CREATIVE MAKING THROUGH CIRCULAR ECONOMY FOR WELLBEING





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TransfoLAB BCN center for trash investigation







The Trashycle project was born during a creative brainstorming by 3 organisations, Sosped (FL), TransfoLAB (ES) and CoLab House (GR). The 3 partners come from the Mental Health sector, the Creative sector and the Youth Work sector respectively, and decided to explore the positive effects of circular economy, upcycling and the maker movement on the mental health of the youth.

TransfoLAB BCN is an association focused on design, innovation, production and experimentation with waste, circular economy and environmental sustainability. Among its main objectives is the awareness and education of different groups of the population about circular economy, the sustainable use of resources, local production, self-sufficiency and manufacturing.

Sosped supports and strengthens the realization of the community good. In particular, Sosped focuses on supporting groups of people who encounter problems and lack support from their environment. In accordance with the principles of community and equality, Sosped works together with their target groups using the method of social pedagogy and peer activity.

CoLab House is a Social Cooperative Enterprise that explores new models of social innovation and circular economy, as well as their practical application with creative, educational, participatory and collaborative activities.

The combination of experience and knowledge of the three entities has created a competent and complementary team to carry out the project. This guide presents the methodology and the learnings that have been acquired during the process.

PURPOSE OF THE GUIDE

This guide is a comprehensive manual that combines participatory processes, design thinking, and waste fabrication methodologies. Its goal is to promote sustainability concepts and emphasize the necessity of creating such tools, especially in the face of environmental emergencies. By outlining the steps of the process, we hope this guide becomes a versatile tool for replicating co-fabrication projects, advocating for open-source culture, knowledge-sharing, and supporting youth.

In our exploration of similar tools and guides within the maker community, we noticed a lack of open-source resources online describing the methodology of these projects. While there are some educational guides focusing on school contexts or specific element fabrication, many are brief and concentrate solely on construction and design, neglecting the overall project methodology. Additionally, few resources integrate concepts of circular economy and the use of waste materials. This guide aims to fill this gap by presenting a methodology that conveys environmental values, shifting the design paradigm towards reusing recovered resources and waste utilization.

The guide is designed to be a valuable resource not only for makers and designers but also for organizations working with youth facing mental health challenges or at risk of social exclusion. Its purpose extends beyond skills and knowledge transfer, aiming to instil confidence, independence, joy, and employability in these individuals.



TARGET GROUPS OF THE GUIDE

This guide is for organizations, NGOs, and institutions working with youth facing mental health challenges or social exclusion. It is designed to encourage creative activities with an environmental impact, promoting skills and knowledge that lead to better well-being and employment opportunities.

How TO NAVIGATE THE GUIDE

This guide is divided into three parts. The first part (Part 1 - Preparation and Organization) provides insights into the internal team organization. It offers instructions for preparing and planning training and practical activities within the participatory process.

In the second part (Part 2 - Execution), you'll find details about the Training (2A), Co-design (2B), and Co-Manufacturing (2C) phases. Following this, there's a Trashycle Case Study. The project's time and duration are designed for a medium/long-term program, but they can be adjusted based on the group's needs and objectives.

Activities can be followed as described, combined, interchanged, or selected based on project needs. Some activities are labeled "Optional," as they depend on the program's nature and objectives. Our experience emphasizes the importance of a balance between practical and theoretical sessions. Depending on the group's age, interests, or available resources, these steps can be interchanged. Flexibility is crucial in the participatory process, allowing the team to make variations based on participant interests and maintain engagement.

For each activity in Part 2, you'll find suggestions on duration, resources, and templates. These are flexible and can be modified. The primary template is the Script, a document aiding in structuring and planning activities. You'll find this template in the Annex, along with complementary documents like calendars, sheets, etc.

METHODOLOGY

Design Thinking: Design thinking is a problem-solving approach centered on human needs. It helps teams understand users, challenge assumptions, and create innovative solutions. In co-fabrication projects, it aids in collectively identifying needs and finding solutions.

Participatory Processes: These processes engage all interested parties in decision-making, problem-solving, and generating solutions. They ensure that diverse perspectives are heard, leading to more inclusive and effective decisions in projects and activities.

Co-design: Co-design involves collaborative decision-making, where participants work together as designers. Decisions consider limitations, priorities, and available resources, adapting to needs, especially when working with recovered materials.

Circularity: Focusing on environmental concerns, this methodology emphasizes learning about waste use and reusing discarded materials. Circular economy involves sharing, renting, reusing, repairing, and extending product life, promoting sustainability.



PART 1 - PREPARATION AND ORGANIZATION

STARTING POINT

Project Definition and Objectives

The leading entity/organization defines the objectives and identifies target groups within its organization. Understanding participant data, such as availability, age, and needs, is crucial for tailored activities. For example, objectives can include addressing sustainability, educating about the circular economy, and using "learning by doing" to address mental health.

Define the Team (Beneficiaries and Experts)

Identify experts, entities, and collaborators with complementary skills and knowledge. Ensure a diverse team, including experts in design, construction, sustainability, and participatory processes.

RESOURCES

Material Resources – Infrastructure

List resources and decide on external contacts. Identify spaces and tools needed, considering available spaces, public areas, or artisan workshops.

Human Resources

Contact experts for specific methods or techniques the group may lack. Ensure support from educators working on sustainability and participatory processes.

Financial Resources

Define financial resources, considering budget, time, equipment, and external hiring. Explore external financing or subsidies that align with project goals.

Define Duration

Coordinate program length with the entity and beneficiary group availability. Account for factors like school programs for young participants. Note that co-fabrication may require intensive days.

WORK PLAN AND PREPARATION

Activity Planning and Scheduling

Define an initial calendar of activities based on objectives, resources, and participant availability. Adjust activities based on participant expectations and project dynamics.

Research on Chosen Topics

Prepare for training by researching references, examples, and theoretical knowledge. Contact experts if needed. Topics may include sustainability, circular economy, DIY, and reuse of materials.

Mapping of Spaces, Resources, and Materials

Map and list interesting places and entities for training. Inspire and discover new spaces, contacting creators to explain their work. Specify and plan visits to museums, workshops, etc.

Templates Preparation and Teaching Material

Create templates, like a script, to plan content, objectives, and expected results for training sessions. Consider collaborative digital platforms for sharing knowledge. Internal Coordination

Hold frequent meetings for good coordination and development. Define communication channels, documentation storage, and flow of day-to-day topics.



MANAGEMENT AND MONITORING

Documentation

Document the entire process for replicability, using templates for session results and audiovisual documentation. Use photos and videos for internal archives and dissemination, involving beneficiaries.

Communication

Develop a communication plan during and after the program. Use social networks, websites, events, press releases, and public exhibitions to disseminate results and involve participants.

Assessment

Use surveys and questionnaires to evaluate the program, educational processes, participant learning, and the quality of manufactured elements. Conduct surveys before, during, and after the project for comprehensive feedback.



PART 2 - IMPLEMENTATION/EXECUTION PART 2A - TRAINING

PRESENTATION

Description

This session kicks off the project with a brief overview for participants. It captures needs and expectations, explains the project, presents activities and the calendar, introduces the tutor team, inspires, and records soft skills.

General Objectives:

- Explain the project
- Collect expectations
- · Present activities and calendar
- Introduce tutors team
- Presentation of participants
- Inspire
- Capture interest
- Record soft skills

Implementation

Present the Project:

Provide basic information about the project's stages and the expert team.

Inspire:

Showcase similar projects through audiovisual material to spark curiosity.

Present the Calendar:

Outline planned activities to help participants understand the level of commitment needed.

Capture Soft Skills:

Break the ice by having participants introduce themselves and mention their skills. Establish communication channels for ongoing information sharing.

Tips

As, in such programs, very often the participants do not remain during the whole time, it is useful to define a small group that will act as the basic core, for better cohesion.

Create a list of the participants' soft skills. This will help you get to know them better and use these skills later, during the more practical activities.

Simple games will help you break the ice and create a more pleasant atmosphere.

Duration Sessions: 1 Duration: 1.5 hours

Resources Whiteboard Audiovisual presentation Projector

Templates Script Initial calendar



TRAINING I - GUIDED VISITS

Description

Guided visits serve as inspiration and an introduction to theoretical concepts. The aim is to present traditional and digital methodologies, tools, and examples related to circular economy, creative reuse and the maker movement.

General Objectives

- · Introduction to circular economy concepts
- Learn new technologies
- Introduction to digital platforms
- Learn about designers, makers, artisans
- Learn about designing with waste (upcycling)
- Inspire and spark curiosity



Duration Sessions: 1-2 Duration: 1.5-2 hours

Resources Previous contact with entities

Templates Script

Implementation

Define the Topic: Combine traditional and innovative methods for a complete context.

Define Spaces:

Choose spaces like artisan workshops, design museums, or innovative technology laboratories.

Prepare Questions:

Tailor questions to the space to maximize the learning experience.

Presentation of the Space:

Guide participants through the space, explaining tools and showing practical examples.

Ask Participants:

Encourage discussion by asking participants what caught their attention and what was interesting.

Tips

Prior contact with entities is essential. Sessions may vary based on time and project needs. Training sessions can be interchanged based on the project's total duration.



bcensemble

TRAINING II - THEORETICAL CONCEPTS

Description

Introductory training on basic concepts like circular economy, design thinking, and sustainable manufacturing. Presentation of projects promoting reflection on sustainable design.

General Objectives:

Introduce basic concepts on circular economy, waste use, design thinking, prototyping, and sustainable manufacturing

- Presentation of other makers' work
- Presentation of methodologies and tools in traditional trades
- · Present products made with sustainable materials
- Reflect on resources of discarded materials
- · Inspire and reflect on material use

Duration

Sessions: Varies based on needs Duration: 2 hours

Resources

Audiovisual presentation Projector Post-its Pencils Drawing papers

Templates

Script Digital collaborative platform

Implementation

Presentation of Concepts:

Cover circular economy, design thinking, creative reuse, design from waste, prototyping, and sustainable manufacturing.

Prepare Questions:

Generate debate with thoughtful questions.

Exchange of Ideas:

Encourage critical thinking with a reflection exercise on waste types and sources.

Discussion:

Share findings, fostering debate for idea development.

Tips

Encourage conversation and debate to enhance learning. Introduce practical exercises like brainstorming to reinforce sustainability notions.

ADDITIONAL MATERIAL

https://issuu.com/transfodesign/docs/101_on_upcycling_and_creative_reuse https://issuu.com/transfodesign/docs/joinery_final





MATERIALS HUNTING

Description

This session involves collecting materials either from the local environment through a material "hunt" or online research and contact with companies. The goal is to actively involve participants in the search for materials, create connections with the neighborhood, and revalue waste as a raw material.

General Objectives

- Collect materials
- Actively involve participants in material search
- Create a connection with the territory/neighborhood
- Revalue waste as raw material

Implementation

Review materials:

Review the materials considered in previous sessions (e.g., plastic caps, wood, garments, etc.).

Define groups:

Divide participants into groups based on the list of required materials.

Organize material collection:

Provide carts or bags for material collection. Wear gloves for safety.

Visit establishments:

Explain the project, establish contact, and pick-up times. Encourage participants to explain the project during visits to businesses.

Store materials:

Designate a space for storing collected materials.

Re-evaluate proposal:

Adjust the project plan based on the obtained materials.

Tips

Consider this activity as an educational opportunity to involve participants actively and raise awareness about waste and discarded materials. Prior mapping of the territory helps identify potential sources of waste.

Depending on the budget, transportation considerations should be made (eg. a van).





Duration Sessions: 1 Duration: 1.5-2 hours

Resources

Trolleys Gloves Bags Ropes

Templates Script

RESEARCH (INTRODUCTION TO DESIGN)

Description

This session initiates design processes and materials based on real objects in our environment. It involves active research, searching for references, working on materials, introducing basic design concepts, fostering critical thinking, and familiarization with digital platforms.

General Objectives

- Active research
- Search for references
- Work on materials
- Introduction to basic design concepts
- Development of critical thinking
- Familiarization with digital platforms

Duration

Sessions: 1 Duration: 2 hours

Resources

Projector Computers Digital platforms presentation Maps of the neighborhood (optional) Whiteboard

Templates

Script Form for describing an object or Mural

Implementation

Investigate Real Objects (Group Work):

Assign or let participants choose objects from their environment. Objects should be tangible and within reach.

Mapping:

Record object characteristics such as shape, texture, color, resistance, type of joints, materials, and function on group sheets.

Draw Objects on Paper:

Sketch objects to better understand their function and the design process.

Presentation of results:

Each group explains their findings, and notes are taken on the board for a global understanding.

Use of digital platforms (OPTIONAL):

Encourage the use of collaborative platforms (e.g., Miro, Mural, Lucid) for information storage. Each group introduces concepts collected on the board to the digital platform.

Tips

Encourage group work to foster collective collaboration.

Collaborative platforms aid project documentation, facilitating information sharing and process documentation.

Tailor the activity based on participants' agility levels.





DIAGNOSTICS - SURVEYS/DECISION MAKING

Description

This session focuses on defining needs and collectively working on strategies to improve space. Surveys help identify problems and elements to improve, facilitating decision-making.

General Objectives

- Decision-making
- Empathize
- Involve the community
- Identify needs

Duration Sessions: 1-2 Duration: 1.5-2 hours

Resources

Projector Post-its Pencils Drawing papers

Templates Script

Implementation

Create survey:

Collect opinions from project participants and potential users. Surveys serve as a diagnosis, helping define ideas and make informed decisions.

Presentation of the survey:

Share survey results with participants.

Define problems:

Identify issues within the space or environment of intervention by asking participants about spaces they like and dislike.

Collective debate:

Discuss results and define strategies. Use maps or drawings if necessary, experimenting with spatial solutions.

Define new elements:

Decide on new elements to craft and determine their approximate dimensions.

Organization/division in groups:

Divide participants into groups responsible for working on specific elements, making sketches, and exploring material possibilities.

Tips

Surveys help measure human and material resources during decision-making. This phase marks the beginning of materializing elements for manufacturing.





PRACTICAL EXERCISE (OPTIONAL)

Description

Sessions to test proposed designs, familiarize with tools and materials, and develop small tests and prototypes. These activities prepare participants for the final project, offering a realistic view of the object of interest and facilitating experimentation with material combinations.

General Objectives

- Learn basic design concepts
- Introduction to design thinking
- Learn how to use machines and tools
- Preparation for the final project
- Familiarization with the concept of design at scale

Duration Sessions: 1-2 Duration: 1.5-2 hours

Resources Manual tools Materials

Templates Script

Implementation

Prepare mini exercise:

Choose a simple exercise or one that inspires participants, focusing on learning unions or basic design concepts

Tips

Mini exercises should be manageable within one or two sessions, depending on the program's timeline.



PART 2B - CO-DESIGN

ELEMENTS DEFINITION

Description

This phase involves defining the final objects, specifying materials, tools, and technologies in detail. The objectives include defining work groups, deciding elements to be fabricated, initiating the co-creation process, making decisions, identifying resources and material needs, and sharing the workload.

General Objectives

- Definition of work groups
- Definition of elements to be fabricated
- Initiation of co-creation process
- Decision making
- Identification of resources and material needs
- Share the work

Implementation

Define groups:

Based on the number of participants and objects to be manufactured, assign each group a type of furniture or element.

Review surveys:

Consider the feedback acquired from the surveys.

Define objects:

Decide on specific objects or categories/typologies to be manufactured.

Specify tools and materials:

Determine the type of technology, tools, and specific materials needed. Conduct online searches for inspiration and references.

Draw initial sketches:

Create initial sketches of possible furniture or objects, approaching their volumes and dimensions. Use measurements and create scale plans.

Share the work:

Present each group's plan to the rest and check proposed solutions.

Tips

Encourage collective participation in this activity. Participants' motivation is crucial; let them choose their work group. Prior contact with potential workshops is essential for planning.

Duration

Sessions: 1-2 Duration: 1.5-2 hours

Resources

Pencils Drawing papers Computers (optional) Escalimeter Meter

Templates Script



ELABORATION OF IDEAS AND DESIGN

Description

Participants act as designers, proposing and co-designing their own furniture or objects. This phase concludes with the definite co-design. It involves evaluating collected materials, adjusting initial ideas, calculating human resources, defining objects, specifying materials, presenting various technologies, taking measurements, drawing, and creating models and small prototypes.

General Objectives

- Definition and specification of elements
- Element joining techniques
- Reflection and practice
- Decision making
- Encourage creativity
- Develop design concepts
- Introduction to the concept of manufacturing

Implementation

Evaluate collected materials:

Adjust initial ideas based on the materials acquired.

Measure expectations:

Calculate human resources, defining the core group that will participate in manufacturing.

Define objects:

Decide on specific objects or categories and determine necessary or desired materials.

Presentation of various technologies:

Provide information on different technologies if necessary.

Take measurementsand draw :

Work on a real scale, taking measurements, calculating actual dimensions, and creating detailed sketches to visualize objects.

Models and small prototypes:

Create scale models and prototypes to better visualize design ideas.

Tips

Consider the number of people involved in the planning. Prepare drawings to facilitate the exercise; scale plans are helpful.

Duration

Sessions: 1-2 Duration: 1.5-2 hours

Resources

Suitable material for mock-ups (cardboard, small wood, cutter, scissors, etc.)

Templates Script



PART 2C - CO-FABRICATION

PLANNING (INTERNAL)

Description

This phase involves getting ready for the construction sessions. The driving group takes charge of organizing subsequent manufacturing sessions, equipment, facilities, and overall project development.

General Objectives

- Define work groups
- Organize materials and resources
- Specify elements
- Promote youth creativity
- Develop design and planning skills
- Enhance manual skills

Duration Sessions: 1 Duration: 1hr-1.5hr

Templates Script Organizational Plan

Implementation

Create Organizational Plan:

Outline the next steps. Depending on the objects to be manufactured, book or contact different workshops or spaces. Define:

- Timings (number of sessions)
- Experts overseeing fabrication (specialist team based on objects)
- Workshop locations
- Group availability
- Materials needed (list of resources).

Measure and Confirm Resources:

Commitment and dedication become crucial at this point. Confirm schedules and group assignments. Create fixed groups to streamline the process and avoid consecutive trainings, ensuring participants are grouped based on their preferences.

Tips

This phase, just before fabrication, focuses on managing technical details and planning. Even for small-scale projects, ensure the calendar is well-organized and adjusted to avoid hiccups.



COLLABORATIVE FABRICATION

Description

This activity involves the team working on the construction of designed objects based on the schedule developed in the previous activity. Sessions need to be adapted according to the elements, and maintaining the groups created in cocreation sessions is advisable. The main goals include element construction, tool learning, developing design and manufacturing skills, fostering manual skills, empowerment, and building self-esteem and confidence.

General Objectives

- Element construction
- Tool learning
- Develop design and manufacturing skills
- Develop manual skills
- Empowerment
- Development of self-esteem and confidence

Implementation

Explain tasks:

Provide a clear explanation of the tasks to be done. Dedicate time to answer questions and address doubts about construction, tool usage, and other relevant aspects.

Prepare plans and drawings:

Provide plans and drawings for participants to reference during the construction process. Plans help in understanding assembly and the sequence of fabrication steps.

Ensure expert presence:

Ensure the presence of monitors and experts in the workshop at all times. Having an expert technical team is crucial to guide and assist participants.

Mandatory use of protection:

Emphasize the mandatory use of protection according to the use of machines (glasses, shoes, gloves, and helmets) to ensure safety.

Prepare materials and machines:

Ensure all materials and machines are prepared in advance. Checking the machines before use is useful to optimize time during manufacturing sessions.

Manufacture objects:

Carry out the manufacturing of objects based on digital drawings and the use of tools.

Tips

Introductory sessions to the use of machines may be necessary. Account for learning time in the schedule.

Sessions should ideally be at least 3 hours to allow participants to progress properly and complete the objects.



Duration

Sessions: Depends on the items and the manufacturing schedule Duration: 3-4 hours

Resources

Define the organizational plan in detail

Templates

Script Organizational plan

EXHIBITION

Description

The presentation and display of results are equally important. This phase provides an opportunity to explain, present, and possibly promote the work. Additionally, it serves as recognition for the participants themselves. Organizing a well-planned event where family members, neighbors, or other entities can be invited is crucial.

General Objectives

- Presentation of results
- Recognition of participants
- Promotion of work

Duration

Sessions: 1 Duration: Depends on the scale and nature of the exhibition event

Resources

Exhibition space Presentation materials Invitations (if applicable)

Templates

Script Exhibition plan

Implementation

Plan the event:

Organize the exhibition event with careful planning. Consider the scale, nature, and target audience for the exhibition.

Prepare materials:

Ensure all materials for the presentation are ready. This may include display boards, posters, digital presentations, or physical prototypes.

Invite audience:

If applicable, send out invitations to family members, neighbors, or other entities who may be interested in attending the exhibition.

Present results:

During the event, present the results, explaining the process, showcasing the fabricated objects, and highlighting key achievements.

Recognize participants:

Take the opportunity to recognize and celebrate the efforts and contributions of participants. This can be done through certificates, awards, or verbal acknowledgments.

Tips

Tailor the event to the scale and nature of the project; a smaller project may require a less formal presentation.

Consider documenting the event through photographs or videos for future reference or promotion.



APENDIX 1 - CALENDAR OF ACTIVITIES TEMPLATE

Timeline	Activity name	Duration	Description

APENDIX 2 - SCRIPT TEMPLATE

SCRIPT SESSION [number] [title]

Information for the activity

Activity date	
Activity duration	
Venue of the activity	

Activity description

Activity goals

General goal	
Specific goal	
Relational goal	

Facilitators and roles

Name and surname	Roles and tasks
Г 	Main facilitator
Г 	Second facilitator
	Second facilitator

Required materials

For the activity	
For each participant	

Script

TIME COI	NTENT	NECESARY MATERIALS
Reception	n	00:00
15'	Arrival and preparation of the activity space	
Title of th	e activity block $\mathbf{\hat{u}}^{(00')}$	00:00
00:00 (00')		
00:00		
Title of th	e activity block 2 (00') (if applicable)	00:00
00:00 (00')		
00:00		
Title of th	e activity block 3 (00') (if applicable)	00:00
00:00		
(00')		
00:00		
Title of th	e activity block 4 ^(00') (if applicable)	00:00
00:00 (00')		
00:00		
Acknowled	gments and farewell to the session (00')	00:00
00:00 (00')		
00:00		

Summary and conclusions of the activity

APPENDIX 3 - EXAMPLE OF BRAINSTORMING IN MURAL



3

Categorize

According to the previous characteristics can we organise the previous ideas in categories? Let's copy and paste the previous ideas into this canvas. Change the names of the Categories into the ones you have decided.

10 minutes



4

Online research

Look for references on internet Make screenshots and introduce them to Mural

0 20 minutes



APENDIX 4 - FORM FOR DESCRIBING AN OBJECT

Object Type	
(What type of an	
object is it: chair,	
table, stuffed toy?)	
Materials	
(Which materials is it	1.
made of)	2.
	3.
	4.
	5.
	6.
Colour	1.
(What colour(s) does it have)	2.
	3.
	4.
	5.
	6.
Form/weight	1.
(What form does it	2.
have: triangle, square, fluid/ Is it	3.
heavy, light?)	4.
	5.
	6
Joints (Does it have any	2
joints (connections)	2.
between the parts	3.
achieved: tied,	4.
screwed, nailed,	5.
giueu, etc)	6.
Texture	1.
(How does it feel on	2.
smooth, uneven etc)	3.
	4.
	5.
	6.

|--|

APENDIX 5 - DESCRIBING AN OBJECT IN MURAL



Materials mapping

This is a template to help us make a mapping of materials, resources and get a better understanding of the process of design.

G0 minutes
☑ 09/05/23

💄 participants

1

Define an object and analyse it

Let's select some objects that we have in the room. Touch them, turn them around, look closely. Every object has different characteristics. Let's try to describe them. This process will help us understand how things are made and why.

15 minutes





