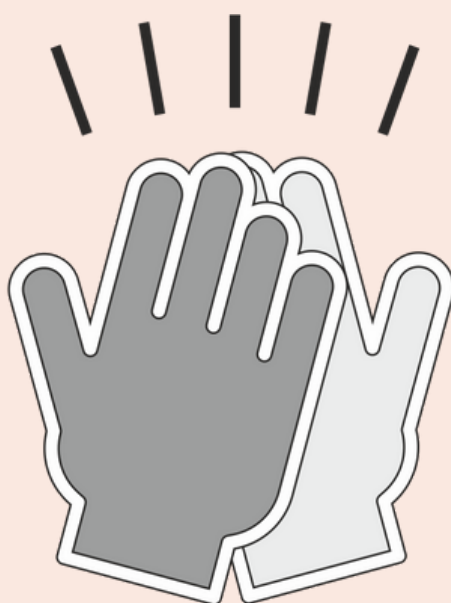




Erasmus+

2019-1-PL01-KA203-065784



HIGH 5

**INTEGRATED
DESIGN**

INFO CARDS

2022



INTEGRATED DESIGN - Collection of info cards on Integrated Design (English language version)

© High5 Erasmus+ project consortium, 2022

Lodz University of Technology, Poland

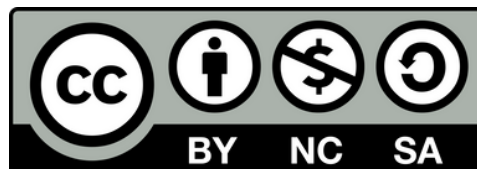
University of Thessaly, Greece

University of Aveiro, Portugal

University of Library Studies and Information Technologies, Bulgaria

Tallinn University, Estonia

This work is licensed under CC BY-NC-SA (<https://creativecommons.org/licenses/by-ncsa/4.0/>). This license allows users to distribute, remix, adapt, and build upon the material in any medium or format for noncommercial purposes only, and only so long as attribution is given to the creator. If you remix, adapt, or build upon the material, you must license the modified material under identical terms.



This project has been co-funded by the Erasmus+ Programme of the European Union.

This publication reflects the views only of the author, the National Agency and European Commission cannot be held responsible for any use which may be made of the information contained therein.


PUBLICATION FREE OF CHARGE




INTEGRATED DESIGN



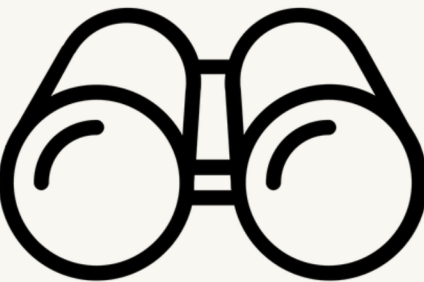
Integrated Design (ID) is a new methodology that leads to innovative solutions to answering real human problems and fulfilling people's needs. ID is based on Design Thinking and Problem-Based Learning. Additionally, Integrated Design focuses on sustainability and circular economy aspects.




5-steps non-linear process




Problems are treated as challenges



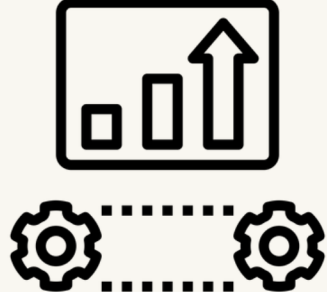
Looking for the best solution



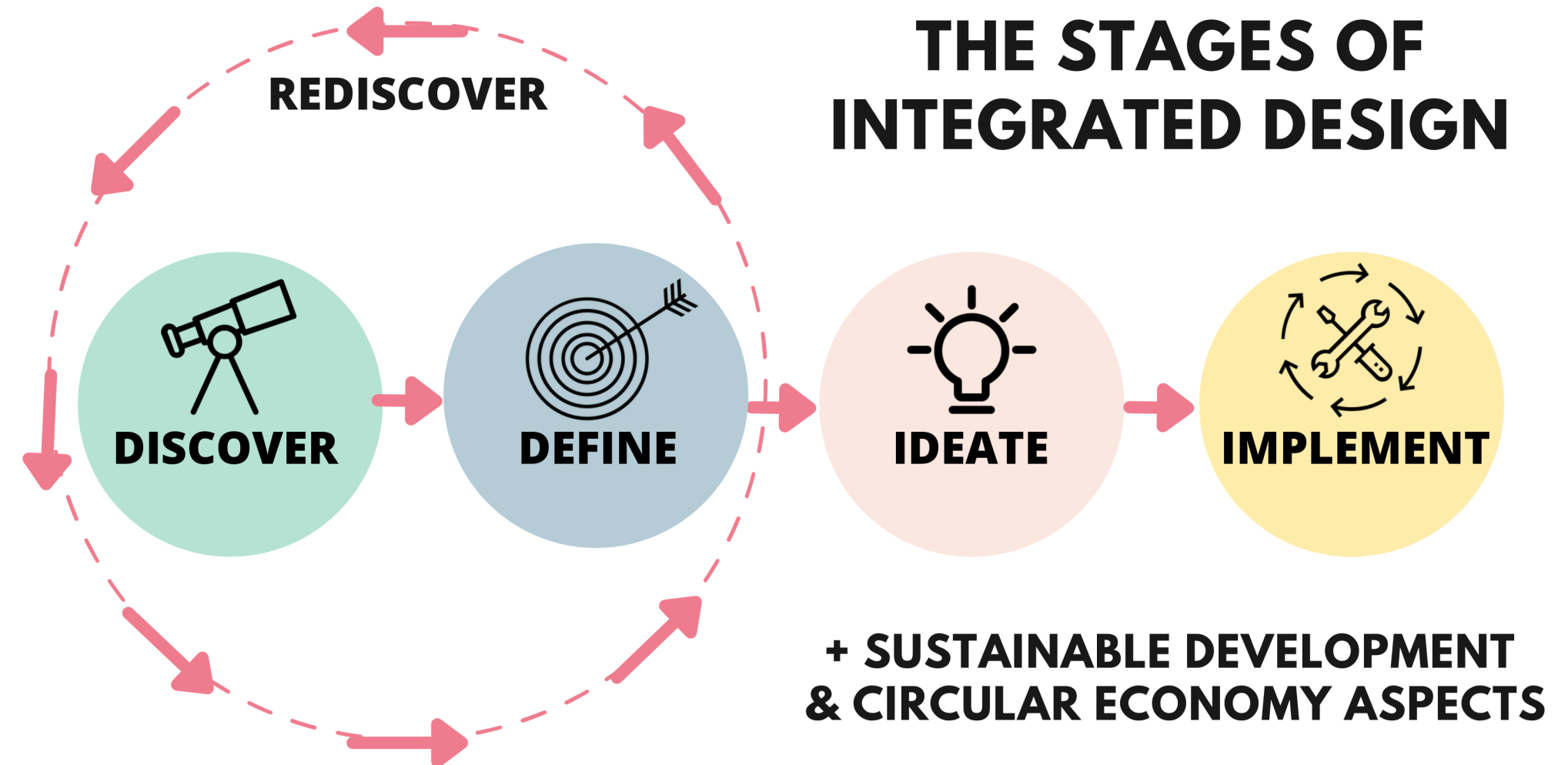
Sustainable development and circular economy aspects are implemented



USER is in the centre of the process



Small changes can lead to innovation





DISCOVER

This stage of the Integrated Design process is about gathering information to understand the potential users and environment and build empathy about the situation.

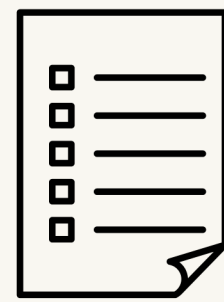
ELEMENTS OF DISCOVERY



empathy



interviews



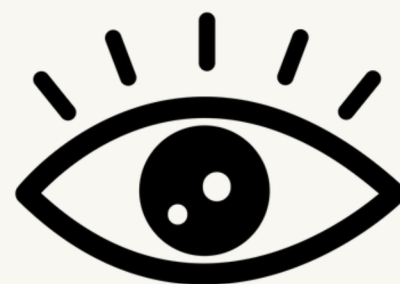
questionnaires



empathic research



immersion



observation

PROS AND CONS OF DISCOVERY PHASE



- Tangible information
- Human experience
- Can be quick if predefined well
- Widen the researchers view
- Data driven solutions



- Methodology dependent
- Researcher bias
- People lie or act to look better
- Data gathering is expensive
- Data processing is time consuming
- Knowledge of data analysis needed

EXAMPLES HOW TO CONDUCT DISCOVERY PHASE

- Search information on- and offline
- Take part in the process that you want to improve
- Look and listen to the people affected
- Think through the sequence and wording of each question in the questionnaire
- Structured, semi-structured or not structured interviews



DEFINE

This stage is about the definition of how to get to a sustainable goal and links the finding of Discovery to a developing solution in Ideate.

STEPS OF DEFINE



user & needs



problem statement



challenge



how might we?



your SD goal

PROS AND CONS OF DEFINE PHASE



- design of the challenge
- familiarizing with your user - creating a persona
- finding out the real need/insights/problem for the potential user
- linking the challenge with sustainable development goals



- no consideration of some challenges
- sometimes no appropriate resolution
- dependence on the perspective

EXAMPLES HOW TO CONDUCT DEFINE PHASE STEP-BY-STEP

1

DEFINE CHALLENGES TO BE SOLVED

2

ANALYSE THE USER AND HIS NEEDS IN LIGHT OF YOUR CHALLENGE

3

STATE A PROBLEM BASED ON YOUR CHALLENGE

4

PRESENT DIFFERENT APPROACHES TO PROBLEM

5

LINK THE CHALLENGE TO APPROPRIATE SUSTAINABLE DEVELOPMENT GOAL

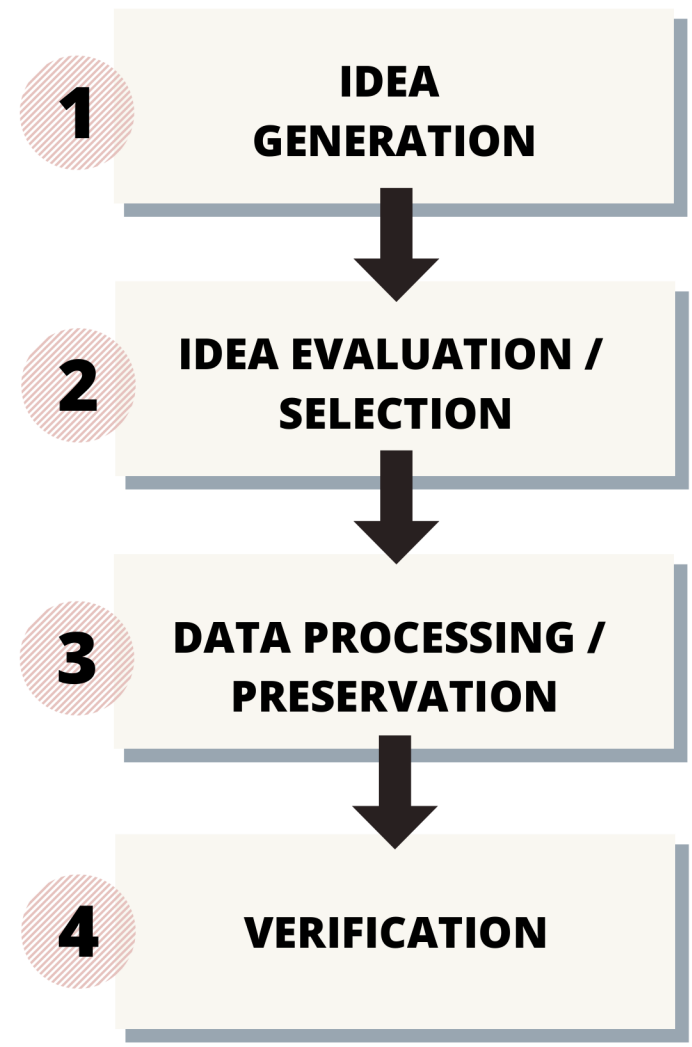


IDEATE

DEFINITION

Techniques that are used for maintaining and improving the group decision process.
Finding the conclusion from the set of ideas contributed by all members of the working project team.

STAGES OF IDEATION



PROS AND CONS OF BRAINSTORMING

- Teaches to listen
- Building on the ideas of teammates
- Stimulates creativity
- Each participant has the same value
- Quick
- Multidirectional approach

- Overdomination/submissive approach
- Paralyzing fear of someone else's judgment
- Chaos during the session
- A tendency to explore topics unrelated to the task
- Group responsibility = no responsibility
- First shot perfect
- "Next in line" effect
- Frequent decline in individual motivation

EXAMPLARY TECHNIQUES FOR IDEATION

- 6-3-5
- Checklist
- S.C.A.M.P.E.R
- Chain of associations
- Trend maps
- Decomposition
- Change of features
- Emphatizing-storm
- Philips 66
- Reverse Thinking
- Walt Disney
- Idea note
- Two steps swap
- ABC avalanche

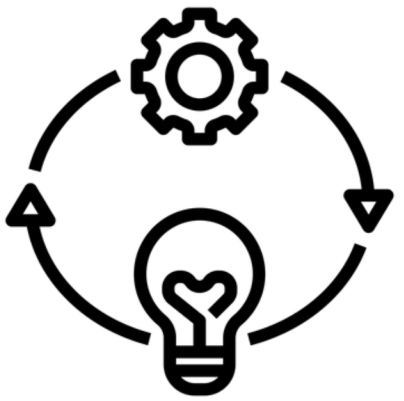
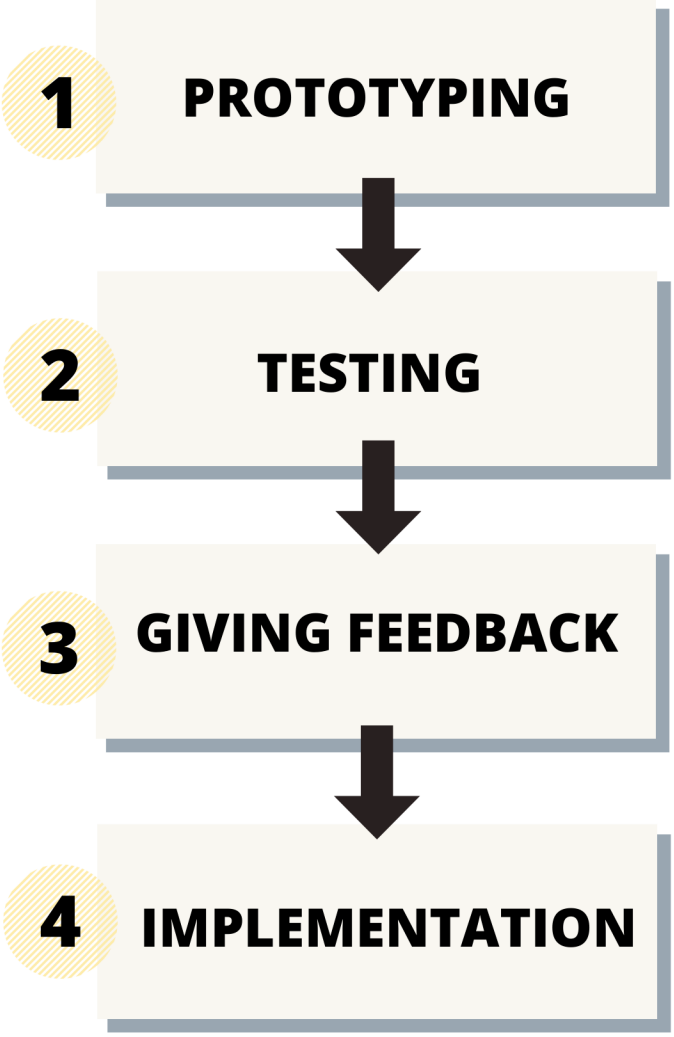
EXAMPLARY TECHNIQUES FOR EVALUATION OF IDEAS AND IDEA SELECTION

- **FAN**
 - assessment if the method is feasible, attractive, or novel
- **ROSE, THORN, BUD**
 - Assessment of what was the success, what was the challenge, and in what is the potential
- **NOW/HOW/WOW**
 - What can be done now, how can it be done and what is surprising



IMPLEMENT


STAGES OF IMPLEMENTATION



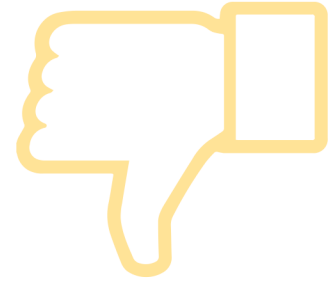
DEFINITION

This stage is about implementing the new idea into practice.
The proposed techniques bring a variety of possibilities to make the process of implementation smoother.

PROS AND CONS OF IMPLEMENTATION PHASE



- Prototype creation
- Implementation new ideas
- Optimisation of the life
- Thinking about the environment
- Getting feedback from the users



- Leaving the comfort zone
- Takes effort
- Takes time
- Make a loop and rethink the previous phases: discover, define and ideate

EXEMPLARY TECHNIQUES FOR PROTOTYPING

- Get Visual with Journey Map, Storyboard, Mindmap
- Rapid Prototyping - Agile
- Role Play
- Co-Creation Session
- Low-resolution prototype

EXEMPLARY TECHNIQUES FOR TESTING

- Live Prototyping
- Keep Iterating
- Build Partnerships
- Roadmap
- Sustainable Revenue
- Measure and Evaluate

EXEMPLARY TECHNIQUES FOR GIVING FEEDBACK

- Interviews
- Questionnaires



SUSTAINABLE DEVELOPMENT



It is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.

SUSTAINABLE DEVELOPMENT GOALS (SDG):

* adopted by the UN

* provides a framework for implementing sustainability in a global scale

* 17 global goals in total (environmental, social and economic)

* each is divided into smaller targets

* ALL GOALS ARE IMPORTANT



THREE MAIN AREAS OF SD

environmental (most important and basis for all others)

social (related to quality of life)

economic (trade, jobs, market, industries, production)

SDG PRINCIPLES
UNIVERSAL
INTEGRATIVE
TRANSFORMATIVE

EXAMPLES FOR TEACHING

- 3R Strategy
- SDG flashcards
- Interviewing specialists
- Circular economy and LCA
- Ecodesign
- The Living Planet Index (LPA)
- Design for behavior
- Introducing NGOs, their approaches, and achievements
- Great Acceleration

FEW PROMPT QUESTIONS

- Do we engage in sustainable behavior?
- What kind of impact do we have on our surroundings?
- How can we contribute to SDGs more successfully?
- Which needs (both the planet's and people's) have been neglected?



CIRCULAR ECONOMY



CIRCULAR ECONOMY IS BASED ON 3 BASIC PRINCIPLES:

preserving and valuing natural capital: controlling finite stocks and balancing flows of renewable resources;



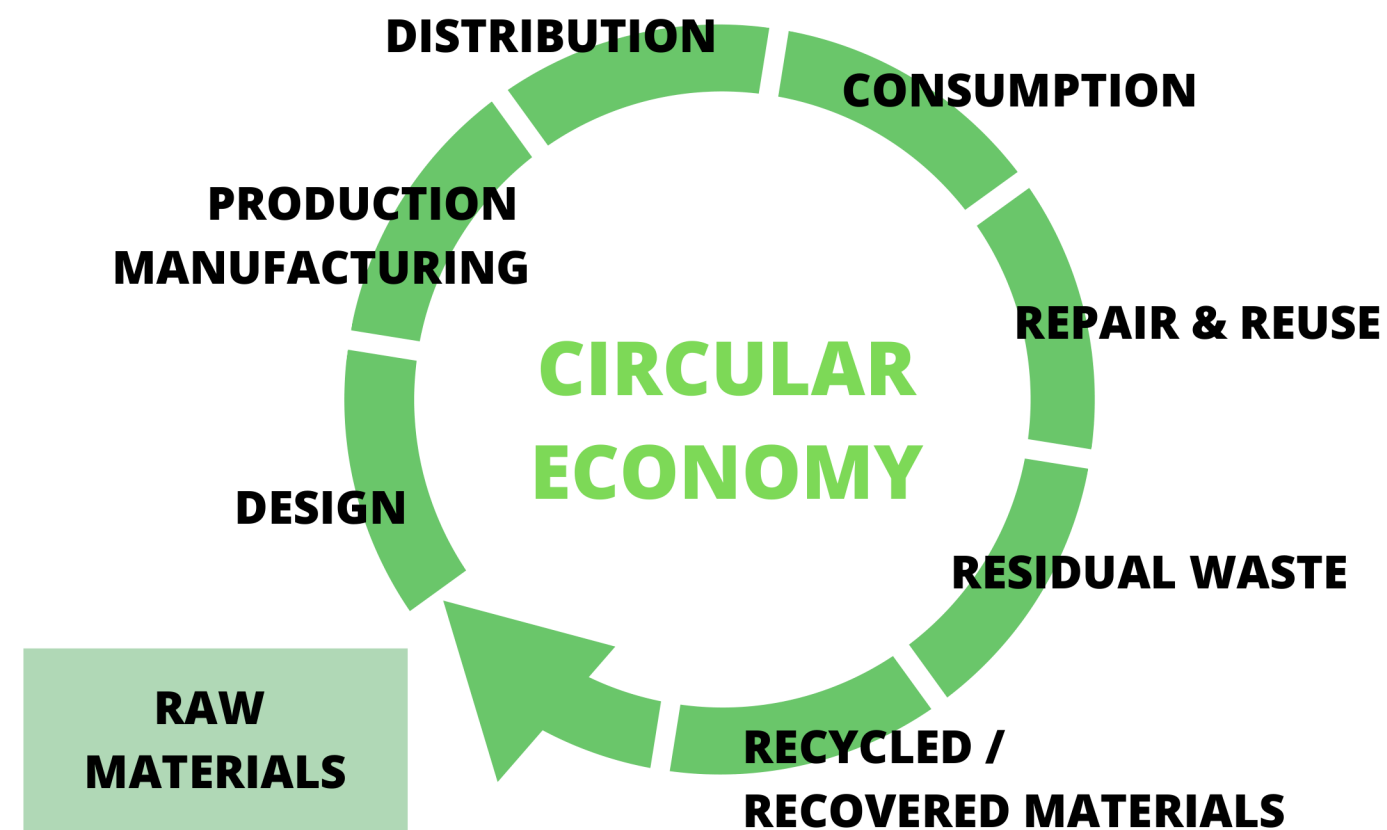
optimizing resources productivity through the circulation of products, components and materials, both in technical and biological cycles;



enhancing the effectiveness of the system by reducing harm to human welfare, food, mobility, shelter, education, health and entertainment, and managing externalities related to land use, air, water and noise pollution, release of substances and climate change.



Circular economy presents a sustainable way both to produce goods and services and to contribute to the development of economies.



Can be applied to:

- industries
- practical life (individuals and families)
- companies and institutions
- cities and society
- social innovation purposes

Benefits (some examples) to reduce the:

- need for landfill space
- pressure on virgin resources
- pollution
- water and energy consumption.
- demand for dyes and fixing agents.

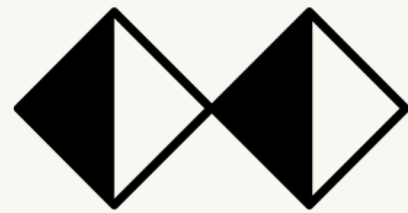


PROJECT-BASED METHODS



Project-based methods in education are a group of educational practices that provides students with the opportunity to immerse themselves in meaningful real-world projects. The students answer engaging challenges. Learners demonstrate their acquired knowledge and inquiry ability and creativity, and critical thinking. In the end, students develop and present their solutions to a real audience.

PROJECT-BASED METHODS



design thinking



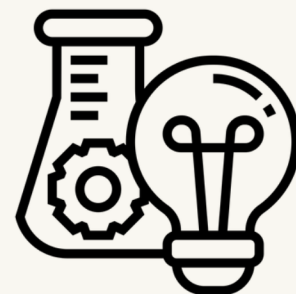
human-centered design



case teaching



problem-based learning

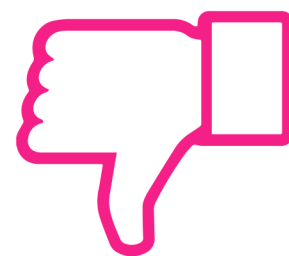


research-based learning

PROS AND CONS OF USING PROBLEM-BASED METHODS IN THE CLASSROOM



- Development of Long-Term Knowledge Retention
- Use of Diverse Instruction Types
- Continuous Engagement
- Development of Transferable Skills
- Improvement of Teamwork and Interpersonal Skills
- A lot of possible solutions



- Potentially Poorer Performance on Tests
- Teacher Unpreparedness
- No recipe to follow
- Student Unpreparedness
- Time-Consuming Assessment
- Varying Degrees of Relevancy and Applicability

WHEN USING PROJECT-BASED METHODS, REMEMBER TO...

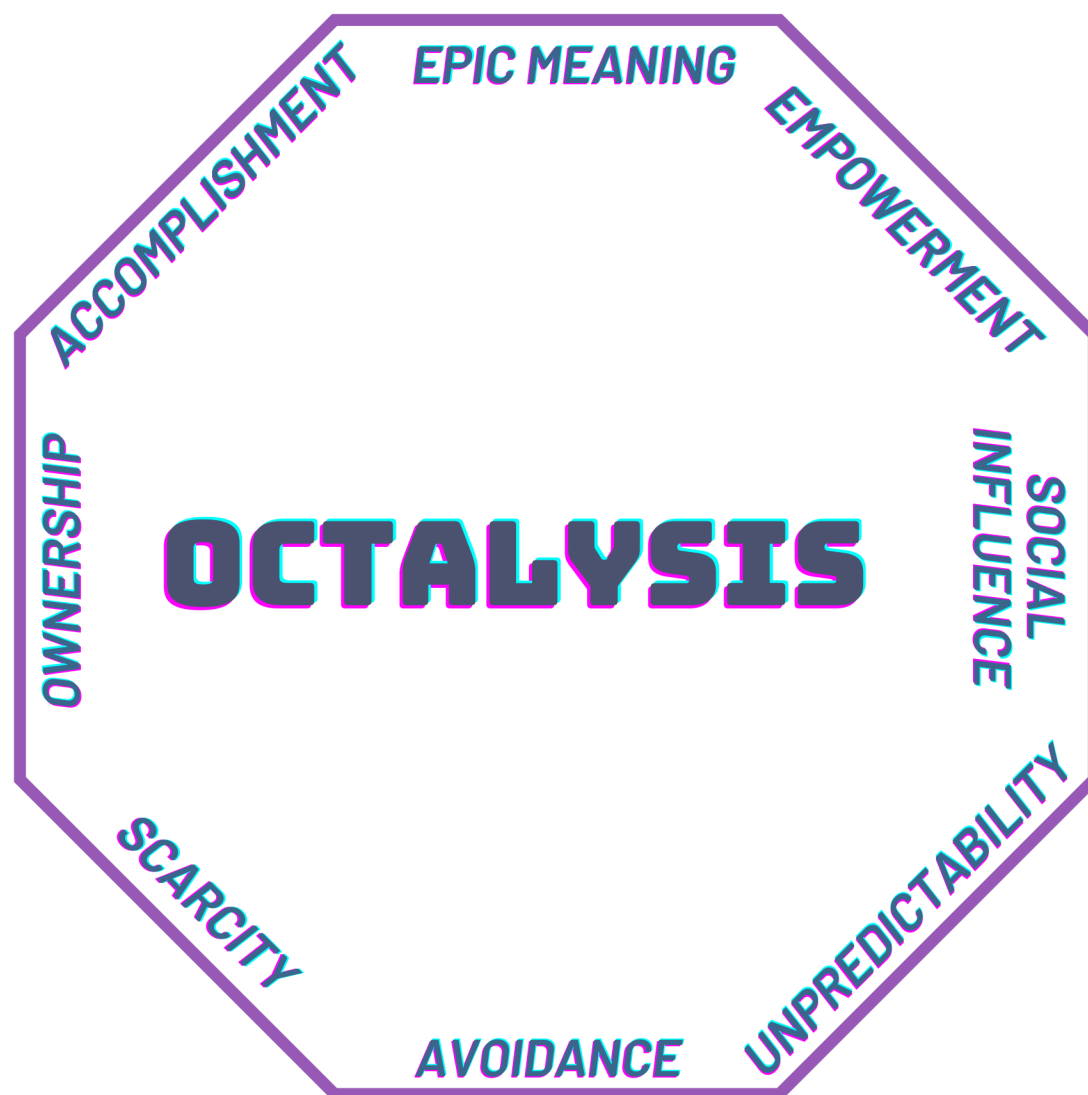
- learn from failures
- iterate your work
- try to make your solutions tangible
- identify your goal prior to work
- keep teamworking
- be active



GAMIFICATION

Gamification is the art of motivation, applying game design elements and game principles in other contexts. The concept is as old as humanity, e.g. hunters comparing their past records.

AN OCTALYSIS GAMIFICATION FRAMEWORK



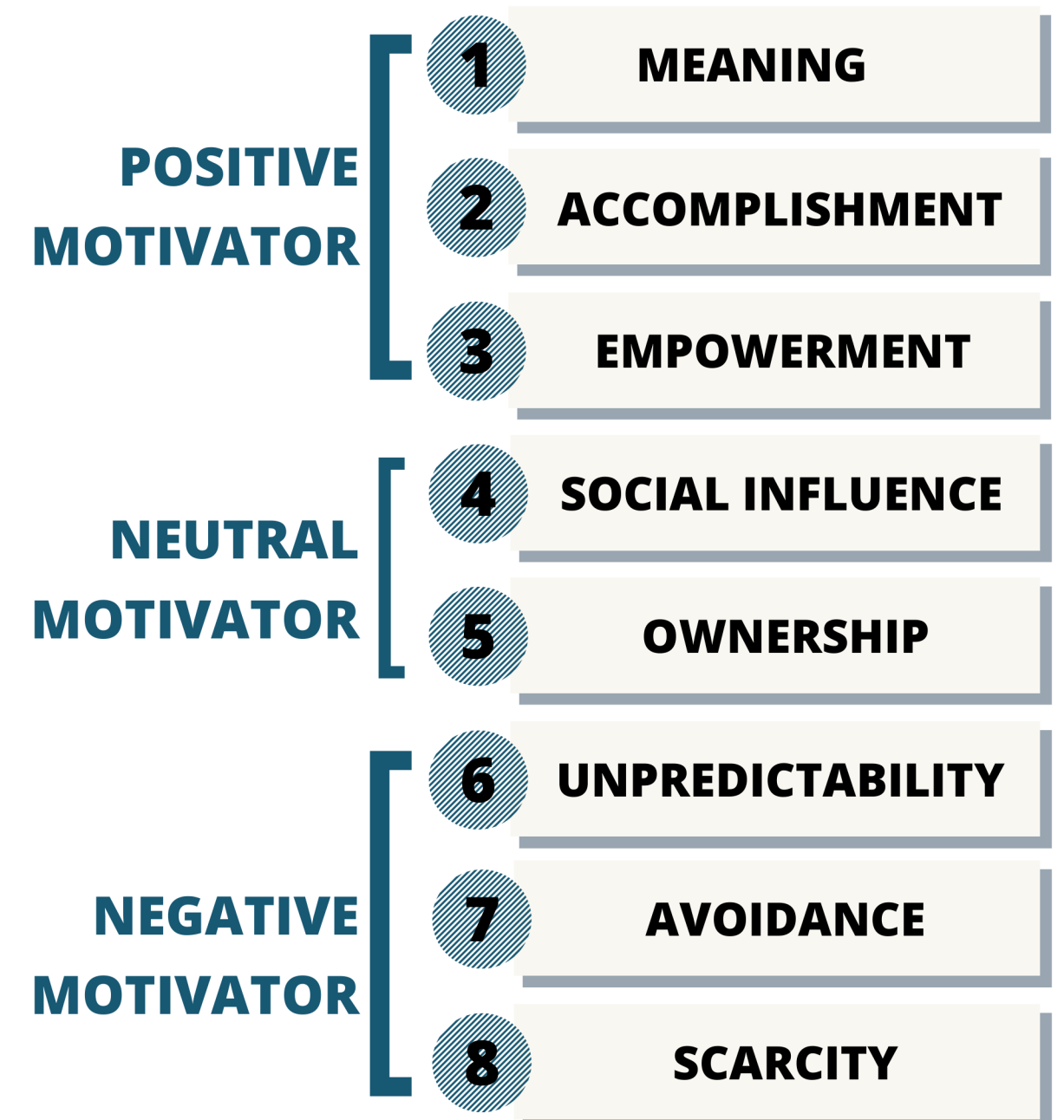
INTRINSIC MOTIVATION

- Autonomy
- Mastery
- Purpose

EXTRINSIC MOTIVATION

- Short term boost
- Can reduce long term motivation

8 AXIS OF MOTIVATION





HIGH IMPACT PRESENTATIONS

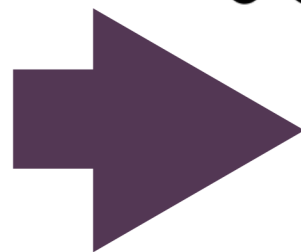


WHY PRESENTATIONS?
Verbal communication is very important as it has more impact than a written one, it is easy to remember, fast, with immediate reactions and we practice it every day in various forms. It is more effective for solving problems and resolving conflicts.

BAD PRESENTATION STRUCTURE



- 1 INTRODUCTION
- 2 OVERVIEW
- 3 WHAT OTHERS DO?
- 4 OUR PROPOSAL
- 5 CONCLUSIONS



HOW TO GIVE STRONG ENTRANCE?

- 1 CENTRAL MESSAGE
- 2 SUB-MESSAGES
- 3 SHORT SENTENCES

WHY PRESENTATIONS?

FOR GOOD SLIDES...

✓ ...do this

- Be concise
- Use supporting tools
- Tell a story
- Use notes

✗ ...avoid this

- Full and long sentences
- Too many different messages
- Too many slides
- Too much bling

WHAT TO DO WHEN YOU GIVE A PRESENTATION?

- Convey your central message
- Maintain the audience's attention
- Interact with the audience
- Let your personality come across
- Avoid information overload
- Use nonverbal communication
- Be relevant to your audience
- Use pauses
- Speak directly to your audience
- Be confident

