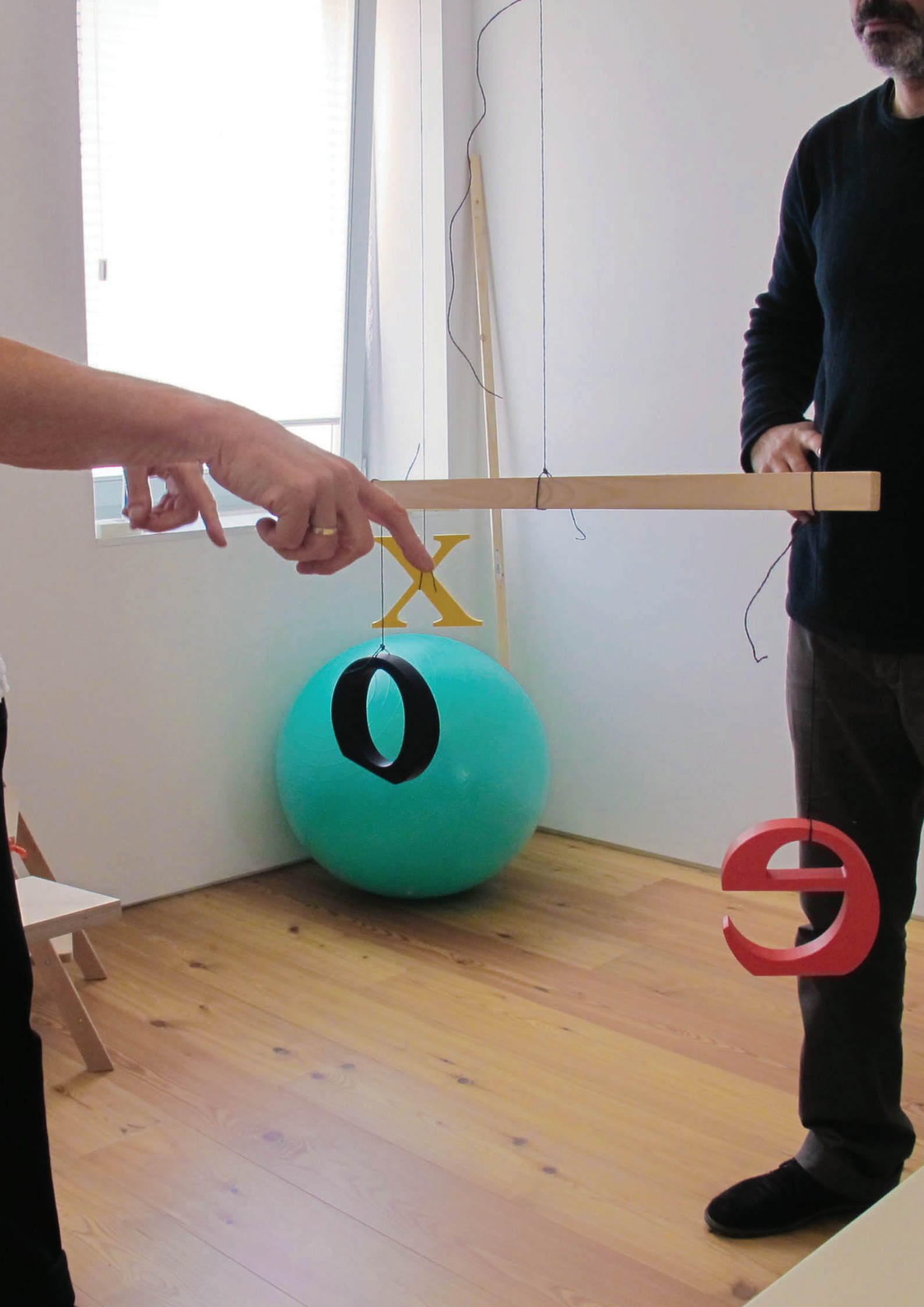
- 01** Define and write (or draw) your main topic (for example: DIDACTIC MATERIAL) in the centre of a blank sheet (A0 or even bigger).
- 02** Write the category name of between five and seven idea clusters around the topic in the centre. Differentiate these categories by size, colour or another graphic expression.
- 03** Based on the idea clusters, expand each category with associations (key words) and sketches (symbols) in the visual logic of a tree or a cell. Discuss the ideas in your team and build on each others' thoughts.
- 04** Refine the map based on the Benchmarking and Interest Group results. Make connections between several topics and branches. Use colours to mark important associations.
- 05** Analyse the Concept Mind Map and evaluate the potential of each concept branch. After a short discussion, determine which concepts from the map (two or three) are most interesting for production.

#### OUTCOME

Collection of concepts organised around a main topic and connected between them.

#### FROM HERE TO THE NEXT STEP

After taking a decision about which concepts offer most potential to produce interesting and efficient educational content, you should embody the concepts in tangible forms to get feedback from colleagues and/or students.





# Concept Prototype

**Concept Prototypes are visual, material and experiential manifestations of concepts. They are not final or solution prototypes but rapid and low cost materialisations. In concept prototyping activities you bring your concepts to life by giving them form, details and graphic expression. They allow you to learn more about your concept and the final educational content you want to produce. The idea of prototyping is not to put all your best ideas into one version of prototype. Instead, explore different visual and material solutions and build on the differences. By the end you may not have to choose one; the last solution of a concept could combine several of the best elements.**

## 01 ACTIONS

Review the chosen concepts from your Concept Mind Map and identify those that needs to be tested in tangible forms. Determine the kind of readily available or low cost materials you will need to create crude prototypes.

**02** Determine if the prototypes will be testing visual and material solutions of a concept, or process experiences between students, or a combination of both. What type of educational experience do you want to create? You can also include Role Play in the prototyping process by using Play Mobil puppets, or similar.

**03** Create multiple versions of prototypes from each chosen concept. Play with your prototypes, do not perceive them as final objects. Show them to others, outside the team and ask for critical feedback. Return to the prototypes and improve them or create other quick prototypes.

**04** Summarise your key learning from testing and feedback. Write down how the prototypes evolved from their initial manifestations to a final desired appearance. Make a team decision about the concepts to be produced.



### DURATION

2–5 hours, with some time for getting feedback in between.



### PARTICIPANTS

Two or three educators from your core team and possibly two guests with prototyping skills. Some other colleagues and students for getting feedback.



### MATERIAL

Low cost material, such as paper, cartoon from empty food packages, scissors, markers, etc.



### ADVICE

The most important rule of prototyping is to try out several approaches of materialisation of the same concept.



### ORIGIN

Rapid Prototyping is a standard tool used in Design; Compare Kumar, 2013.

## OUTCOME

As the Concept Prototype is based on the principle “building to learn”, the outcome of this tool is what you learned about each of your chosen concepts. You will have build many prototypes.

## FROM HERE TO THE NEXT STEP

After the final decision about which concept goes further, you have start to think how to present your results to colleagues and/or superiors.



Human rights, 2016  
publicação  
impressão digital  
Projeto II — Comunicação



Humans (right?), 2016  
publicação  
impressão digital  
Projeto II — Comunicação



Alfred Hitchcock, 2016  
publicação  
impressão digital  
Projeto I — Comunicação

### Catarina da Rosária

...ta e criada no Porto, sou uma designer gráfica portuguesa. ... 21 anos e iniciei o meu percurso nesta área em 2012. Após ... ensino secundário feito na área de Economia, decidi enveredar ... pelo ramo do design, algo que me interessa desde criança. Sou ... licenciada em Design de Comunicação pela Escola Superior de ... Artes e Design. Recentemente, realizei um projeto que foi ... selecionado para ser exposto na XIX Bienal de Cerveira. A minha ... intenção é prosseguir os estudos na área do design gráfico, ... preferencialmente, um Mestrado mais focado no design editorial.



# Presentation Board

A Presentation Board is one of the most popular tools in Design when the purpose is to create visual aids for a presentation. Traditionally Presentation Boards are rigid card boards with hand drawn/written or printed images stuck on. Nowadays a Presentation Board can also be presented as a digital image, projected on a screen or wall.

## 01 ACTIONS

Summarise the key characteristics of your new educational concept. Go back to your Intent Statement and identify the following topics:  
 Intention/Need: What is the unmet educational need you are addressing? New value: How does the new educational content benefit educators and students (the teaching and learning process)?  
 Target-group: How would the new content enrich the relationship between the institution, the educators and the students?  
 Risks: What are the risks in the implementation phase? What are the production costs?

## 02

Think how to present your new concept and the respective material solutions. Storytelling can help you to find an eye catching visual idea to communicate the new educational content. Visualise the story and its content through simple sketches.

## 03

Once satisfied with a visual expression of the new didactic concept, make a more elaborated drawing/map or use a graphic software for a digital illustration.



### DURATION

2-3 hours.



### PARTICIPANTS

Your core project team and an invited designer or educator of visual arts.



### MATERIAL

Cardboard, paperboard or falcon board as a rigid display board as a support. A big sheet of paper to draw and write by hand, or a computer and printer to print digitally produced material.



### ADVICE

According to the purpose, Presentation Boards can have different visual and material quality: from rough sketches on a simple card board to elaborated print illustrations.



### ORIGIN

Author unknown; a common tool in design.

## 04

Print your presentation poster and stick it on cardboard. Present the concept to your audience using the final rigid Presentation Board to support your verbal presentation. The advantage of having a physical rigid support is the possibility of transporting it easily from room to room, and leaving it for further exposition.

### OUTCOME

The elaboration of your Presentation Board will help you to synthesise the concept of the new educational content and understand its value. The Presentation Board is a great support for communication and further exposition of your new content.

### FROM HERE TO THE NEXT STEP

Once having obtained positive feedback from your colleagues after your presentation, you can start to develop an Implementation Plan.

CHALLENGES →  
INITIATIVES ↓

material  
production

...

classroom  
activities

TYPE OF  
MATERIAL

...

...

performance  
in school spaces

...

...

# Implementation Plan

This tool of the Extension phase serves to determine the implementation issues and to create a task plan. A well-designed Implementation Plan provides a structure for the execution of your new educational concept and content solutions.



#### DURATION

2 - 3 hours.



#### PARTICIPANTS

Some participants from your core team.



#### MATERIAL

White board or a big sheet of paper, sticky notes, pens and markers.



#### ADVICE

An Implementation Plan gives focus to the process by defining challenges. You can produce new designed educational contents without a plan, but it will probably take longer and it will be difficult to count on support from colleagues.



#### ORIGIN

Adapted from Kumar, 2013

## 01 ACTIONS

Based on the characteristics of the developed concepts, and related to the results of the tested solutions, write down on sticky notes, the different tasks needed to produce new educational content.

## 02

Analyse all the tasks and create two headings, for example “Challenges” and “Initiatives”. Write both topics on one axis of the matrix, subdividing both with several concrete challenges and initiatives. “Challenges” could be ‘Produce Material’, ‘Hire People’, or ‘Manage Relationships with Partners’. The categories of “Initiatives” could be ‘Institutional Relevance’, ‘Classroom Activities’ or ‘Performances in School Spaces’.

## 03

Arrange the completed sticky notes on the chart and fill any empty spaces in the rows and columns with other tasks necessary to put the new concept into practice. For example: Which kind of material you have to produce: 1.) with institutional relevance, 2.) for classroom activities, 3.) for performances in different school spaces?

## 04

Reflect and discuss how your HEI or VET institution will address the key implementation challenges. Make sure that the representatives from each involved department (researcher, administration, teaching staff, designers, etc.) are present at this evaluation. Write a description of all implementation challenges and set tasks per each stakeholder.

## OUTCOME

An Implementation Plan of the new educational concept and its material artefacts, identifying tasks, resources needed to fulfil the expected challenges, and a timeframe.

## FROM HERE TO THE NEXT STEP

A Implementation Plan is not a static matrix. Since you used sticky notes for each task, you can substitute or complement the activities for the implementation during the process itself. The production of new content will lead to a Pilot Test, followed by a tuning process, based on feedback from your students and colleagues. A Design Thinking process is never really finalised as everything is continuously changing and improving!

# Conceiving the learning

## Recommended tools:

### **Emergence**

*Benchmarking,  
Opportunity Mind Map*

### **Empathy**

*Interview*

### **Experimentation**

*New Perspectives,  
Concept Analogies*

### **Elaboration**

*Assessment Canvas*

### **Exposition**

*Vision Statement*

### **Extension**

*Print Media,  
Feedback Map*

# Setting the Assessment



Assessment is a systematic approach to collect, analyse and review data in order to improve learning. It is vital because it reveals what, where and how much, students are learning, and it gives insight into how one might programme, refine and polish programme, curricula and contents to promote learning. The assessment or evaluation is therefore a central element in education, which can affect decisions about results, assignment, improvements, instructional needs, curriculum, and, in some cases, even funding and certifications. One of the main challenges in designing and creating learning experiences is to think about and define what you are trying to accomplish and to ensure not only a combination of the content and the instructional methods, but also the assessment. Well-designed assessments can inspire active learning especially when the assessment delivery is innovative and engaging. The Design Thinking process can help to improve assessment practices. There are several tools available, which allow, individually or in groups, through peer and/or self-assessment, the promotion of several key skills, such as reflection, critical thinking and self-awareness — as well as giving students insight into the assessment process.

When applying Design Thinking one should take some time to think why, what and how one is going to assess the students. It can help validate the intended skills and knowledge that are assessed, and it could open up new options for different ways to assess the students, some of which may be more efficient and effective than the current methods.

One can start for example, by analysing the current assessment practices. The following objectives and information are needed to analyse when defining or revising assessment:

- ➔ What are your methods to assess the students?
- ➔ Is each one of those assessment methods worth the effort?
- ➔ Do you discuss your assessment methods/practices with your students or colleagues?
- ➔ Can you describe how the assessment methods you currently use are aligned to the expected learning outcomes?
- ➔ With what skills and capabilities do you want your students to conclude the course? Are you focusing on longer-term outcomes?
- ➔ Approximately how much does each assessment process cost students and staff in terms of time taken and resources used?
- ➔ What criteria do you use? Are they yours, or do you involve students themselves in formulating them?
- ➔ Are the students aware of the criteria? Do they comprehend them?
- ➔ Is the feedback you give to students related to your assessment criteria?
- ➔ How well does the feedback students receive on assessed work help them to know how they are doing? Does the assessment improve their learning experiences?
- ➔ How much guidance do students get in the chosen assessment methods?
- ➔ What kind of assessment students enjoy and why?
- ➔ How do you know that the students find your assessments useful?
- ➔ In what ways do assessments help the student to learn?
- ➔ In what way does the assessment help you to learn?



André  
idade: 28  
solteiro  
Sem filhos  
EXTRAORDINÁRIO  
F.D.S. COSTUMAS  
SAIR

Hobbies  
Desport  
Música  
Carrão  
gimnasia  
Hábitos

QUEM?  
??

HOBBIE  
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HSH  
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42  
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CALIFÓRNI

QUEM?  
Who?

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TIG  
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estudantes  
e  
música

mento de bcl

estudantes de m

DEFICIÊNCIA  
FÍSICA

PR

M Nutens



# Benchmarking



As we have seen in scenario 3.2, Benchmarking is a tool to identify the characteristics of the best practises in your project field, in this case comparing the existing assessment approaches and methods. Benchmarking shows where you are at the moment and allows you to set goals at the beginning of the project.

- 01 ACTIONS**  
Write down your initial ideas and objectives about the project of “Setting Assessment”. Setting goals will help you to select which HEIs or VETs institutions are most likely to provide useful information to you.
- 02** Gather detailed information about assessment practices and methods from the (leading) HEIs or VETs institutions within a similar context as your institution.
- 03** Summarise the information and map important topics in a simple matrix structure. Place the HEI’s or VET’s institution’s names and a short description of the assessment approach in the header of each column. Place a short description of the topic or characteristic at the beginning of each row. Match quantitative facts first and end with a qualitative comparison of differences.
- 04** You should now have a comprehensive table with accurate information to help your team to set the goals for the project and to define quantitative and/or qualitative requirements for the outcome.



#### DURATION

Preparation can take several days but compiling all the information should not take more than 2–3 hours.



#### PARTICIPANTS

Your core project team.



#### MATERIAL

A1 sheet, black markers and spreadsheet software.



#### ADVICE

Do not try to be too detailed, focus on the ‘best practice’. Compare only the factors which are essential to your project. Do not clutter your matrix with unnecessary information.



#### ORIGIN

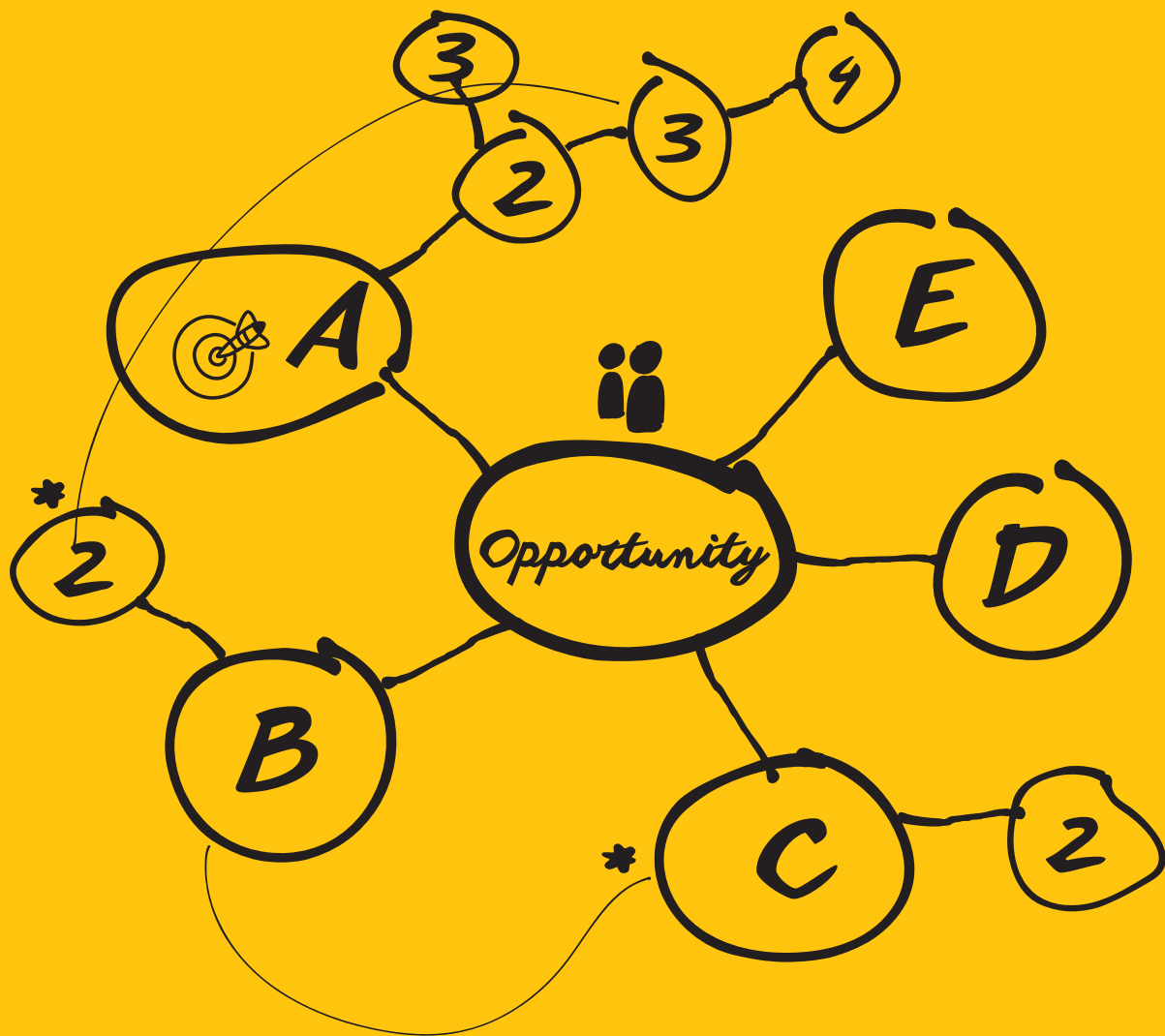
Benchmarking is a standard tool used in Design, Engineering and Product Development.

#### OUTCOME

A comprehensive set of quantitative and qualitative requirements and data about assessment approaches in other institutions and a set of targets and requirements for your project.

#### FROM HERE TO THE NEXT STEP

The results of Benchmarking are part of the requirements for your project and they can be used in a variety of other tools during the later stages of the project.



# Opportunity Mind Map



The Opportunity Mind Map is a Mind Map that helps to identify opportunities for innovation through the visual organisation of selected information. The main objective is to create an overview of a thematic, in this case of everything related to the curricula: knowledge domain contents, identified problems, the learners profile, pedagogical practices, etc. The data visualisation will help to reveal opportunities and guidelines for the setting up or revision of the curriculum. The radial organisation of the data will help to find connections between information, upcoming ideas and opportunities.



#### DURATION

60 min. + 30 min. + ...



#### PARTICIPANTS

Between four and seven educators.



#### MATERIAL

Scenario paper (sheet which corresponds to A0 or more), black markers and colour markers



#### ADVICE

An Opportunity Mind Map can be built over several work sessions.



#### ORIGIN

Mindshake Evolution 6 model, 2015, adapt. Of the Mind Map method from Tony Buzan, 1990s.

#### ACTIONS

- 01** Write (or draw) your topic ASSESSMENT in the centre of a blank sheet (A0 or bigger).
- 02** Choose between five and seven main associations which describe a category (methods, objectives, criteria, emotions, etc.) and put them around the topic in the centre. Identify these categories by size, colour or another graphic expression.
- 03** Expand the map with associations (key words) and sketches (symbols) in the visual logic of a tree or a cell. Make connections between the several branches. Use colours throughout to mark important information and ideas.
- 04** After 60 minutes of work, leave the map and let the ideas incubate. Also look for complementary information and images.
- 05** Return to the map and complete it with new information and insights. Repeat this several times. Mark the most interesting opportunities for an innovation of your assessment practices.

#### OUTCOME

By the end of the sessions you will have an enormous Map with organised information and ideas about the topic 'assessment'. The group will have discussed and learned a lot about new assessment approaches. You will have discovered opportunities to work on the development of new assessment methods and tools.

#### FROM HERE TO THE NEXT STEP

Having identified the area you want to revise in your assessment practices, in the Empathy phase you will try to better understand the perception and emotions of your students, related to their assessment experiences.



# Interview



An unstructured interview is a very efficient and flexible way to get information about the perceptions, the opinions and the motivation of the interviewees towards the topics of your study. An unstructured interview allows you to adapt to the responses of the interviewees.



#### DURATION

60 - 90 min with preparation.



#### PARTICIPANTS

3-6 educators, around 30 students and 10 lecturers.



#### MATERIAL

Paper and pens, and eventually audio (or video) recording devices.



#### ADVICE

Remember that you are interested in the interviewee's point of view. Try not to impose answers on your interviewees.



#### ORIGIN

Author unknown; commonly used in qualitative Social Research.

## 01 ACTIONS

Prepare a set of questions based on the results of the Opportunity Mind Map and on complementary research about assessment strategies. Carefully select the participants (students and educators) you would like to interview, according to the study's objectives.

Prepare a set of questions based on the results of the Opportunity Mind Map and on complementary research about assessment strategies. Carefully select the participants (students and educators) you would like to interview, according to the study's objectives.

You can take notes during a short interview, however longer interviews, for which you want a deeper analysis, are usually recorded and afterwards transcribed.

Analyse your transcripts. Special software such as MAXADA or QDA Miner are available to assist for deeper analyses of qualitative data, if you so wish.

## 05

Bring all your notes together and validate the answers of the interviewed students. Also share what you have observed during the interviews. Write down your conclusions and new insights. Write down your conclusions and new insights.

## OUTCOME

New insights and nuances about the learning and assessment needs, and the viewpoint of your students.

## FROM HERE TO THE NEXT STEP

The Interview helped you to gain a better understanding about the particular assessment needs of your students and of educators. Based on the new insights you had, you can start to look for new assessment concepts and methods.

ORGANIZAÇÃO  
DE IDEIAS

- INICIO DA GESTÃO  
DE PROJETO -

TIME MANHÃ

CRIAR SITUA.  
DE RELAÇÃO  
DO PROJECTO

ETO  
CO  
DUNHAS  
TÉCNICAS

# ESTRUTURA

SEMESTRES

FAIL FASTER.  
LEARN FASTER  
PROPORCIONAR FALHAS

EXERCÍCIOS  
BÁSICOS

1 DISCIPLINA  
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PUBLICAÇÃO  
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ONLINE  
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SOM SEMESTRE  
- MICROS  
- MESA MISTURA  
- AUDIO IO DIGITAL  
- SOFTWARE

3D  
MODELAGEM  
OBJECTOS  
PERSONAGENS  
INTERACÇÃO  
ELECT + PERIF  
ANIMAÇÃO

ES  
UNICAS

DE ANIMAÇÃO  
EFFECTS

A. VIDEO  
- TRAMOTICA  
FILMICA  
- CAMARAS  
- ETC

# Current to New Perspectives

**Current to New Perspectives is a Brainwriting tool which you can apply to question the existing assessment practices and strategies; examining possibilities of new assessment processes and analysing different beliefs about learning. It is an indispensable step for exploring different viewpoints and opportunities for novel pedagogical frameworks. It is essential that you and your team have a good understanding of the latest pedagogical trends. This is a tool for divergent thinking. It is important to be creative and to apply multiple perspectives.**



#### **DURATION**

2 hours.



#### **PARTICIPANTS**

Your core development team.



#### **MATERIAL**

White board, pens and markers, and sticky notes.



#### **ADVICE**

It is important to include in your core research team those colleagues who have the authority to decide on the change which involves implementing a novel assessment framework.



#### **ORIGIN**

Adapted from tools described by Kumar V. (From... To Exploration) and IDEO (How Might We?).

#### **ACTIONS**

- 01** Single out the topics (principles, values, beliefs, teaching practices, strategies or learning processes) which are essential and need to be updated for creating a new assessment framework.
- 02** Based on the outcome from the Emergence phase, identify the most important trends for building a novel assessment framework.
- 03** Describe your current approach or perspective for each of the topics.
- 04** According to what you learned by analysing and discussing the results from the Benchmarking, Opportunity Mapping and the Interviews for each of the topics, rewrite a different outcome for each one, according to what is necessary and what is possible. You can use a simple matrix to get a better overview of the topics in question.
- 05** Discuss how the conclusions offer you new insights on building a new strategy for the assessment in your HEI or VET institution.

#### **OUTCOME**

Insights to create several (different and necessary) scenarios about evaluating your students' learning processes/results.

#### **FROM HERE TO THE NEXT STEP**

“Current to New Perspectives” is a kind of Idea Generation so, in the next phase, those new Ideas/Perspectives have to be developed, which can be done through Concept Analogies.

# ESSENCE: Assessment

	LIST THINGS THAT <i>assess</i> (PRODUCTION OF ANALOGIES)	DESCRIBE HOW THEY <i>evaluate</i> (ASSOCIATIONS FOR ANALOGIES)	TRANSFER ELEMENTS OF <i>assessment</i> (SELECTED)
PERS	I'm an  <i>optimist!</i>	I value <i>experimentation</i> I find <i>mistakes</i> <i>important, ...</i>	
ECT	<i>athletes</i> 	<i>cup, medal,</i> <i>champions league,</i> <i>contests, ...</i>	
SYMBOLIC	<i>emojis</i> 	<i>fun</i> <i>express emotions</i> <i>...</i>	<i>visual</i> <i>evaluation</i> <i>code</i>
FANTASY	<i>scan</i> 	<i>read minds,</i> <i>read learning</i> <i>outcomes...</i>	



# Concept Analogies

**Complementary to Brainstorming/Brainwriting, Concept Analogies is a powerful way to generate original ideas by transforming the uncommon into the familiar and vice versa.**



#### **DURATION**

90 min.



#### **PARTICIPANTS**

Your core project team and two guests from other knowledge domains.



#### **MATERIAL**

White board or A1 paper sheet, pens and markers.



#### **ADVICE**

Thinking in analogies is one of the most difficult processes of Design Thinking, but at the same time the one that leads to the most original ideas!



#### **ORIGIN**

Concept Analogies are a part of the Creative Problem Solving method SYNECTICS, developed by George M. Prince and William J. J. Gordon in the 1950s.

#### **ACTIONS**

- 01** Produce analogies on a white board or on paper about the essence of your 'assessment' project. There are 4 types of analogies: 1. Personal Analogy (a personification with the concept: if I were 'assessment', how would I be?), 2. Direct Analogy (a comparison to something existing in the real world, for example a Balance to assess a persons' weight, or the evaluation in a video game), 3. Symbolic Analogy (grades are a symbolic assessment by numbers; others are e.g. ABCD, colour coding, emoji's, etc.) and 4. Fantasy Analogy (a comparison to something that does not exist in the real world, for example an assessment system that scans the students learning efforts and the time spent for studying).
- 02** Choose the most promising analogies; for example a thermometer, a computer game, a hand reading assessment machine and an emoji code system. Write down associations to each analogy. Go deep into the analysis of each analogy to get interesting material you can transfer to the next step.
- 03** Analyse the analogy associations to see if you can transfer something to innovate the assessment practices.

For example from the thermometer you can transfer the idea of hot and cold learning outcomes, from the emoji code system the visual evaluation code, from the computer game the creation of a personalised assessment app, and Personal Analogy can lead you to the concept of a family - how could there be an assessment family?

- 04** Vote for the most original ideas and connect them to the matrix of the Current to New Perspectives tool.
- 05** After analysing the generated ideas on the matrix, look for a leitmotif and try to connect several ideas and perspective into a general new concept for an assessment framework.

#### **OUTCOME**

Original ideas for new assessment practices.

#### **FROM HERE TO THE NEXT STEP**

Having found (or not) a general concept for a new assessment framework, next, in the Elaboration phase, you can connect all the ideas in an Assessment Blueprint.

assessment idea	educators action & necessary preparation	material / visual support
main features		
contexts of use	learners actions	relationship with other assessment tools and methods

# Assessment Canvas

Similar to the Curriculum Blueprint, the **Assessment Canvas** is a kind of Prototype, inspired by the Service Blueprint. In the process of revising your assessment practices, in the Elaboration phase, the Canvas allows for the development of an assessment system. Producing the Assessment Canvas collaboratively promotes a coherent understanding amongst the team members. The visual schema of the Canvas should incorporate the perspective of both, educators and students.

- 01 ACTIONS** Prepare the template for your Assessment Canvas. Each selected idea should get its own canvas.
- 02** Fill out one Assessment Canvas for each idea. You can write directly on the template or use sticky notes, so you can move the information.
- 03** Compare and analyse the different Assessment Canvases, their material elements and the interactions between educators and students. Establish connections between the different Assessment Canvas looking for complementary elements.



#### DURATION

1 session of 2-3 hours, and other sessions of 1 hour for iteration.



#### PARTICIPANTS

The core team of the curriculum project and eventually one or two students.



#### MATERIAL

Several big sheets of paper, black and colour markers, tape to fix the paper on the wall, and sticky notes of different colours.



#### ADVICE

During the process of prototyping, one frequently changes ideas. For that reason it is advisable to write each subject on a single sticky note, so that you can easily substitute every idea.



#### ORIGIN

D-Think Research Group, 2016.

#### OUTCOME

The Assessment Canvas provides a systemic overview of the characteristic of every assessment idea or tool. It also shows the kind of interactions between educators and students. By comparing several canvases, you can identify their differences and similarities.

#### FROM HERE TO THE NEXT STEP

As the overview given by the several Assessment Canvases allows you to verify the concept of your new assessment framework, you will now be able to create a vision of your new assessment system.

*title*

---

*image*



# Vision Statement

The Vision Statement is a technique which aims to describe the results of an innovation project in a verbal-visual way. It helps to organise information and to create an overview about the results of the project. By making the new vision more comprehensible, the Vision Statement is a great support for the communication of your project to a wider public (colleagues, the management of the institution,



#### DURATION

3 - 4 hours.



#### PARTICIPANTS

Your core development team and an invited designer or teacher of visual arts.



#### MATERIAL

Computer, printer (or you give the result to a professional printer).



#### ADVICE

Although the Vision Statement could stay on a digital support, it is best to print it as an evocative poster.



#### ORIGIN

Author unknown; traditionally used in Design.

## 01 ACTIONS

- Summarise the key results of your project, consulting your Assessment Blueprint (the new assessment approach, new methods, interactions between educators and students in assessment moments, etc.).
- Create an outline for your assessment framework's new vision. Based on the review of the project, give the Vision Statement a structure that best communicates your new framework. The outline should include: title, a short description of challenges and solutions, illustration of the key benefits of the new framework.
- Find a title and a short supporting tag line to concisely express the essence of the new assessment framework.
- Write short descriptions of the identified challenges (problems) and the new solutions. How does the new vision respond to the initial challenges? What benefits and new values does it bring?
- Find or create key images to illustrate the Vision Statement (diagrams, drawings, pictures, etc.).

## OUTCOME

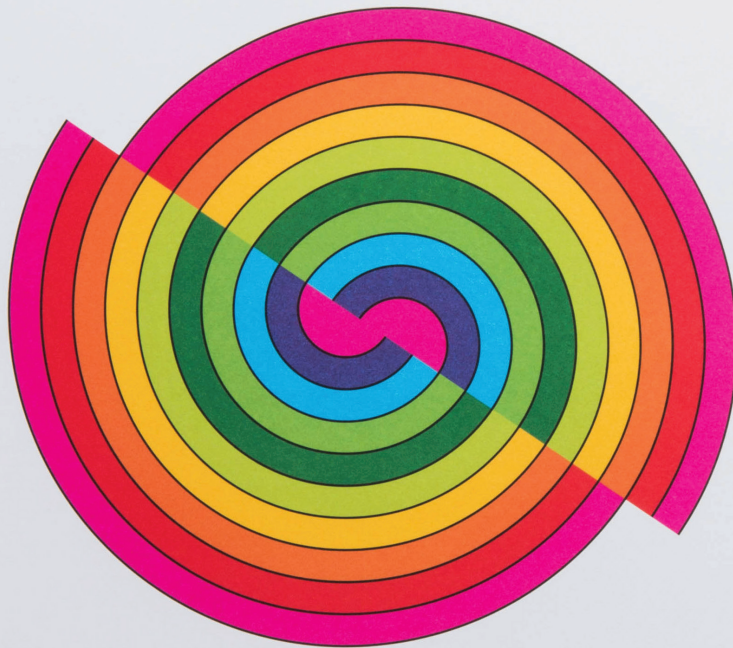
By elaborating the Vision Statement you will understand clearly which are the new values of your project. The Vision Statement will synthesise your new assessment approach.

## FROM HERE TO THE NEXT STEP

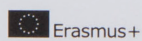
Once you have received positive feedback from your colleagues, you can develop the visual material to be printed and support the implementation of your new assessment framework in your HEI/VET institution.

# Research Report D-Think

Katja Tschimmel, Joana Santos, Dirk Loyens, Alexandre Jacinto,  
Rute Monteiro, Mariana Valença



Design Thinking Applied to Education and Training  
ERASMUS+ KA2 Strategic Partnerships



D-THINK



# Print Media

A graphic support for the promotion of the new assessment framework and methods in your HEI or VET institution. You can also develop visual material (templates) for the new assessment methods. Using visually attractive material helps to motivate your colleagues to try out the new assessment methods with their students.



#### DURATION

4 - 8 hours.



#### PARTICIPANTS

One or two educators of your core development team and a professional communication designer.



#### MATERIAL

Computer and graphic software. Printer or a contract with a copy shop.



#### ADVICE

Traditionally Print Media is not a design tool but a communication support. But in a design driven innovation process, Print Media is a tool which supports the Extension phase of the process.



#### ORIGIN

Very common in the field of design

**01**

#### ACTIONS

Decide in your team what kind of print material you need to promote the new assessment framework in your institution: a flyer, a poster, a booklet...? Determine also what kind of other print material you need to incentivise your colleagues to apply the new methods in their classes: an evaluation matrix, a self-evaluation template...?

**02**

Generate ideas for the main image of your promotional and didactic material together with a professional communication designer. The selected idea can be expressed as a photograph, an illustration or in a symbolic graphic language.

**03**

While the designer elaborates the graphic material, the educators can regularly give constructive feedback and test some didactic material with their students.

**04**

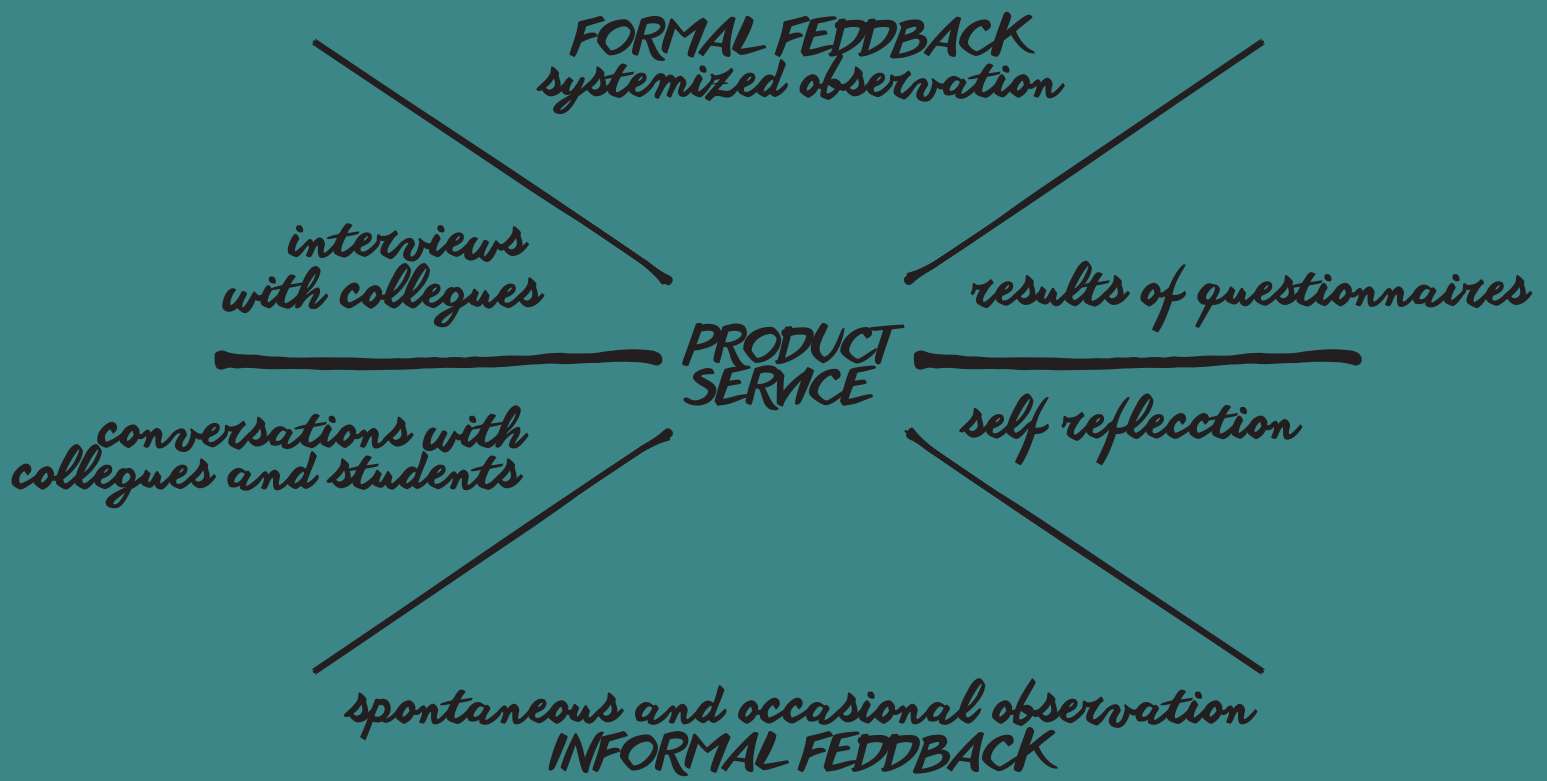
Distribute the material with the information about the assessment framework and give the didactic material to colleagues who are willing to try them out.

#### OUTCOME

The main outcome is a visually attractive and stimulating print material for the promotion of the new assessment framework in your institution. Another outcome is a didactic support for new assessment methods (matrixes, templates, etc.).

#### FROM HERE TO THE NEXT STEP

Supported by the designed Print Media, you and your colleagues can start to implement the new assessment framework by applying several of the new assessment methods and techniques. The next Design Thinking tool, the Feedback Map, will help you to improve the new assessment practices.





# Feedback Map



Testing, getting feedback and improving is never-ending and the most valuable process in Design Thinking. After the implementation of the new assessment practices (methods, tools, templates...), you should look for several forms of feedback, from educators and students, to evaluate your new assessment approach. The Feedback Map is a way to collect and visualise informal and formal feedback, and to get an overview of all positive and negatives critiques.



#### DURATION

Collecting feedback for 1 month; Realising the Feedback Map: 2 hours.



#### PARTICIPANTS

Two or three educators of the core team; several other educators and some chosen students.



#### MATERIAL

A1 paper sheet and markers.



#### ADVICE

When you choose and create your feedback activities, keep in mind the available time. Starting from the fastest activity: spontaneous observation, self-reflection, systemised observation, conversations, interview and questionnaires.



#### ORIGIN

Mindshake, 2015.

#### ACTIONS

- 01** Based on what you are looking forward to learning, plan your feedback activities, such as formal or informal observation, conversation and interviews. You can also do a self-reflecting exercise comparing your impressions with each other, or to get a more formal feedback with a questionnaire. The activities for getting feedback depend on your available timetable.
- 02** Decide who you want to engage in the feedback process and invite the participants.
- 03** Determine the meeting place and timeframe for the feedback activities. Plan the interaction and the logistics. After collecting formal and informal feedback, analyse and summarise the results.
- 04** To Create the Feedback Map, write in the middle of the A1 sheet of paper the name of your project. Use the sheet horizontally. Divide the paper with a horizontal line into 2 parts, and each half in 3 spaces. The formal feedback consists in: 1. Systemised Observation, 2. Interview with colleagues, and 3. Result of questionnaires filled out by students. The informal feedback consists of: 1. Self-reflection, 2. Spontaneous and occasional observation, and 3. free conversations with colleagues and students.
- 05** Map the results of the analysis process from step 3 on your Feedback Map. Analyse it and compare the different kinds of feedback, and conclude with what should be improved.

#### OUTCOME

Formal and informal feedback for improving the assessment framework and its tools.

#### FROM HERE TO THE NEXT STEP

Apply the improvements and iterate continuously.

# Facilitating the Learning

## Recommended tools:

### Emergence

*Trendmatrix,  
Intent Statement*

### Empathy

*User Interaction Map,  
Personas,  
Empathy Map*

### Experimentation

*Brainsketching,  
Desktop Walkthrough*

### Elaboration

*Role Play*

### Exposition

*Concept Illustration,  
Solution Prototype*

### Extension

*Implementation Plan*

# Designing the Learning Spaces



When working to deliver a highly innovative learning experience, educators and organisations need to rethink the way learning spaces are organised. Recently, the requirements for a quality learning environment have changed considerably and a diverse range of factors from technology to globalisation impact the way the learning spaces should be conceived. In order to fit the 21st century learning framework, spaces should be sufficiently diverse to accommodate and empower a combination of different learning styles. Three key elements should guide the design of the learning space:

- ➔ **Naturalness:** basic requirements connected to our basic needs (light, air, safety, etc.)
- ➔ **Individualisation:** each learner has a unique perception of outside stimulus and the environment should deliver sufficient flexibility and choice
- ➔ **Appropriate level of stimulation:** learning spaces must provide enough stimulation to complement and increase learners' engagement.

The toolkit has so far presented a reverse perspective for learning spaces design:

We need to start, then, by asking not 'what buildings do we want?' but instead 'what sort of education do we want to see in future?' We need to ask not 'how many classrooms do we need?' but 'what sorts of learning relationships do we want to foster? What competencies do we want learners to develop? What tools and resources are available to us to support learning? (Futurelab, 2006).

Design Thinking can act as a facilitator in the process of designing the learning space, as it provides the tools to learn about the audience for whom one is designing, to focus the efforts on the desired learning outcomes, to facilitate and to deliver creative solutions with available resources. The following objectives and information are recommended for analysis when designing a learning space:

- ➔ What type of learning do I intend to promote?
- ➔ What competences do I want learners to develop?
- ➔ What type of learning styles do the learners have?
- ➔ What learning strategies do I intend to use?
- ➔ What physical space/tools/resources are available?
- ➔ How can I foster learners' engagement throughout the learning experience?
- ➔ How can I promote a collaborative, safe and creative learning space?
- ➔ How do I assess the impact of the learning space in the learner's experience?
- ➔ How do I evaluate learners' satisfaction with the learning space?
- ➔ Several tools can help in gathering and analysing information to achieve the objectives and outcomes.

	PAST	PRESENT	FUTURE
teaching			
learning spaces			
technology			
...			

# Trendmatrix



A Trendmatrix is a kind of summary of identified trends in a specific field. The organisation of several aspects in two axes helps you to understand what changed in the universe of schools and learning experiences, and how these changes affect the design of the learning spaces.



#### DURATION

2–3 hours and time for preliminary research.



#### PARTICIPANTS

Two or three educators who take the initiative of starting the project.



#### MATERIAL

A2 sheet of paper, black markers, or computer and a spreadsheet document.



#### ADVICE

A Trendmatrix is not a static document but it can change over time. Nevertheless, you can use the same Trendmatrix for several Design Thinking projects in your institution, adapting/complementing the topics in every case.



#### ORIGIN

Marketing tool, systemised in Kumar, 2013.

#### ACTIONS

- 01 Set up the dimensions for the Trendmatrix. On the vertical axis topics such as People, Culture, Technology, etc. are usually placed. These aspects are crossed with the dimensions from the horizontal axis coming from the learning and teaching universe (for example Role of Teachers, Learning Ambience, etc.). Another possibility to define the horizontal axis could be time-related: Past (where we have been), Present (where we are) and Future (where we may be heading). In this version, you should choose for the vertical axis, areas related with Learning Spaces (Teaching/Learning Styles, Learning spaces, Technology, etc.).
- 02 After observing and researching trends in areas which you set up in the two axes of the matrix, fill the matrix with relevant trends, which you describe as a trend statement (for example: Project based teaching, Self-Evaluation, Intelligent Whiteboard...).
- 03 Compare the trends and see how they are related to each other. Get an overview and recognise patterns of similar trends developing in parallel. Speculate on future directions and discuss how certain tendencies might influence your project of Learning Spaces.
- 04 Write down your team's insights about the trend patterns and how leading and emerging tendencies could affect the Layout and the Equipment of Learning Spaces. Identify opportunities to innovate in the area of Learning

#### OUTCOME

A Matrix with an organised set of trends about areas connected with learning spaces. Insights about emerging patterns and possible design directions. Look at the examples in the D-Think Research Report, p. 33.

#### FROM HERE TO THE NEXT STEP

After the identification of the opportunities to innovate the Learning Spaces of your HEI/VET institution, you are able to formulate your challenge in the Intent Statement.



## INTENT STATEMENT

INTENTION:

MATCHING THESIS MAKERS WITH COMPANIES/ORGAN

OPPORTUNITIES:

NEW VAL

A NE

PUBLIC:

RISKS:

# Intent Statement

The elaboration of an Intent Statement helps you to clarify your motivation to innovate the Learning Spaces in your institution. It also guides your decisions about the physical/material changes to implement in your school.



**DURATION**

2 hours.



**PARTICIPANTS**

Final core team.



**MATERIAL**

A4 or A3 sheet of paper or computer.



**ADVICE**

It is very important to find a common motivation amongst the participants, so that the team will stay together until the end of the project.



**ORIGIN**

Adapted from Kumar, 2013.

**ACTIONS**

- 01** After discussing the insights from the Trendmatrix, build the core team of this project. Who could be interested in participating? What kind of expertise does the team need to have?
- 02** Describe your intention to innovate the Learning Spaces of your institution. What are the main problems? What should be the goal? What would be nice to have?
- 03** Discuss several possibilities within your team. Find a shared point of view and a common motivation.
- 04** Write your innovation intent, using the following framework: What is your intention? What are the opportunities? What new value are you creating? What is your target group? What are the risks?
- 05** Elaborate the answers to these topics in a clear and concise form. Stick the A4 paper (written by hand or printed) on the wall of your project room.

**OUTCOME**

Resulting from this tool are mature ideas to start a project, and a concise statement of your innovation intent, in the field of learning spaces development.

**FROM HERE TO THE NEXT STEP**

Clarifying and formulating your initial ideas is the beginning of your project 'Rethinking the Learning Spaces of your Institution'. In the next phase of the DT process, the Empathy phase, you will try to better understand your students' needs.





# User Interaction Map

The User Interaction Map is based on the Design Thinking tool User Journey Map, a graphic representation of touch points of a service. In our scenario of Learning Spaces, the User Interaction Map shows in a visual way the different activities and touch points of students and lectures/facilitators in determined learning spaces of your institution.

## 01 ACTIONS

- 01 Prepare a list identifying all the activities and interactions which might occur within a (proposed) learning space. Try to be as specific as possible. Write each interaction on one sticky note.
- 02 Draw the plan/outline of one or several connected learning spaces of your institution on a big sheet of paper.
- 03 By fitting each sticky note on the Interaction Map, you should cluster the specific activities (reading a book, discussing ideas, etc.) at touch points (sitting at a table, whiteboard, reading corner, etc.). If every interaction in a classroom occurs at the same place, this is an indication for you that the learning space probably corresponds to an old educational model of learning experiences.
- 04 See if there are existing flow directions (timelines) in the learning space. If there is an order of interaction in the different cluster nodes, include arrows showing the order and interactions between learning places.



## DURATION

1 - 2 hours.



## PARTICIPANTS

Two or three educators of the core project team.



## MATERIAL

A big sheet of paper in a horizontal position, black and colour markers, tape and sticky notes in different colours.



## ADVICE

You can make a separate User Interaction Map for each learning space avoiding unnecessary complexity. Visually, the map can take many forms but typically User Journey Maps appear as some type of infographic.



## ORIGIN

D-Think Research Group, 2016. Free adapt. From the User Journey Map, described in Stickdorn & Schneider (2011), Kumar (2013) or Kimbell (2014).

## 05

Identify problems related to the space in the different activities and interactions. Highlight these problems as opportunities for innovation.

## 06

Study the whole User Interaction Map and discuss what you have learned. Identify the best opportunities for your project of redesigning learning spaces.

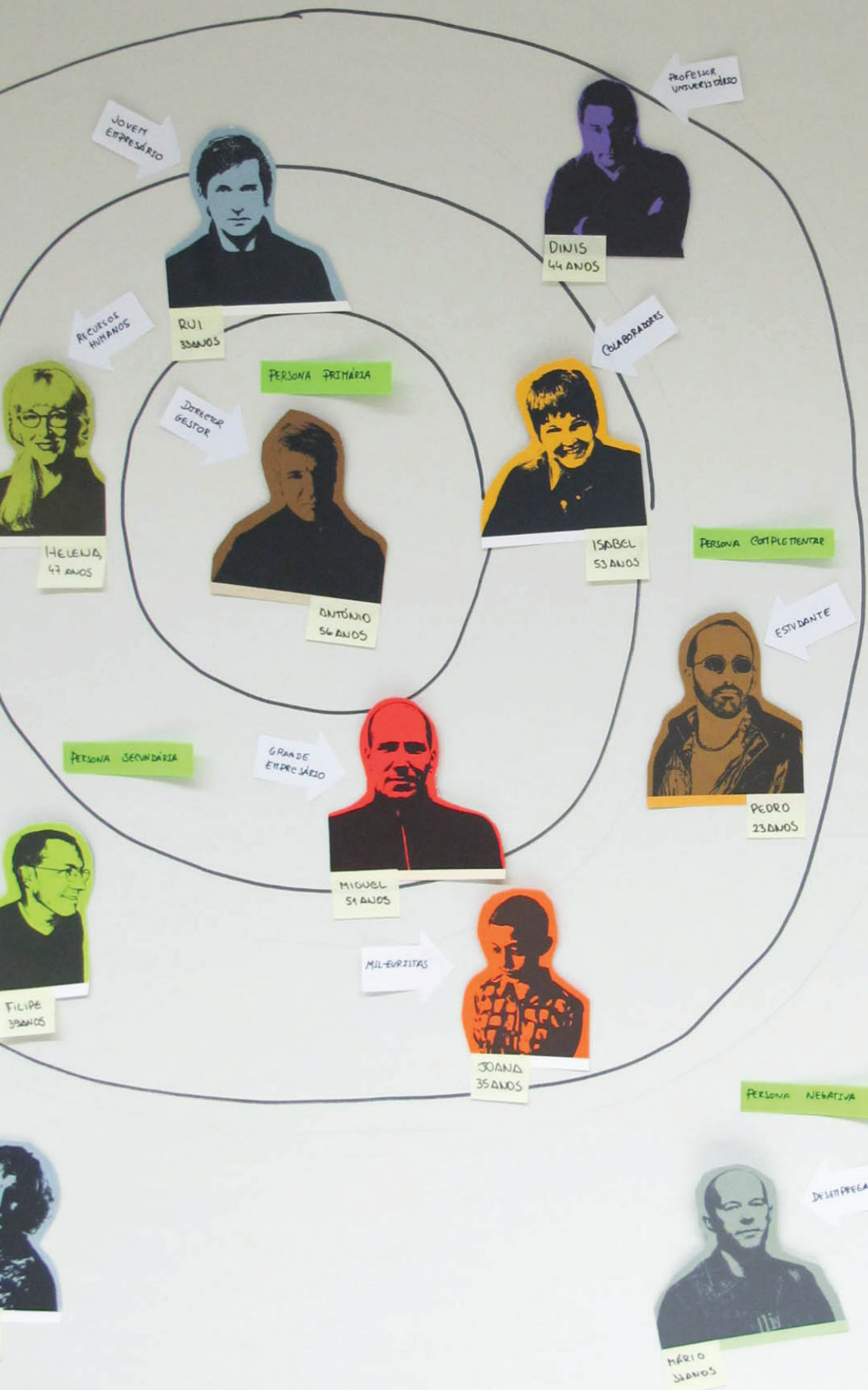
## OUTCOME

A holistic view of interactions in a learning space, revealing problems and gaps which can become opportunities for improvement or redesign.

## FROM HERE TO THE NEXT STEP

After knowing better the context of your project, you should develop empathy with your target group (students and lecturers/facilitators). The tools Persona and Empathy Map can help you in this task.

# PERSONA MAP



**EMPATIA FICHA DE PE**

**Background**  
idade 37  
profissão advogado  
formação académica  
DOUTORAMENTO  
Mestrado em Direito

**Interesses na vida**  
Jogos - Vide Games  
Musica - Pop  
Tênis  
Cafés  
Alimentação saudável

**Narrativa, alguns detalhes de descrição de um dia de vida**  
Acorda às 7h30  
Despeça o cabelo  
Alimenta-se até às 10h  
Estuda a tarde  
Lancha com a família  
Vai ao ginásio

**Frustrações na vida**  
Relação com o pai  
Falta de dinheiro  
Aparência não sendo o que se gostaria

**Objetivos na vida**  
Dinheiro  
Mais tempo  
Relacionamentos

**Narrativa, alguns detalhes de descrição de um dia de vida**  
Acorda às 7h30  
Despeça o cabelo  
Alimenta-se até às 10h  
Estuda a tarde  
Lancha com a família  
Vai ao ginásio

**Objetivos das suas necessidades**  
Dinheiro  
Mais tempo  
Relacionamentos

**EMPATIA FICHA DE PE**

**Background**  
idade 47 anos  
profissão Gestora  
formação académica  
Gestão, A.C.I.E.  
50

**Interesses na vida**  
- Trabalho e Formar as 2 Filhas  
- Tênis - Atualização nas áreas de Formação  
- Yoga  
- Leitura

**Narrativa, alguns detalhes de descrição de um dia de vida**  
- Casada a 12 anos  
- Infância  
- Mãe de 2 Filhas  
- Académico, Professora  
- Escola, Sal de Camarão, Café, Jantar  
- Filhas, Pensamento  
- Ao fim de semana com a família  
- Ginásio das suas necessidades  
- Emprego a 10h  
- Mais tempo  
- Mais qualidade

**Frustrações na vida**  
- Falta de tempo com a família  
- Falta de reconhecimento  
- Tênis das suas necessidades  
- Falta de liberdade nas decisões

**Objetivos na vida**  
- Reportar antecipada  
- Dedicar tempo à família  
- Mais autonomia profissional

**Objetivos das suas necessidades**  
- Dinheiro  
- Mais tempo  
- Relacionamentos

**EMPATIA FICHA DE PE**

**Background**  
idade 50  
profissão Líder  
formação académica  
Licenciatura em Engenharia  
Mestrado em Engenharia

**Interesses na vida**  
- Camion e futebol  
- Política  
- Economia

**Narrativa, alguns detalhes de descrição de um dia de vida**  
- Chegou a 20 anos  
- Camion e futebol  
- Desportos  
- Muito de resaca com os amigos  
- Trabalho com os colegas  
- Ginásio das suas necessidades

**Frustrações na vida**  
- A espera

**Objetivos na vida**  
- ganhar dinheiro  
- comprar um carro

**Objetivos das suas necessidades**  
- Dinheiro  
- Camion e futebol  
- Camion e futebol  
- Camion e futebol

# Persona (Map + Cards)

The Persona tool helps to define different kinds of users present in a context. Personas are fictional characters created to represent a particular group of people, based on their interests and behaviour. If you have worked with the tools of scenario 2, you can use the same Persona Map and Cards as they provide a range of different perspectives on the learning reality of your HEI/VET institution, also useful for the Empathy phase in this scenario. You could complete the information on these Personas, by analysing the learning style of each Persona, as new learning spaces should be learner-centered and promote collaborative learning experiences.

**DURATION**

2-3 hours.

**PARTICIPANTS**

Three or four educators.

**MATERIAL**

A2 and A4 sheets of paper, internet print-outs or magazines to find the fictional picture for a student, black markers, scissors and glue.

**ADVICE**

Even though you might think that the Personas are only fictional, they will exhibit the real motivations and behaviours of your interest group!

**ORIGIN**

Angus Jenkinson, 1990s.

**ACTIONS**

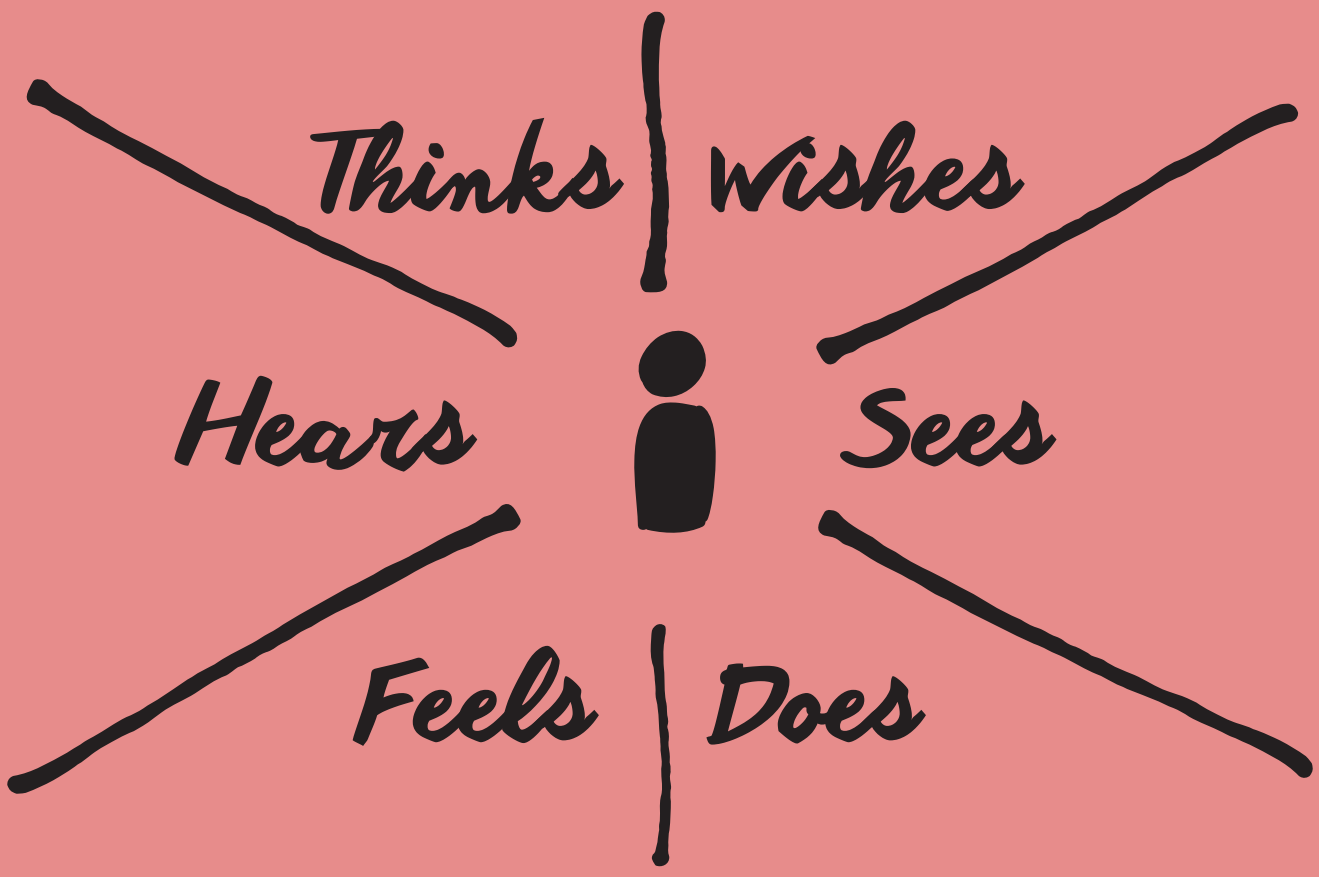
- 01** Identify the fictional Personas: 1. the principle/primary Persona (a typical student of your institution), 2. secondary Personas (non-typical students of your institution), 3. Complementary Personas (for example parents or teachers), 4. negative Personas (who is not a student in your institution at all).
- 02** Visualise all Personas on a map using a picture (obtained from the internet or a magazine): put the principal Persona in the centre of a circle on an A2 sheet; the secondary Personas in the circle around. In the next circle the complementary Personas, and outside all the circles the negative Personas.
- 03** Choose four or five Personas from your Map (the ones you want to explore more). Elaborate a Persona Card for each one of the selected Personas. The card should have the following elements: Name, Background (Age, Social Class, etc.), Interests, Frustrations in life, Goals in life, and write a brief narrative about a typical day at school. Have a look at the template in the D-Think Research Report, p.44-45.
- 04** Compare and analyse the different profiles and write down your conclusions, having in mind the innovation opportunities you have identified in the Intent Statement.

**OUTCOME**

A map with different student profiles and four or five cards with a detailed description of each character. The cards will help you to focus on various student groups.

**FROM HERE TO THE NEXT STEP**

Having obtained a better overview on the student groups from your institution, you can go deeper in the development of empathy by conceiving an Empathy Map.



*Thinks*

*wishes*

*Hears*

*Sees*

*Feels*

*Does*

# Empathy Map

An Empathy Map is a tool to gain a deeper insight into the user's/student's cognitive and emotional world. It supports your team in the discussion about how your students perceive the learning spaces you aim to improve, and which kind of aspects influence their learning behaviour.

## 01 ACTIONS

Choose a template for the Empathy Map from the Internet. You can print it on a big sheet or just copy it by hand on A1 paper sheet.

02 Create a Persona which represents your typical student who is using a certain learning space you are working on. Give this student a name and age. If you have applied the tool Persona in the step before, choose the primary Persona into this activity.

03 In your team complete the template of the Empathy Map, filling out the categories 'Hearing', 'Seeing', 'Feeling', etc. related with the world of Learning and Education. Put yourselves in your student's shoes and consider the student's point of view. Write every idea on a separate sticky note, so that your ideas are easier to move. Ideally everyone should add at least one sticky note to every section. You might ask questions, such as: What would the student be thinking and feeling? What are some of his/her worries and aspirations? What would his/her teachers be likely to say while the student is using different learning spaces? What would the student hear in these scenarios? What would the student see while using the learning spaces? What are some of the user's problems or fears when using the learning spaces?



## DURATION

40 min.



## PARTICIPANTS

The same educators who elaborated the Persona Map and Cards.



## MATERIAL

A large sheet of paper (A1 in a horizontal position) on which you can draw one of the numerous templates available on the internet. Black and colour markers, tape to fix the paper on the wall, and sticky notes in different colours.



## ADVICE

You can find different versions of the Empathy Map and different designs of templates online. Choose the one you find more attractive, because the content is the same in all.



## ORIGIN

XPlane, 2009.

04

Synthesise all the information: What are the needs of this kind of student? What is he/she expecting from the learning spaces in your institution? What is helping him/her to have positive learning experiences?

## OUTCOME

The outcome of the Empathy Map is a profile of a typical student of your institution to understand better his/her needs related with learning spaces.

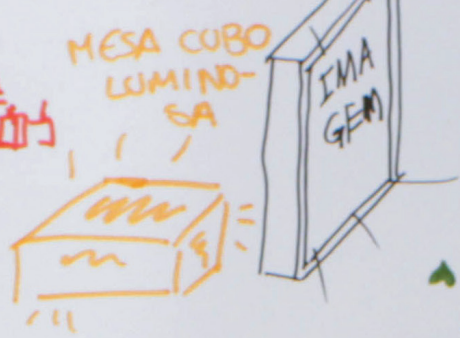
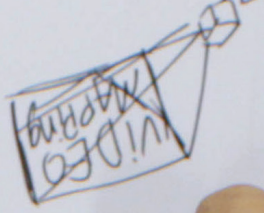
## FROM HERE TO THE NEXT STEP

Based on the information you obtained through the three tools applied in the Empathy phase, you can start the Experimentation phase of the D-think process, generating ideas for an improvement of the learning spaces in your institution.

SAIXAO

LUZ

REGULAD



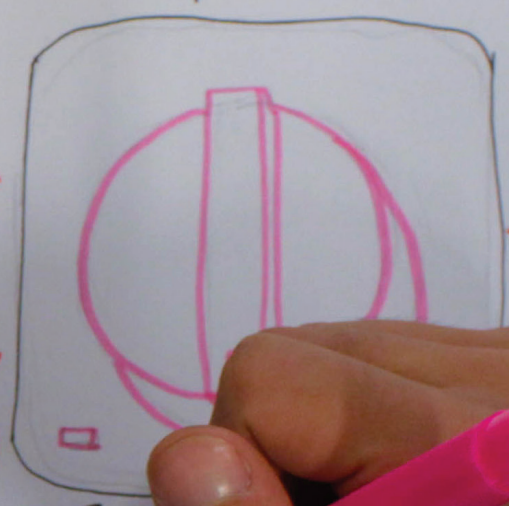
Geradora  
Bicicleta



de prensa

LED'S

Gosto! EU TAMO  
VAMO

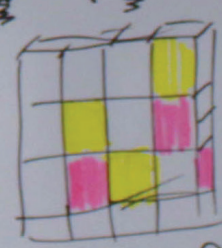


catálogo  
de sombras

4  
FRASES  
GIRAS

WAVE

CONCORDO



Prateleiras  
CITELAS LUMINOSAS  
Gira 3 #webSurf



Hand-drawn scribbles and lines in yellow and orange.

# Brainsketching



**Brainsketching is a tool for idea generation in groups and is very similar to Brainwriting. During a Brainsketching session the participants use sketches and drawings to record and explain their ideas. Each participant works individually on each idea sketch. Procedures and rules are similar to Brainwriting (see scenario 3 — Content Development). Initially Brainsketching is divergent in nature, but at the end a convergent mindset should lead to only one democratically constructed proposal for learning spaces.**

- ACTIONS**
- 01** Explain the brainsketching rules: 1) Every idea is welcome; 2) Build on ideas from others; 3) Withhold any judgment; 4) Have fun! Start the session with a clear topic, question or image and fix this in a spot visible to all participants.
  - 02** Each participant should have a large sheet of paper and a set of markers. Sketches should be clear and explicit; some notes can be added. Remember: in a brainsketching session all ideas belong to everybody.
  - 03** Take a few minutes to sketch the first idea then pass the sketch to another participant on your right hand side. Everyone should start building upon the sketches they've received and collectively construct ideas.
  - 04** Repeat step 3 until each participant receives their original contribution. At any time a new idea or concept can be added to the "sketching circle".
  - 05** Evaluate and discuss all the sketches and further detail the most promising one.

**DURATION**

30 - 40 min.

**PARTICIPANTS**

Between five and eight persons with an open and constructive mindset who feel comfortable with sketching. A multi-disciplinary group would be an advantage.

**MATERIAL**

Tables and various sets of coloured markers. Big sheets of paper size A3 or A2

**ADVICE**

A Brainsketching session is quite intensive and the sketching should not go on for a long time. Considerable time should be spent on compiling and detailing the final proposal.

**ORIGIN**

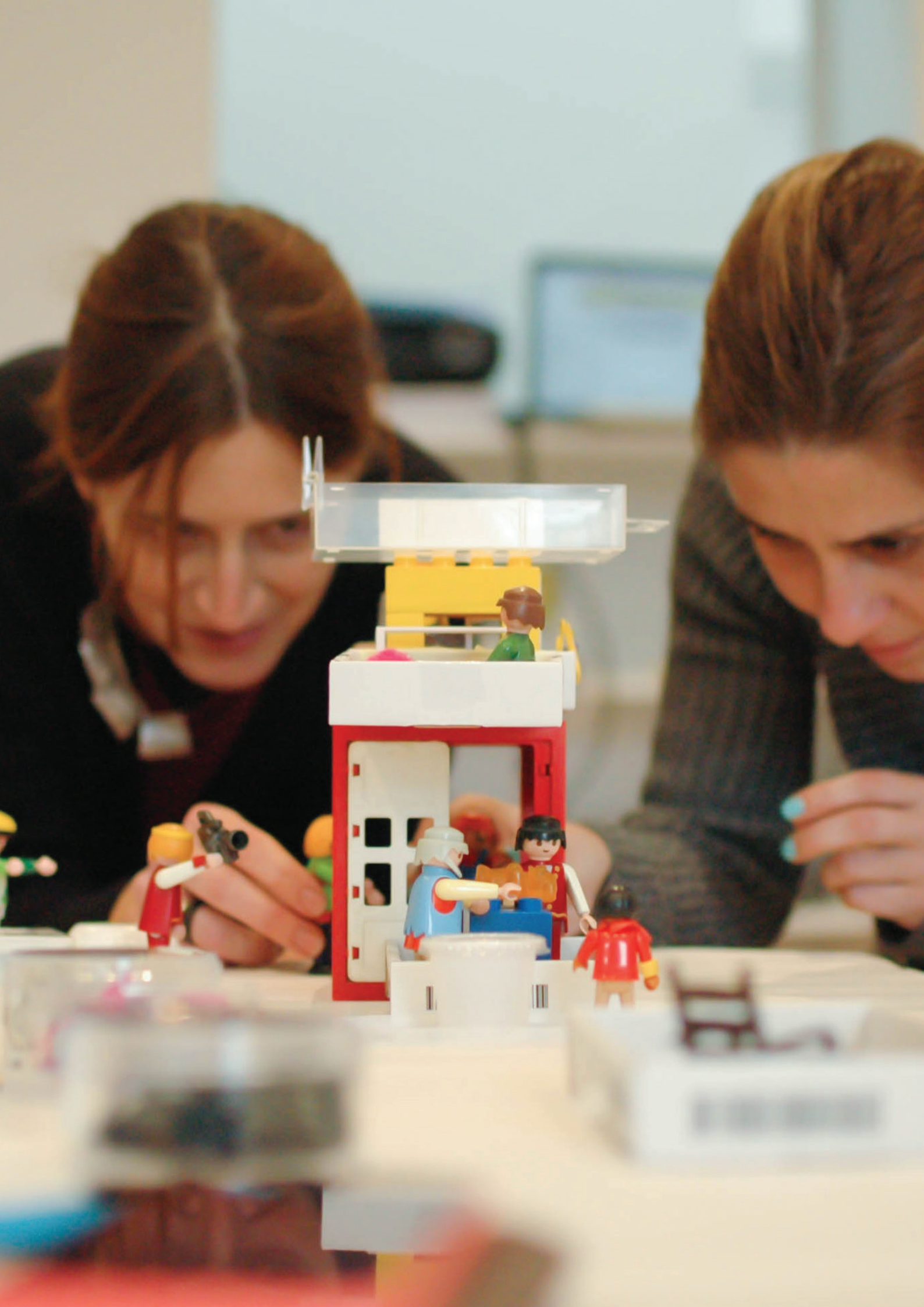
Adapted from Van Gundy, 1998.

**OUTCOME**

The final proposal for a learning space agreed by the participants. This detailed proposal can be used as an input for many tools in later stages of your project.

**FROM HERE TO THE NEXT STEP**

The proposal produced by a Brainsketching session should be further developed and validated.





# Desktop Walkthrough

A Desktop Walkthrough is a small scale 3D model, commonly used in Service Design Innovation. It imitates service environments and interactions. Using materials such as paper, cardboard, small packages, LEGO bricks and Playmobil figures, Desktop Walkthrough can help exploring the best ideas from Brainsketching in a three-dimensional (3D) scenario. Prototypes are an important step in a process of ideation, especially in a user-centred approach. Therefore, they are the key source of complementary information about the interaction between the learner and the educator in the proposed learning spaces.

## ACTIONS

- 01** Use the final proposal from your Brainsketching session and define what you need to study using a 3D small scale mock-up of your learning space concept.
- 02** Build the Desktop Walkthrough on a rigid structure (card board) using low cost materials such as old food packages, or use LEGO and Play Mobil kits. You can also create 'puppets' with pipe cleaners or similar flexible materials to simulate persons' movements in the space. Different Desktop Walkthrough scenarios can be constructed according to the kind of interaction in the learning space you want to explore.
- 03** Select and engage users, students and/or teachers, in interaction with the prototype.
- 04** Observe and document interactions with the prototype, and between the students and the teachers.



## DURATION

2 - 4 hours.



## PARTICIPANTS

The same participants of the Brainsketching session/your core team.



## MATERIAL

A rigid base and low cost material to build a rough model of learning spaces. Children's' toy figures and building blocks can be used.



## ADVICE

A Desktop Walkthrough is not an architectural 3D model based on scale studies, but a simple way of simulating objects and interactions in a space. Real scale relations are not demanded!



## ORIGIN

Adapt. Stickdorn & Schneider, 2010.

**05**

Use informal interviews or group discussions to analyse the results of the test sessions. Change and adapt the prototypes according to new insights. Repeat the process or discard the proposal and start working with a completely different proposal.

## OUTCOME

One or more validated proposals for the improvement or creation of a learning space in your institution.

## FROM HERE TO THE NEXT STEP

A final and validated proposal is the end of the Experimentation stage of your project and the start of the Elaboration phase



# Role Play

In the development of Learning Spaces, Role Play can be used as a tool for validation of a proposal. Desktop Walkthrough is a complementary tool to Role Play and helps focus on the elaboration of the learning space and its equipment by testing interactions between all stakeholders involved in a teaching/learning process. Role Playing allows you and your team to empathise with the final users of your project. You have two options for applying the Role Play: 1. using the Desktop Walkthrough and doing the Role Play with the little figures, as it would be in a puppet theatre; 2. using a real space and real persons, transforming them into actors.

## 01 ACTIONS

Determine who is going to be part of the Role Play and what is the intended goal. Define how you are going to enact the experiences and describe the sequence of actions and interactions you are going to perform. If you are doing the Role Play with 'actors', divide the different tasks you need to perform during the session between the members of your team.

## 02

Use the Desktop Walkthrough scenario constructed previously (option 1) or carefully prepare a set-up for the Role Play, try to make it as realistic as possible (option 2). Do not forget to record the session on video for later analysis.

## 03

Execute the Role Play session according to the plan, try also to improvise, and repeat the role playing as many times as necessary to get a thorough understanding of actions and interactions.

## 04

Analyse the recordings of the Role Play session and discuss the outcome with your core team.



### DURATION

30 min - 2 hours.



### PARTICIPANTS

Some members of your core team, other participants required in the Role Play.



### MATERIAL

Besides video recording devices, you will need all the material necessary according to the intended role-play session.



### ADVICE

Role Playing can also be used as a powerful tool to explore how things can go wrong or be misused.



### ORIGIN

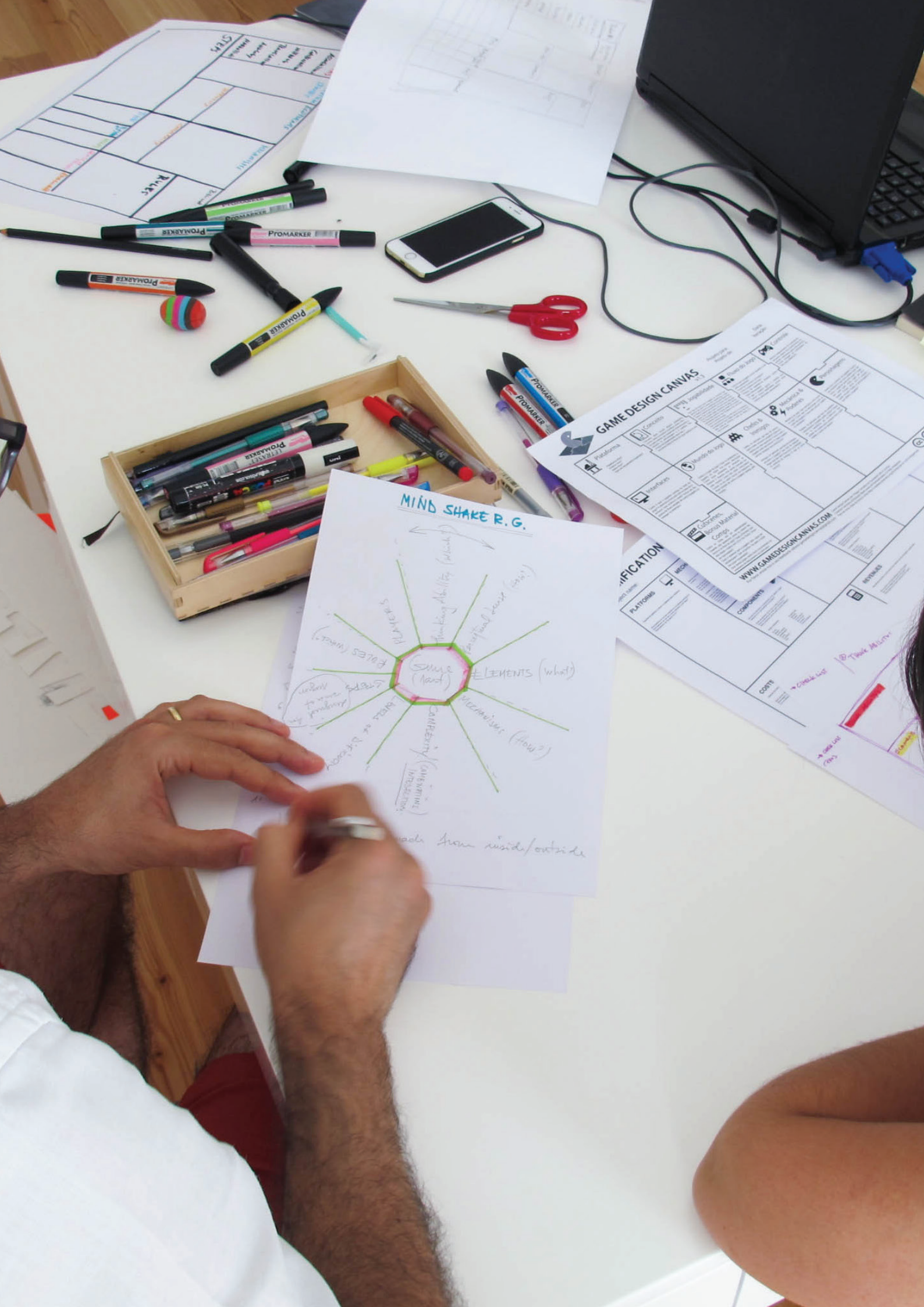
Role-playing as a simulation of interactions, has always been used in project development.

## OUTCOME

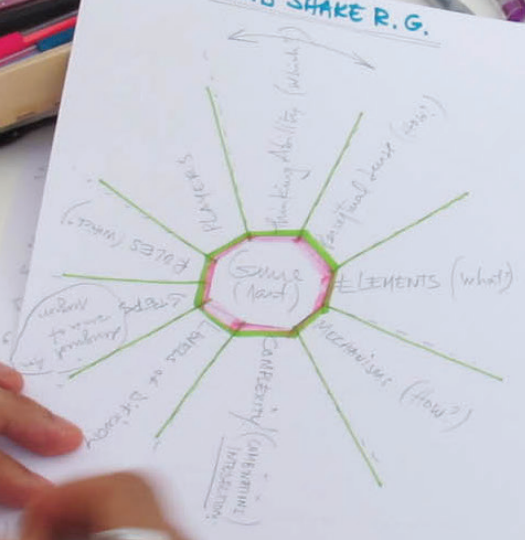
As a tool used for tweaking and testing, the outcome of the Role Play is a validated proposal for your learning spaces.

## FROM HERE TO THE NEXT STEP

After the validation of your ideas through the Role Play, you should formulate the new concept for a revised learning space, and then elaborate a Concept Visualisation.



### MIND SHAKE R.G.



made from inside/outside

### GAME DESIGN CANVAS

Platform:  PC,  Console,  Mobile,  VR/AR

Concept:  Story,  Gameplay,  Mechanics,  Visuals,  Sound

Core:  Action,  Adventure,  Casual,  Puzzle,  Strategy,  Simulation,  Sports,  Strategy,  Simulation,  Sports

Components:  Story,  Gameplay,  Mechanics,  Visuals,  Sound

Monetization:  Free,  Paid,  In-App,  DLC,  Subscription

WWW.GAMEDESIGNCANVAS.COM

### CLASSIFICATION

Platform:  PC,  Console,  Mobile,  VR/AR

Mechanics:  Action,  Adventure,  Casual,  Puzzle,  Strategy,  Simulation,  Sports,  Strategy,  Simulation,  Sports

Components:  Story,  Gameplay,  Mechanics,  Visuals,  Sound

Monetization:  Free,  Paid,  In-App,  DLC,  Subscription

# Concept Illustration

Concept Illustration converts a concept into a concrete proposal that is easier to understand and to communicate than abstract ideas described in words. The illustration shows the concept as a real-life situation, explaining its context in a visual way. Concept Illustration also facilitates storytelling when explaining the new proposals to an audience.

## ACTIONS

- 01** To guarantee a fluid work process, assign one team member as the designated illustrator or invite a professional designer to the session. The other participants focus on verbal ideation and communication.
- 02** Collect the main ideas of the concept and sketch them. The first sketches can be hand drawn in a rough way by anyone in the team. No drawing skills are needed at this point.
- 03** After a discussion of the sketches, move from the rough figurative sketches to more detailed ones. At this step, the professional designer can start to make an illustration of the whole concept. The illustration can be made by hand or digitally.
- 04** Review the first illustration within the team, discuss quality communication and iterate if necessary. Make the final illustration.
- 05** Present the Concept Illustration to the broader team and to the management of your institution.



## DURATION

2-3 hours.



## PARTICIPANTS

Two educators of the core team and one professional designer/educator with design background.



## MATERIAL

A1 paper, pencil and other drawing material. Computer with adequate software.



## ADVICE

Ignore your concepts of good or bad illustrations for a while at least. Think of a final illustration as a vehicle of communication. The illustration is successful if the audience understands your proposal!



## ORIGIN

Traditionally used in Design.

## OUTCOME

Illustrations that show what the new concepts look like and how they can be integrated in a pedagogical framework.

## FROM HERE TO THE NEXT STEP

Once the new concept of your Learning Spaces project is approved by the management, you could communicate the new solutions to an architect or a designer if until now you did not have a professional designer in your team.

# LUZES DEADLINE

(Semáforo)



... / cronograma para apresentações  
... / onde, programado / horas específicas



... / VERMELHO - PARE

# Solution Prototype

A Solution Prototype is a real scale materialisation of a validated novel concept. Interactions and experiences can be explored and it also allows you to test how students and educators engage with each other. According to the goal of your project, you have to decide to construct an 'Appearance Prototype' or a 'Performance Prototype'. The first simulates the aesthetic appearance of the intended offerings, and the second simulates its functions. You can also build a prototype which considers both. It all depends on what you seek to learn through testing the prototype.



## DURATION

Depends on the complexity of the new room/equipment solutions.



## PARTICIPANTS

Some educators of the core team of the project and one or two professional architects, and designers or prop makers.



## MATERIAL

Depends entirely on the kind of simulation you want to perform. For a 'performance prototype' cardboard or other rigid materials can be used.



## ADVICE

The set-up should allow for real-time adjustments and changes.



## ORIGIN

Traditionally used in Design and Architecture.

## ACTIONS

- 01** Find a place where you can test your Solution Prototype. Considering the costs, build it with original materials or similar.
- 02** Invite educators and students to participate in the simulation. Explain to them why they have been invited and guide them through the prototyped space and equipment solutions.
- 03** Observe the participants' interactions with the Solution Prototype, take notes and/or record everything on video. Conduct a post-activity interview with the test persons to get non-observable feedback and to clarify emotions.
- 04** Analyse your observations from notes, video and participants' feedback and look for patterns of behaviour/opinions. Discuss necessary adjustments to the concepts embedded in your Solution Prototype. Elaborate a final document and a Brief for the architect/designer who will conceive the final design work for the new Learning Space.

## OUTCOME

After the Solution Prototype testing session, you will get clearer solutions based on the direct feedback of your target group.

## FROM HERE TO THE NEXT STEP

The results of the tests with the Solution Prototype will help you to elaborate the Implementation Plan.

CHALLENGES →  
INITIATIVES ↓

material  
production

...

classroom  
activities

TYPE OF  
MATERIAL

...

...

performance  
in school spaces

...

...



# Implementation Plan

This tool of the Extension phase serves to determine the implementation issues and create a task plan. A well-designed Implementation Plan provides a structure for implementing your new vision for learning spaces, highlighting different ways of interaction. Visually, the Implementation Plan is a matrix or chart which allows you to describe the different initiatives and competencies necessary to implement goals.



#### DURATION

2-3 hours.



#### PARTICIPANTS

Some participants from your core team.



#### MATERIAL

White board or a big sheet of paper, sticky notes, pens and markers.



#### ADVICE

Representatives from each department involved in the implementation could participate in action 4 (researcher, administration, teaching staff, designers, etc.).



#### ORIGIN

Kumar, 2013

## 01 ACTIONS

Based on the characteristics of the developed solutions and the results of the tested Solution Prototype, write down on sticky notes all the different tasks needed to produce the new/redesigned learning spaces. Write only one task on each sticky note.

## 02

Analyse all the tasks and create a matrix with “Challenges” and “Initiatives” as headers. “Challenges” could be ‘Produce Material’, ‘Hire People’, or ‘Manage Relationships with Partners’. The categories of “Initiatives” could be ‘Institutional Relevance’, ‘Classroom Activities’ or ‘Performances in School Spaces’.

## 03

Arrange the sticky notes on the chart and fill any empty spaces in rows and columns with other tasks necessary to put the new concept into practice. For example: Which kind of material you have to produce: 1.) with institutional relevance, 2.) for classroom activities, 3.) for performances in different school spaces?

## 04

Reflect and discuss how your HEI or VET institution will address the key implementation challenges. Write a description of all implementation challenges and distribute the tasks amongst the different stakeholders.

## OUTCOME

A plan for the implementation of the new learning spaces and associated artefacts, identifying tasks, and resources needed to fulfil the expected challenges proposed a within timeframe.

## FROM HERE TO THE NEXT STEP

An Implementation Plan is not a static matrix. Since you used sticky notes for each task, you can substitute or complement the activities for the implementation during the process of implementation. Your Design Thinking process is finished when the new learning space is created.

# Facilitating the Learning

## Recommended tools:

### Emergence

*SWOT Analysis,  
Inspiration Board*

### Experimentation

*Brainwriting*

### Exposition

*Solution Storyboard*

### Empathy

*Observation Matrix,  
Empathy Map*

### Elaboration

*Role Play*

### Extension

*Expertise Matrix*

# Role of the Facilitator



Whereas the traditional pedagogical approach emphasises the role of the teacher as the holder of the wisdom, facilitation puts the onus on the participants to become involved and become creators of their own learning.

The Teacher as Facilitator: provides an educational atmosphere where students have the opportunity to fulfil their potential for intellectual, emotional, physical and psychological growth; assesses the needs and abilities of the students and determines methods and techniques to best present and provide knowledge within assigned subject areas; ensures that students show continuous improvement; uses technology and looks for purposeful new ways and methods to engage students; welcomes the challenge of creating an engaging and at the same time demanding curriculum.

The facilitator's role is to be the initiator that supports the students to create their learning experiences and therefore he/she needs to introduce subjects of discussion, encourage the sharing of perspectives, and integrate students' shared experiences and differences.

It is not always an easy task to act as a facilitator and there are several aspects to be taken into consideration:

- ➔ The position and relationships in the classroom should be constantly negotiated and changeable from: knowing, guiding, facilitating, asking, challenging...
- ➔ The classroom should be considered as a holistic system, where all the actors have different roles and responsibilities; and where different perspectives, realities and beliefs coexist and should be respected;
- ➔ Meta-communication and meta-reflection are the keys to this process, where the teacher supports students to think, reflect and communicate.
- ➔ Curiosity and (balanced) disturbances are sources of construction of new knowledge and learning;
- ➔ Context is the frame where all actions take place and where all relationships evolve, thus the different contexts where the learning occurs should be considered as essential when being a facilitator.

Design Thinking can help one to be a facilitator of learning experiences. The Design Thinking tools, on the left side, can help one to explore one's own pedagogical skills and become a facilitator of learning experiences.



# SWOT Analysis

In this scenario, a SWOT Analysis is used with similar objectives as in the scenario 2. Use SWOT at the beginning of a project to synthesise insights for strategic change and to create awareness of interesting opportunities for the role of the educator/facilitator. SWOT helps to understand the positive aspects of educators/facilitators, what is functioning in learning/teaching, what makes him/her stand out, which aspects are an advantage, and what could be improved. You will also analyse and map good examples outside your organisation and to recognise opportunities to be explored in teaching/learning relationships. SWOT also explores possible threats.

## ACTIONS

- 01** A SWOT analysis is usually registered on a template: a map with a four-square quadrant with Strength and Opportunities in the left and right top corners, and Weakness and Threats on the left and right lower corner. Draw the SWOT template on a white board, or using four sheets of paper.
- 02** Use a standard set up of a regular Brainstorm session, generating ideas (write them on sticky notes) for Strengths, Weaknesses, Opportunities and Threats.
- 03** Check if every idea is in the right quadrant. Start to sort the ideas based on their affinity.
- 04** After the sorting and clustering is complete, start a group conversation to create a broad category for each smaller cluster. The quality of your SWOT depends on a thorough understanding of the facilitator's role in a teaching/learning process and is typically done with a multidisciplinary team involving students, teachers and staff.



## DURATION

Up to 3 hours (prior research and preparation can take some days).



## PARTICIPANTS

Three or four educators, two staff, two students.



## MATERIAL

A big White Board or Flip Chart paper, sticky notes, pens and markers.



## ADVICE

SWOT is a very effective way to start a project and should be applied with rigour and attention to detail! Rely on facts and not opinions – it helps to do some prior research.



## ORIGIN

Originally developed by Albert Humphrey at Stanford University, 1965.

## OUTCOME

A SWOT matrix will give you a deep understanding of what exactly you will have to change and what not in the way an educator/facilitator acts and interacts in the process of teaching and learning. It can also show you why change is necessary and wanted.

## FROM HERE TO THE NEXT STEP

The results of a SWOT analysis provides a better focus on necessary and possible changes of the facilitator's role in the current situation. It is an effective way to start a project.



Handwritten text on a yellow sticky note in the top left corner.

Handwritten text on a yellow sticky note in the top middle area.

Handwritten text on a yellow sticky note in the top right corner.

Handwritten text on a yellow sticky note in the middle left area.

Handwritten text on a yellow sticky note in the middle right area.

Handwritten text on a yellow sticky note in the bottom left area.

Handwritten text on a yellow sticky note in the bottom middle area.

# Inspiration Board

Inspiration boards are popular tools to visualise information and trends. Probably you are familiarised with the tool because of the Pinterest app. An inspiration board is a fun, risk-free and stress-free way to collect interesting images related to your project without much analysing. It is also an effective way to let go of critical and logical thoughts and to (re)discover parts of a larger picture that realistically illustrate the world of education and pedagogy.

## 01 ACTIONS

- 01** Pinterest is an interesting online application that allows you to create an inspiration board. You can create a "secret" board on Pinterest and invite the other participants to join it.
- 02** Collect interesting images on the Pinterest Board using search words such as 'pedagogy', 'teaching' or 'learning', etc.
- 03** Everybody in the team votes for the most inspiring images by clicking on the heart.
- 04** After voting, save the best images that reflect the values and educational beliefs of your institution to a folder on the desktop of a computer. Use editing software and join the images together in one document, cropping and repositioning the photos as needed. It is almost like working out a puzzle; the images should fit together to achieve a cohesive outcome.
- 05** Print your Inspiration Board in an A2 format and fix it to the wall where you work on the project.



## DURATION

30 min - 1 hour.



## PARTICIPANTS

Some (visual art) educators from your core team, the ones who have fun playing around with images.



## MATERIAL

A computer based platform accessible to all participants, and a Pinterest account.



## ADVICE

Think of the creation of an Inspiration board as play. There are no rules to organise or categorise the images which inspire your pedagogical framework.



## ORIGIN

Author unknown; the inspiration board has traditionally been part of the design process.

## OUTCOME

The outcome of this tool is a board with a composition of selected images about facilitators, students and their interactions in a teaching/learning process. The main objective is to get inspiration for the project during the elaboration of the board and by looking at the result.

## FROM HERE TO THE NEXT STEP

The Inspiration Board is a great visual support to complement a SWOT analysis and can be used to build mental images needed in the tools used in later stages of the project.

CONTEXT HUMAN FACTORS	People <i>(facilitator/students)</i>	Objects <i>(use for learning)</i>	Enviroments <i>(class rooms,...)</i>
<i>Physical</i>			
<i>Cognitive</i>			
<i>Social</i>			
<i>Cultural</i>			
<i>Emotional</i>			



# Observation Matrix



An observation matrix is a tool to organise, cluster and annotate information gathered during user observation. This information can be of any kind (videos, photos, transcripts, field notes, diagrams, sketches, etc ...). Sometimes it is worthwhile to complement videos and photos with some text to avoid misleading perceptions.



## DURATION

Information gathering can take several days or weeks, the compiling should not take more than 3-4 hours.



## PARTICIPANTS

Your core team and of course the people who are observed.



## MATERIAL

A big white board, scenario paper or several A0 sheets, rulers and markers, and big sticky notes.



## ADVICE

Independent observation can be very useful to deflect biased thinking.



## ORIGIN

Adapted from “User Observation Database”, Kumar (2013).

## ACTIONS

- 01** Gather information through any method of observation and prepare the results in a workable format: video sequences, annotated pictures, topics from a transcription, a diagram, etc...
- 02** Organise the results, cluster similar observations under a common header.
- 03** Use those observation clusters as headers of the Observation Matrix. Use as column headers important aspects or initiatives involving the role of the facilitator. The POEMS (People, Objects, Environments, Messages and Services) framework or FHF (Five Human Factors - Physical, Cognitive, Social, Cultural, and Emotional) can be used as support.
- 04** Analyse and summarise the results. Reflect and discuss the insights you gained about the Role of Facilitator.

## OUTCOME

A clear understanding of the interactions between the teacher and students, and the influence of the facilitator in the process of teaching/learning.

## FROM HERE TO THE NEXT STEP

Insights from observation are valuable input for most of the tools applied in later stages.

values | concerns | judgements

needs | dreams | measures of success

### THINK

### WISHES



Think too much!

"You can do it!"

Veracidade

Brochuras Interativas

INNOVAÇÕES

Futuro!

Rapidez!  
⚙️

NOVOS SERVIÇOS

INSTANCA, ÉLIA

INNOVATE

SOCIAL NETWORKS  
🌐



BLOGS HQBMD

The User SITES  
ARS TECHNICA

PAIXÃO TRABALHO

STRESS

TAREFAS  
✍️

DESENHOS!

LOVE IT



FUGIR AOS PROBLEMAS

AAAAHH...

### FEELS

### DOES

cheers | proud +  
fears | frustrations -

public attitude | appearance | behaviour

# Empathy Map

An Empathy Map is a tool to gain a deeper insight into the user's/student's cognitive and emotional world. It supports your team in the discussion about how your students perceive the learning spaces you aim to improve and which kind of aspects influence their learning behaviour.



**DURATION**

40 min.



**PARTICIPANTS**

Some educators/facilitators of your core team.



**MATERIAL**

A1 paper sheet in a horizontal position, black and colour markers, tape to fix the paper on the wall, and sticky notes in different colours.



**ADVICE**

You can find different templates of the Empathy Map online. Choose the one you find more attractive.



**ORIGIN**

XPlane, 2009

**ACTIONS**

- 01** Choose a template for the Empathy Map from the Internet. You can print it on a big sheet or just copy it by hand on an A1 paper sheet.
- 02** Create a Persona which represents your typical student who is using a certain learning space you are working on. Give this student a name and age. If you have applied the tool Persona in the step before, choose the primary Persona into this activity.
- 03** In your team complete the template of the Empathy Map, filling out the categories 'Hearing', 'Seeing', 'Feeling', etc. related with the world of Learning and Education. Put yourselves in your student's shoes and consider the student's point of view. Write every idea on a separate sticky note, so that your ideas are easier to move. Ideally everyone should add at least one sticky note to every section. You might ask questions, such as: What would the student be thinking and feeling? What are some of his/her worries and aspirations? What would his/her teachers be likely to say while the student is using a different learning spaces? What would the student hear in these scenarios? What would the student see while using the learning spaces? What are some of the user's problems or fears when using the space ?

- 04** During the all the information: What are the needs of this kind of student? What is he/she expecting from the learning spaces in your institution? What is helping him/her to have positive learning experiences?

**OUTCOME**

The outcome of the Empathy Map is a profile of a typical student of your institution to understand better his/her needs related with the role of facilitators and educators.

**FROM HERE TO THE NEXT STEP**

Based on the information you obtain through the tools applied in the Empathy phase, you can start the Experimentation phase of the D-think process, generating ideas for new performances of facilitators.

Equipe de Projecto  
Equipas  
Estratégias  
Impulso Criativo

FORMAÇÃO  
FLEXIVEL PI  
CASAI'S

BABYSITTING  
DURANTE  
FORMAÇÃO  
INTEGRAÇÃO  
DA FAMÍLIA  
NUM EVENTO  
DE NETWORK?

RIO

JOGO DE FUTEBOL  
SOLIDÁRIO

UM DIA  
COM...

JUNIOR  
KDEI

ESTÁGIOS  
APGEI

Foco ESTUDANTE

PUBLICAÇÕES

RECURSOS

PUBLICAÇÕES  
% A FAZER  
DE ...

Grupos

PUBLICAÇÕES  
PROJETOS  
TÍTULOS  
SERVIÇOS

PROJETOS  
TÍTULOS  
SERVIÇOS

Grupos

PAPER'S  
UNIVERSITÁRIOS

Foco Professores  
Universitários

MENTORIA  
Mentorias  
- PRO DING

TRABALHAR EM  
GRUPO  
ABORDAR ESTES  
GRUPOS ESPANHÓIS

TRABALHAR EM  
GRUPO  
ABORDAR ESTES  
GRUPOS ESPANHÓIS

Grupos

Grupos

# Brainwriting



**Brainwriting is a tool for idea generation in groups. It is a variant of Brainstorming. Whereas in a Brainstorm session you need a facilitator, in a Brainwriting session you can work independently as a group. Ideas are not spoken aloud, but written in silence. If you write ideas on sticky notes, you can cluster similar ideas between the first and the second round.**

## 01 ACTIONS

Explain the rules of Brainwriting to the participants: 1. Every idea is welcome. 2. Build on the ideas of others. 3. Think in extreme perspectives. 4. Hold your judgment, 5. Have fun! Start the session with a topic, a question or an image (based on your Intent Statement) put it on the wall/whiteboard, where you will stick notes to.

## 02

Everyone gets sticky notes and a black marker, and should write in big block letters, so the ideas are easy to read. It is important that every participant uses the same material to make it difficult to remember who wrote which idea. The most important rule of a Brainwriting is that all ideas belong to everyone on the team!

## 03

Give your team first 10 minutes to generate ideas by Braindumping, which means to write on the sticky notes just about any (first) ideas which come to your mind, that are normally the most common and stereotypical ones. It is important to write them down, so that you can later construct on them when looking for more original ideas.



### DURATION

30 - 40 min.



### PARTICIPANTS

5-9 persons with an open and constructive mindset.



### MATERIAL

White board or a free wall, sticky notes of the same colour, and black markers.



### ADVICE

In traditional Brainstorming sessions more extrovert people tend to dominate with their verbal contributions. Being intentionally silent, Brainwriting gives quiet persons an opportunity to generate ideas without having to verbalise to the whole group.



### ORIGIN

Adapted from Alex Osborn, 1953.

## 04

During the next 10 minutes of Brainwriting, use the results from the previous tools such as SWOT, Inspiration Board, Observation Matrix or Empathy Map to stimulate more ideas.

## 05

For the last 10 minutes you should force special stimulus, kind of “trigger questions” which help to think out-of-the-box and in extreme scenarios. A trigger question can be: “How to teach on the Moon?” or “What will happen if the classroom would not have walls?”. Uncommon situations and extreme scenarios often trigger novel thoughts.

### OUTCOME

More than 100 different ideas for application and change in role of the facilitator, from person to person interactions to radical change in the context of the teaching/learning process.

### FROM HERE TO THE NEXT STEP

After the divergent phase of the Brainwriting a convergent phase has to follow, in which ideas are categorised and selected.



# Role Play



Much more than a simple tool for predicting or exploring interactions through simulation, roleplaying is a method for constructing meaningful interactions between all the stakeholders involved in a teaching/learning process. Role-playing allows you and your team to empathise with the final users of your project.



## DURATION

The planning can take some time, but the actual role-playing should not take more than 2- hours.



## PARTICIPANTS

Some of the members of your research team and some guests.



## MATERIAL

Besides video recording devices, you will need all the material necessary in function of the intended role-play session.



## ADVICE

Role-playing can also be used as a powerful tool to explore how things can go wrong or be misused.



## ORIGIN

Role-playing as a simulation of interactions has always been used in project development.

**01**

## ACTIONS

Determine who is going to be part of the experiment (actors) and what is the intended goal. Define how you are going to enact the experiences and describe the sequence of actions and interactions you are going to perform. Perhaps you can use a story board for better planning. Divide the different tasks you need to perform during the role-playing session between the members of the team who are participating in this experiment.

**02**

Carefully prepare the set-up for the role-playing. Try to be as detailed as necessary for a realistic simulation. Do not forget to record the session on audio and on video for later analyses.

**03**

Execute the role-play session according to plan, try also to improvise, and repeat the roleplaying session as many times as necessary to get a thorough understanding of actions and interactions.

**04**

Analyse the recordings of the role-play session and discuss the outcome with your research team.

## OUTCOME

A clear (and shared) understanding of the dynamics of the proposed actions and interactions between the agents in a teaching/ learning process in a HEI or VET setting. Revised and validated proposals.

## FROM HERE TO THE NEXT STEP

Role play is a tool for validation. The results can be used in tools applied in later stages.

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# Solution Storyboard



Storyboards are widely used whenever a chain of activities and interactions between different agents within a system has to be illustrated in a comprehensive way. They provide a clear understanding of the role of the facilitator in a teaching/learning system. The construction of a storyboard can also be applied as a hands on methodology to validate previously gathered insights and a way to approach solutions from different perspectives.



#### DURATION

2-3 hours.



#### PARTICIPANTS

Your core development team.



#### MATERIAL

A storyboard can be drawn on any kind of paper: a sequence of A4 paper sheets or big sheet of paper. Special software for storyboarding is also available for download. Coloured markers.



#### ADVICE

Someone with sketching skills and fluent in schematic drawing is a valuable asset for your team.



#### ORIGIN

Solution Storyboard is described by Kumar (2013).

#### ACTIONS

- 01** Everyone involved in the elaboration of a Solution Storyboard should be well informed about the planned changes in the role of the facilitator: who is involved, what is necessary to be achieved, how this can be implemented, etc...
- 02** Create different characters which are involved in a process of teaching/learning and describe their experiences.
- 03** Try to illustrate the result of their experiences and how they interact. Write and sketch different scenarios based on how those characters interact and react among themselves and with the facilitator.
- 04** Elaborate a concise storyboard to illustrate your team's proposals to the wider community of your HEI or VET institutions.
- 05** Use those storyboards to get valuable feedback from other stakeholders.

#### OUTCOME

A (sequenced) set of clear illustrations about the new role of the facilitator and the dynamic of interactions involved.

#### FROM HERE TO THE NEXT STEP

A Solution Storyboard can be used as a communication tool but it also delivers input for other tools usually applied at this stage of the project.

COMPETENCIES FACILITATORS CHARACTERISTICS	C1	C2	C3
INITIATIVES/ACTIONS			
i1			
i2			
i3			
i4			

# Expertise Matrix

An Expertise Matrix helps to identify the required competencies for the implementation of the project. Actions or initiatives are listed on the vertical axis and competencies are listed on the horizontal axis. The cells are used to describe the competencies needed to implement change in the role of the facilitator. If internal competencies are not available you need to acquire expertise from outside sources.



#### DURATION

Not defined.



#### PARTICIPANTS

Members of your core project team.



#### MATERIAL

Sticky notes, pens and markers and white board.



#### ADVICE

A detailed Expertise Matrix is essential for the productive implementation of your pedagogical framework.



#### ORIGIN

Orig. described as Competencies Plan by Kumar (2013).

#### ACTIONS

- 01** Make a comprehensive list of all the actions and initiatives required to successfully change the role of the facilitator.
- 02** Analyse and discuss which expertise or competencies you need to effectively implement each initiative.
- 03** Organise the matrix with the initiatives as row headings and the characteristics of the facilitator as column headings.
- 04** For each cell where specific skills are required to comply with an initiative, analyse and describe how the existing expertise from within your organisation can be efficiently applied or how you can successfully search for complementary competency from external sources. Define if this particular initiative is critical for the overall success of your project.
- 05** Discuss this expertise overview with all the stakeholders of the project in order to devise an action plan.

#### OUTCOME

A comprehensive overview of all the expertise required for the successful change of the educator's/facilitators role in your institution.

#### FROM HERE TO THE NEXT STEP

After completing the Expertise Matrix, you can implement the necessary changes related to the methodological and didactical approach of the educators/facilitators in your HEI/VET Institution. To support the implementation, you could realise also a Feedback Map (scenario 4).

*I never teach  
my pupils,  
I only provide  
the conditions  
in which they  
can learn.*

*Albert Einstein*

# Final Reflections

Some considerations to bear in mind when applying Design Thinking in your HEI and VET contexts.

## **The Mindset**

Although Design Thinking is defined as a method when used by an interdisciplinary team to deal with ill-defined problems, it is above all a mindset. But, you cannot change your understanding of new approaches to problem solving in one day. It takes experience, resilience and time until it starts feeling natural to apply the Design Thinking tools. Practice makes perfect, and failure takes a major part in applying and understanding DT.

## **The Process**

DT is not simple and its process is not linear. Rather, it is a complex system of overlapping spaces, described as phases in the E6<sup>2</sup> model. More often than not, during the process, your team will need to loop back to previous phases more than once. This non-linear nature of a DT process, profoundly based on experimentation, will allow your team to build innovative ideas. It can also serve as an improvement and refinement process.

There is not just one way to move through the process. The scenarios described in this toolkit will guide you through the process, but this does not mean you have to follow them to the letter as in a recipe. Take them instead as loose guidelines that provide pathways, starting points and milestones

## **The Team**

Although some of the scenarios proposed in this toolkit can be carried out individually, having a team to work with will provide a much richer work environment. Advise everyone on your team to make active use of their expertise along the journey.

Think carefully when assembling your team. Make sure your team members share the same passion and willpower as you, and are willing to go beyond their capacities and field of expertise. A disposition for collaboration across disciplines is fundamental, and it is this which distinguishes an interdisciplinary team, as opposed to a multidisciplinary one. The more diverse your team, the better the chances of returning novel results. Your team size may vary along the process, but start and keep a small core team to ensure good, fast results. This core will drive and pull the team and the project forward when things get rough (yes, it will get complicated!). If possible include a representative of each stakeholder you have identified on the process. Introduce them at specific key moments, this will provide you with insights you would get in hardly any other way.

## **The Working Environment**

The working space is a key aspect of exploiting your team's full range of talents. The physical space should foster an environment where everyone feels comfortable in experimenting, taking risks and exploring their full potential. Physical and social spaces define the effectiveness of the persons or teams who work in them. Consider a large room for the project where you can have all the material produced plainly visible and always available. Use the walls to display charts, maps, inspiration boards, matrixes, photos and storyboards, that you and your team have produced or gathered. This will help your team to spot patterns and encourages creative connections.

## **The Time Management**

Because DT is applied within the context of a project, it has to be achieved in a restricted timeframe. A project has a beginning, a middle and an end. These constraints bind it to real life. It's deadlines and milestones force one to be disciplined, but also supply opportunities to review the process, re-establish milestones or adjust subsequent activities. Make sure you embrace these constraints and set a timeframe and a clear objective for your project. However, you know that change and innovation in the fields of education and training is an ongoing effort. When you get to the EXTENSION phase, where you implement the best solution your team developed, the work continues by improving on your proposed outcome. This is accomplished by going over the process once again, with the new, crucial information gathered through feedback from your stakeholders and customers. This is one of the main reasons why it is essential that your team logs and records every single step of the process. And all those discarded ideas might well point you to a new idea or towards improving your solution, now that you have a deeper understanding of the scenario you are dealing with.

*Be an  
amateur!*

*That's what  
we are all:  
amateurs.*

*Nobody lives  
long enough to be  
something else.*

*Charlie Chaplin*

# Tool List

## EMERGENCE

Benchmarking - p. 79 + 97  
Buzz Report - p. 29  
Expert Workshop - p. 33  
Frame the Challenge - p. 49  
Inspiration Board - p. 31 + 143  
Intent Statement - p. 77 + 119  
Media Research - p. 51  
Opportunity Mind Map - p. 55 + 99  
SWOT Analysis - p. 53 + 141  
Trendmatrix - p. 117

## EMPATHY

Empathy Map - p. 125, 147  
Image Interview - p. 61  
Interview - p. 101  
Interest Group Discussion - p. 59 + 81  
Observation Matrix - p. 145  
Persona Map and Cards - p. 63 + 123  
Stakeholder Map - p. 35 + 57  
User Interaction Map - p. 121

## EXPERIMENTATION

Brainwriting - p. 83 + 149  
Brainsketching - p. 127  
Concept Analogies - p. 105  
Current to New Perspectives - p. 37 + 103  
Desktop Walkthrough - p. 129  
Dot Voting - p. 67  
Goal Oriented Brainwriting - p. 65  
Insight Clustering - p. 85

## ELABORATION

Assessment Canvas - p. 107  
Concept Mind Map - p. 87  
Concept Prototype - p. 89  
Curriculum Blueprint - p. 69  
Evaluation Matrix - p. 41  
Role Play - p. 131 + 151  
Scenarios - p. 39

## EXPOSITION

Concept Illustration - p. 133  
Concept Visualisation - p. 71  
Presentation Board - p. 91  
Solution Prototype - p. 135  
Solution Storyboard - p. 153  
Vision Statement - p. 43 + 109

## EXTENSION

Expertise Matrix - p. 45 + 155  
Feedback Map - p. 113  
Implementation Plan - p. 92 + 137  
Print Media - p. 111  
Roadmap - p. 73



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