

# REPORT NO. 04

**BIOTEXFUTURE**  
TRANSITION LAB



## MOBILE UPCYCLING LAB EXPERIENCE – FIRST STUDENT PROJECTS

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22.03.2024

# CONTENT

## 1. MULE CONCEPT

## 2. MULE IN TEACHING – FIRST STUDENT PROJECTS

- a) Upcycling in Primary School
- b) The Wheel of Fortune and MULE
- c) Wash it right!
- d) It's Not Pull-Over

## 3. CONCLUSION

# MULE CONCEPT





# MULE

## Mobile Upcycling Lab Experience

- Project on the conditions of use and application of bio-based materials and yarns, especially in comparison with conventional textiles.
- Mobile living lab to directly reach as many people in as many different contexts as possible, based on experiences collected in other outreach formats
- A space for experimentation and experience
- Make the possibilities for change in the textile sector visible and tangible
- Equipped with:
  - Sewing machines for upcycling workshops, for example
  - Samples of fabrics and textiles for comparison
  - Quizzes, surveys and more



MULE – OECHERLAB; 31.01.2024



MULE - BIOTURF  
EVENT 2023

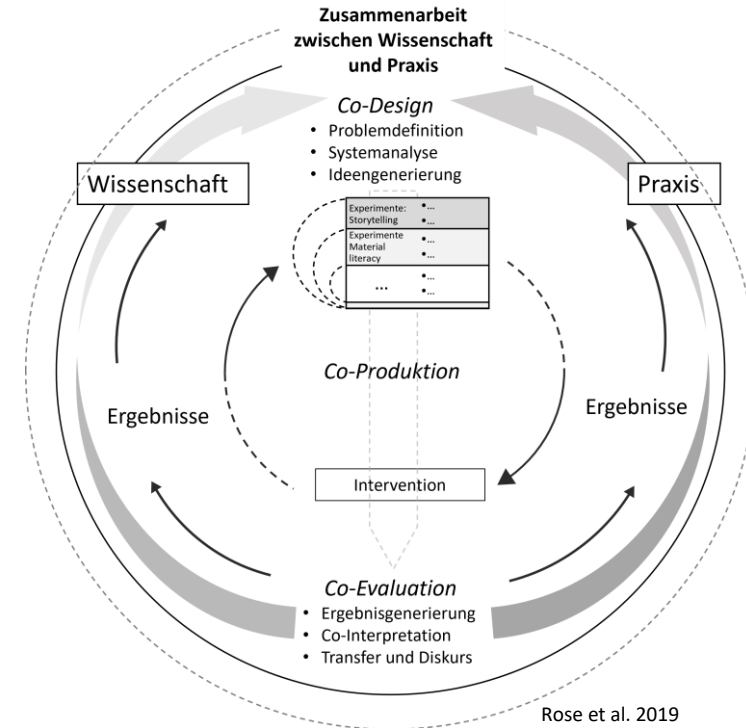
# MULE IN TEACHING – FIRST STUDENT PROJECTS





# MULE IN TEACHING

- The main ideas developed by the students are to encourage people to keep clothes longer (exchange, repair, etc.), to make recycling easier and to teach "material literacy", which helps to change the way people deal with clothes.
- Students learn the principles of transformative research in the context of sustainability in the textile sector through the use of MULE:
  - Distinction from transformative research
  - Participation in social transformation processes
  - New roles for science: Translator/Mediator; Steering processes
- Based on the Living Lab concept, the students
  - designed, implemented, evaluated and reflected on project ideas in the city of Aachen
- MULE objectives in the student projects:
  - Bring material literacy to different spaces/people
  - Foster engagement with problems and topics in the textile sector
  - Development of very free application concepts in freely chosen contexts
  - Development of interest-led and problem-oriented projects
  - Free use of the MULE or parts of it that seem suitable for the project at hand



# UPCYCLING IN PRIMARY SCHOOL

## Goals:

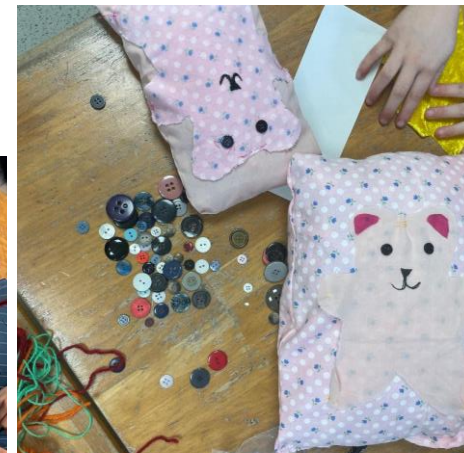
- Create basic knowledge and competencies to re-use old clothes in young schoolkids
- Create an attractive learning environment for them
- Take home results

## Results:

- Kids and schools are very interested in offers
- Working with textiles enables deeper understanding
- Re-use is a viable option for old clothes

## Reflection/Learnings:

- Rooms in schools pose problems for the MULE, because of barriers
- Possibilities to share information and raise awareness/questions while working on something fun



# THE WHEEL OF FORTUNE AND MULE

Gamification as a playful approach to raising awareness of sustainable fashion

## Goals:

- Tryout a gamification approach to get in contact with students on sustainable clothing
- Inform and raise awareness
- Tryout eye-catching devices

## Results:

- Gamification works to get in contact
- Having small wins helps
- Shops will participate in win/win settings

## Learnings/Reflection:

- MULE as an eye-catcher and transport works
- It is not easy to get permission to stay in public places
- Easier working with shops or the university





# WASH IT RIGHT!

## Goals:

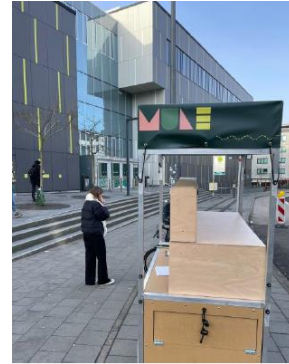
- Raise awareness and inform about the environmental impact of washing clothes
- Make the information accessible and sticky for students

## Results:

- Stickers work very well to reach a lot of people
- MULE works as an eye-catcher and point of contact
- There is a lack of knowledge about the impact of washing, but a high interest to learn more

## Reflection/Learnings:

- Sticker campaigns are a viable option to reach students with information on sustainable behavior
- Using the MULE as a point of contact in public spaces works
- The spaces the MULE offers should be filled



*Wash it right!*



# IT'S NOT PULL OVER

## Goals:

- Provide examples to re-use damaged pull-overs to get people into doing it
- Tryout different locations in the city and compare

## Results:

- There is considerable interest in being informed about opportunities to do something with old clothes
- MULE affords a lot of opportunities to demonstrate and exhibit information, objects and practices

## Reflection/Learnings:

- Most often you don't get responses from second-hand shops or fleamarkets by email
- Personal contact is key

### Nachhaltig Färben

**Welche Stoffe?**

- Naturfasern nehmen Farben besser auf
- Baumwolle, Wolle, Leinwand, Leinen, Halbwolle, Tencel & Modalfasern (mit min. 50% Naturfaseranteil)

**Worauf ist zu achten?**

- Nässe sind oft aus synthetischen Garn und nehmen keine Farbe auf
- Vorhandene Farbe kann das Ergebnis verfälschen
- Der Unterschied zwischen der Ausgangsfarbe und der angestrichenen Farbe ist nicht so groß sein

**Welche Farben & Zutaten?**

- Zitronen-Gelb: Echte Kamille
- Dunkles Gelb: Kurkuma
- Orange: Zwiebelschalen
- Pink: Rotkohl oder rote Beete
- Hellblau: Spirulä
- Blau: Indigo oder Liguster
- Beige bis Braun: Schwarzer Tee
- Braun: Kaffee
- Violett: Holunderbeeren

Für mehr Infos und Anleitungen gehe in deine Kreativwerkstatt ein.  
Suche: "Nachhaltig Färben"

### Design Ideen: Upcycling

**Design Ideen für deinen Pullover**  
Bei der Gestaltung deines Pullovers kannst du deiner Kreativität freien Lauf lassen.

Du kannst deinen Pullover kürzen und besticken.

Du kannst aus einem Pullover ein Zwillingshirt und ein Tee-t-shirt machen.

Oder du dekonstruierst und rekonstruierst deinen Pullover für einen einzigartigen Effekt.

Projekt: Mule RWTH

### Näh Tips Einfach

Zum Flicken mit Garn:  
Wähle eine Fadenfarbe, die der Farbe des Stoffes entspricht.  
Mache möglichst keine Ecken.  
Drehe den Stoff zum Nähen von innen nach außen.  
Dadurch wird die Reparatur unauffälliger.

Nähstich:  
Faden,  
Scharn,  
Metzband

Zum Flicken kannst du Fäden verwenden, die du entweder Bügeln oder aufbügeln kannst.

Beim Nähen mit der Hand eignet sich der Zickzackstich am besten.

Du kannst auch deinen Pullover als Bequemere Socken durch zusätzliche Stofffasern oder einer Naht verstärken, um die Haltbarkeit des Kleidungsstücks zu verlängern.

Arbeitsplänen anpassen und verstricken

Verstärken von Materialien, wie die je spärlich du eine Menge an die Umwelt zu schonen

nutzbar sind zum reparieren dehnbaren mit du durch Upcycling einseitig mehrere schaffen.

von links nach rechts: Patchwork Pullover; Pullover mit Metallapplikationen, bestickter Pullover

# CONCLUSION



# CONCLUSION

## Key Insights into MULE usage:

- The experiments in the projects are geared towards 'material literacy' and education for a more sustainable approach to fashion
- Interest was high and the experiments were evaluated successful by the students
- The role of MULE in the research and experiments is very different and versatile (with some barriers):
  - Information stand
  - Basis for an exhibition or practical uses
  - Eye-catcher
  - Logistics (but: Use of sewing machines due to logistical problems in the primary school without the MULE)
- Room for experimentation and optimization

## Learning outcomes:

- The problem of having a permit to stay in a public place has to be tackled
- Other ways of communicating with businesses and other stakeholders,
- Using personal contacts not email with shops and event organizers
- More emphasis on MULE's versatility

## Next Steps:

- **Focused topic:** Textile waste prevention in the city
- **Increasing Transdisciplinarity:** in Kooperation with Dezernat VII - Climate and environment, city operations and buildings and the FH Aachen – Design Department



# MULE (MOBILE UPCYCLING LAB EXPERIENCE) – FIRST STUDENT PROJECTS

Please reach out for feedback and questions to:

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# THANK YOU FOR YOUR KIND ATTENTION

## FOR FURTHER INFORMATION ON BIOTEXFUTURE CONTACT

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**Further information can be  
found here:**

[www.biotexfuture.de](http://www.biotexfuture.de)

# COLOUR COMBINATIONS YOU MAY USE

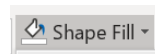
Use the standard theme colors or the Eyedropper on the color scheme in the bottom left corner

		HEX	RGB		RGB	HEX	
1	<b>Text</b>	#32D7A5	50 215 165		130 230 205	#82E6CD	<b>Text</b> I
2	<b>Text</b>	#0F9169	15 145 105		180 240 220	#B4F0DC	<b>Text</b> II
3	<b>Text</b>	#0A6E50	10 110 80		191 191 191	#BFBFBF	<b>Text</b> III
4	<b>Text</b>	#054637	5 70 55		127 127 127	#7F7F7F	<b>Text</b> IV
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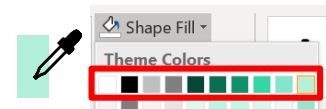
1. Select object



2. Use Eyedropper or Standard Theme Colours

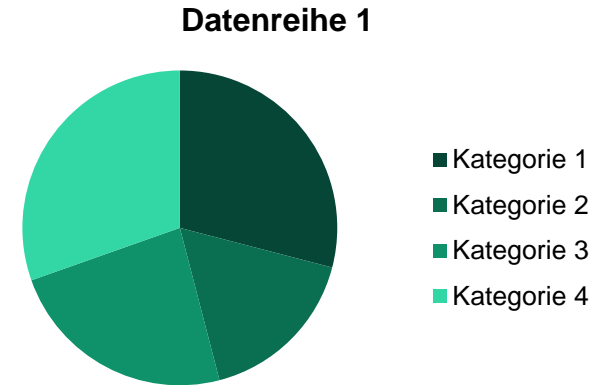
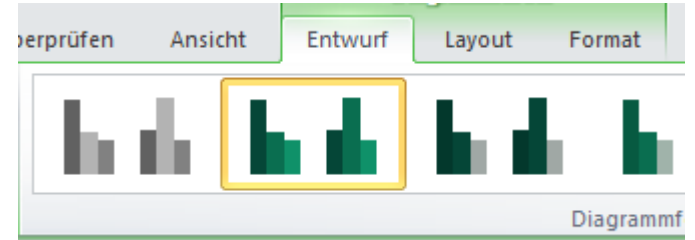
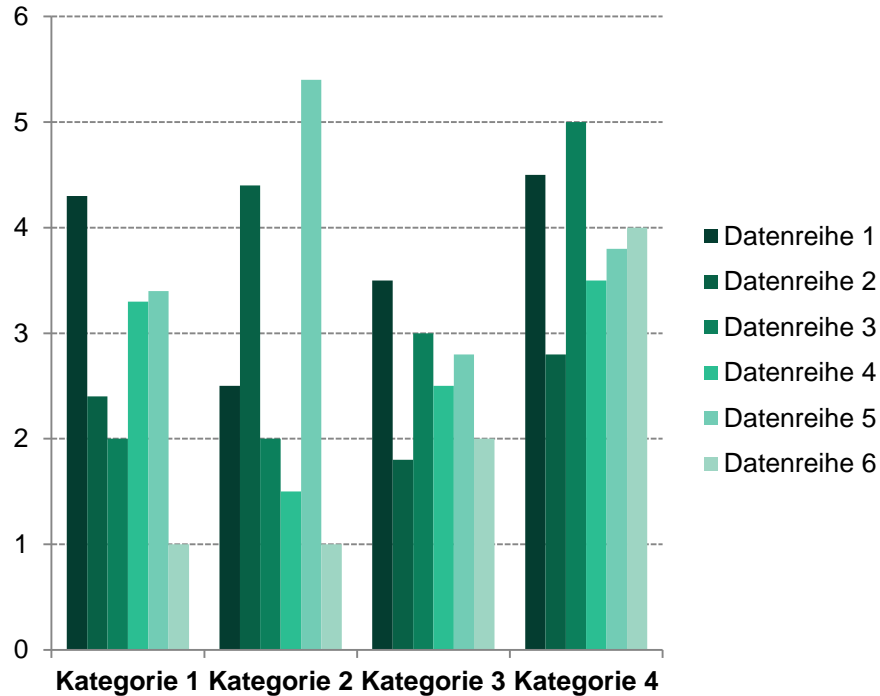


3. Select colour



# EXAMPLES OF COLOURED GRAPHS

Use the 2nd graph format





# KEY INSIGHTS

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