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Experiencing Ecosystems and Entanglement



Summary

After this teaching activity, students should be able to grasp the complex topics of Ecosystems and Entanglement within more-than-human-centred design. First, they will visit a specific context to inspire the identification of more-than-human actors. Thereafter, they will explore the interrelations between all actors and visualize the dynamic ecosystem web in an embodied experience using yarn to connect the relationships between actors. Then, students will consider, express and experience a given design case's positive and negative impact on the ecosystem and its actors. This exercise concludes with a reflection on the dynamic and interconnected nature of the more-than-human ecosystem and your own positionality in more-than-human-centred design.

Learning outcomes

After the teaching activity students should be able to:

- Identify the impact of a design on actors in an ecosystem
- Describe the connection between the interconnected and dynamic nature of the more-than-human ecosystem and the concept of entanglement.
- Construct a dynamic web of the ecosystem, identifying relationships
- Reflect on their role and responsibilities as designers within the more-than-human world

Outline/Content

- Ecosystems and entanglement
- Making an ecosystem web

Key readings/materials

Timothy Morton. (2010). The Ecological Thought. Harvard University Press.

Video material:

<https://youtu.be/v6ubvEJ3KGM?si=5PZgt-GKOzaBeg3p>

crash course ecosystem ecology (10 minutes)

The books by Anne Sverdrup Thygeson (a biologist specialising in insects and a writer) are filled with illustrative examples of how species are entangled and how humans greatly depend on them.

<https://youtu.be/VgyMbS6qs0M?si=e7UXoGieftTndsZH> (video of her reading a segment from the book on nature's shoulders)

Ted talk about book Extraordinary insects:

https://youtu.be/FR1eoOy1tSM?si=TzN4TIO9NBiO9_n

Human-centred design

focuses on creating products and systems **tailored to meet the needs, preferences, and limitations of human users**

More-than-human-centred design

expands the scope beyond human users to **consider the interactions and well-being of all entities involved**, including animals, plants, ecosystems, and technological systems

What are **ecosystems** and
how do they work
(**entanglement**)?

ECOSYSTEM ECOLOGY



Today



3,5 h

Activity overview

Introduction and defining actors

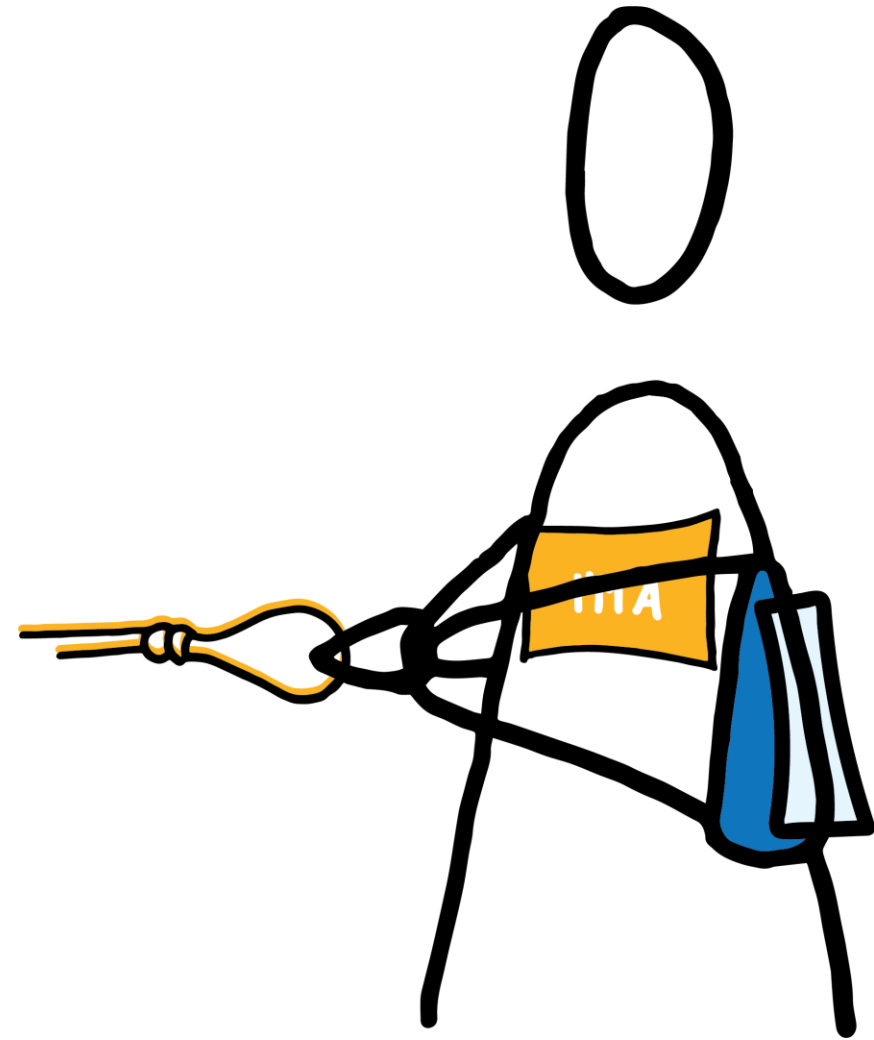
- In-class topic & case introduction
- On-site exploration and actor defining

Embodied web

Reflection

Exploring the context

Defining **actors** on-site



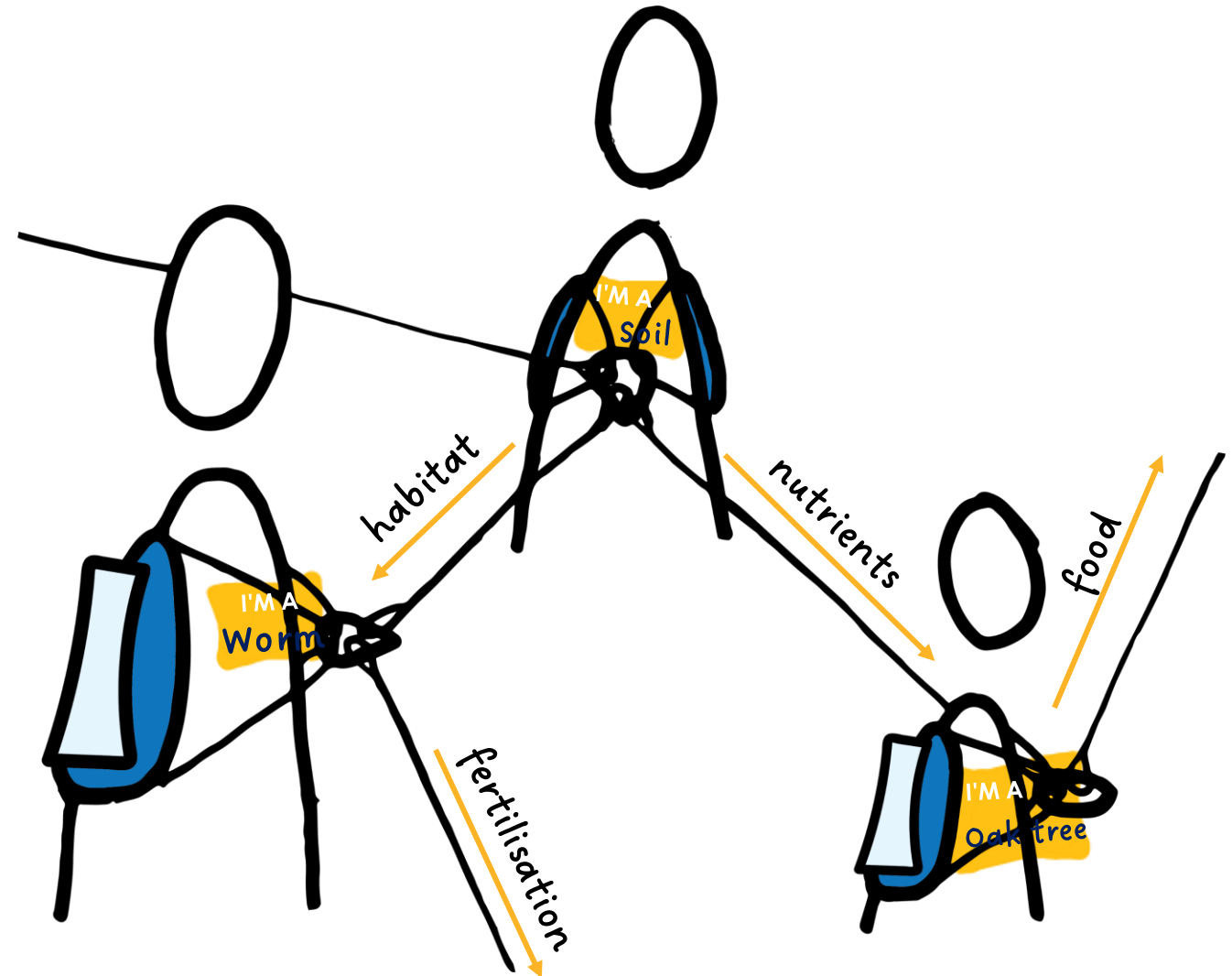
Exploring the context

Defining **actors** on-site



Making the web

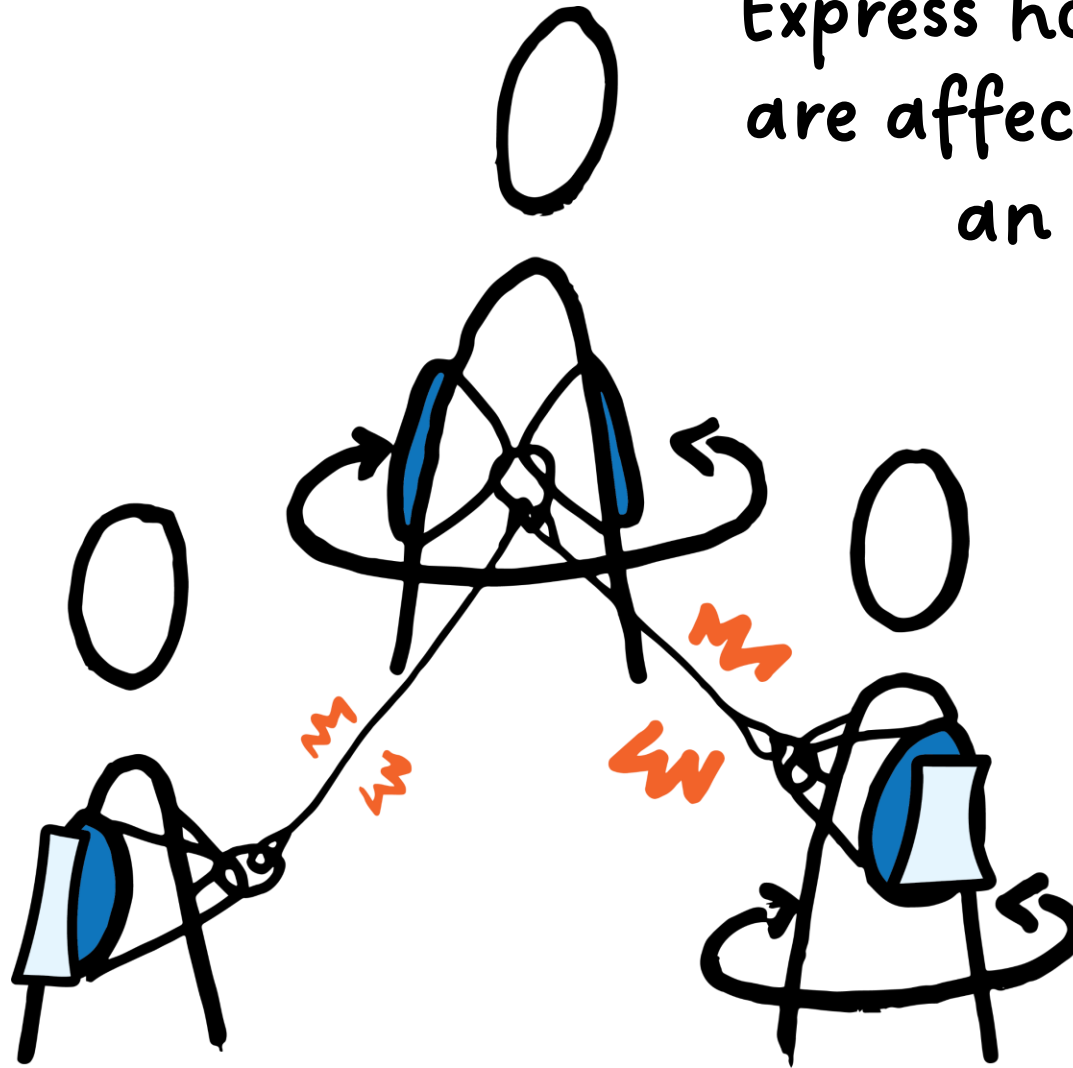
Defining **actors**
relationships



Express how you
are affected as
an actor!

Making the web

Intuitive
impact experience by
twisting back and forth



Defining Impact

Defining **impact** caused by the design

THIS ACTOR IS AFFECTED | Which actor is affected most or first?

Oak tree

BY THE FOLLOWING ASPECT(S) OF THE DESIGN | What materials or components of the design cause the impact?

Plastic components, often made from petrochemicals

WITH THIS INTENSITY | Circle the extent to which the actor is affected by this impact positively or negatively.

3

2

1

1

2

3

CATASTROPHIC

DISRUPTING

MANAGEABLE

BENEFICIAL

TRANSFORMATIVE

REVOLUTIONARY

IN THIS WAY | How do(es) the defined aspect(s) of the design impact the defined actor?

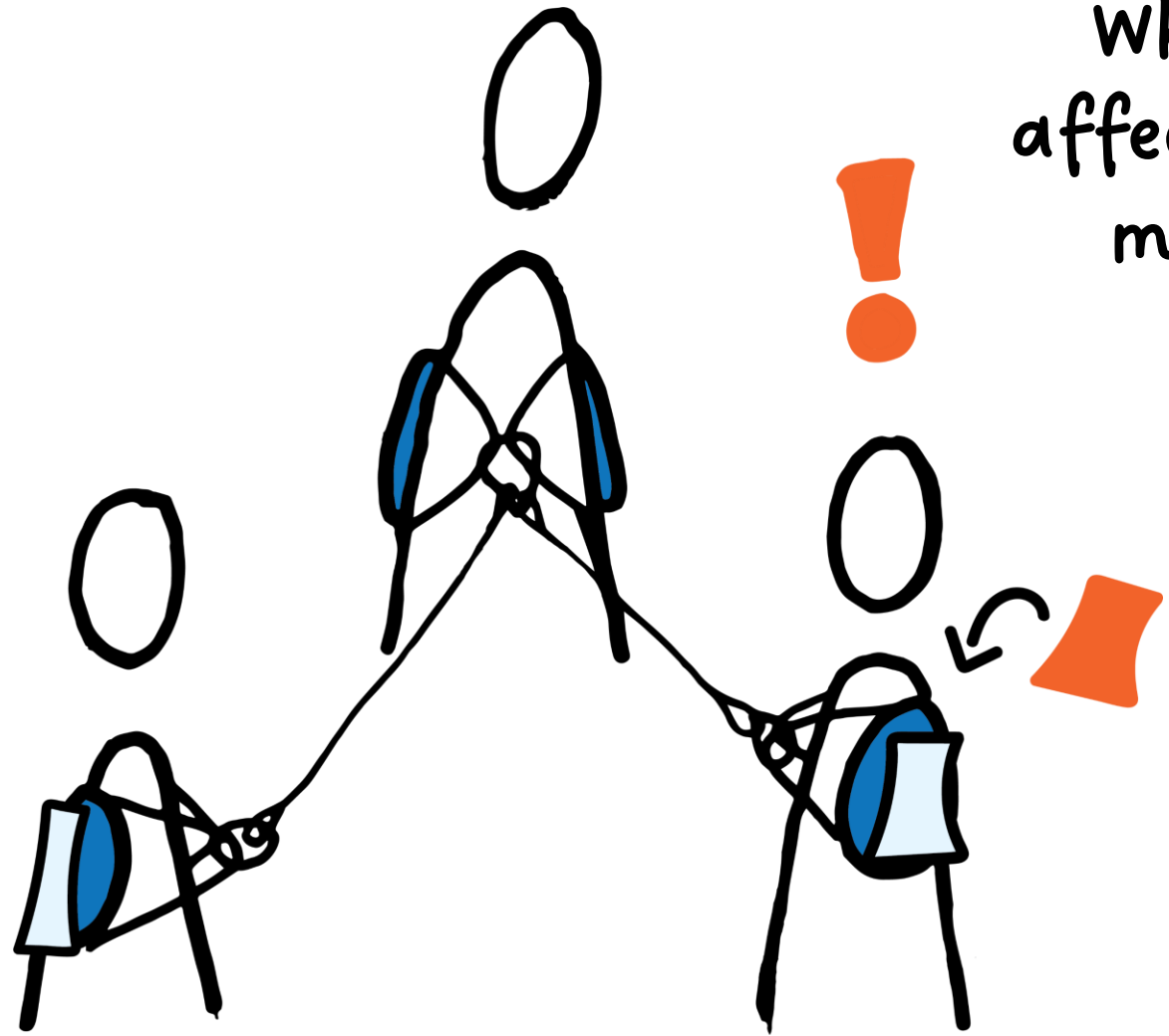
The breakdown of single-use plastics releases microplastics and harmful chemicals into the soil impacts the oak tree's ability to absorb nutrients and water, leading to reduced growth

IMPACT

ATTACH REDESIGN WORKSHEET HERE

Making the web

Distributing
impact weights



What will you **learn?**

You will be able
to...

- Identify the **impact of a design** on actors in an ecosystem
- Describe the relation between the **interconnected** and **dynamic** nature of the more-than-human **ecosystem** and the concept of **entanglement**.
- Construct a dynamic web of the ecosystem, identifying **relationships**
- Reflect on **your role and responsibilities** as designers within the more-than-human world

Cases

What **product** will we be experiencing together?

Street lantern

Drone

Public outdoor
fitness park

Bus stop
shelter

Foldable
umbrella

Pen

Street lantern

Street lantern

[Link to product](#)



Drone

[Link to product](#)



Drone

Weinsamkeit Drone RC Drone with Camera for Kids Wifi FPV Drone for Beginners, RC Quadcopter with 2 Batteries, Gravity Sensor, Flip Mode, One-Button Start/Landing, Return, Headless

Brand: Weinsamkeit

2.9 ★★★★★ 74 ratings | [Search this page](#)

-4% €33⁴³

Median price: €34.99 ⓘ

All prices include VAT.

Brand	Weinsamkeit
Model name	drone with camera
Colour	Black
Video capture resolution	720p
Connectivity technology	HDMI, WLAN
Item weight	100 Grams
Control type	Remote Control
Wireless communication technology	Wi-Fi
Battery cell composition	Lithium Polymer

Bus stop
shelter

Bus stop shelter

[Link to product](#)



Public outdoor fitness park

[Link to product](#)

Public outdoor
fitness park



Foldable umbrella

[Link to product](#)

Foldable umbrella



Brand: Mango

ManGo Folding umbrella for women black flowers white, a black, Eén maat

[Search this page](#)

€8⁹⁹

All prices include VAT.

Product details

Material composition ? polyester

About this item

- Folding umbrella for women.
- Fits in most women's bags.
- The umbrella is fully opened and measures approx. 100 cm in diameter.
- When folded, the parasol measures 24 cm.
- 100% polyester.

[Report an issue with this product](#)

Pens

Pens

[Link to product](#)



Roll over image to zoom in



Bic Medium Ballpoint Pen, Blue, Pack of 8

Brand: BIC

4.6 ★★★★★

454 ratings | [Search this page](#)

Amazon's Choice

€4⁰⁷ (€0.51 / stuk)

All prices include VAT.

Brand	Bic
Writing instrument form	Ballpoint Pen
Colour	Blue
Ink colour	Blue
Age range (description)	Adult
Material	Plastic
Point type	Medium
Special feature	Leicht
Unit count	8 stuk
Model name	Round Stic

[^ See less](#)

About this item

- 8pcs
- 1mm
- Medium line width, perfect for different applications
- BIC Sustainable quality and value for money

1

Go to an ecosystem that represents the product's lifecycle phase (production/use/after use)

2

Look individually for actors in the ecosystem.

Make sure you represent both abiotic (e.g., sun) and biotic factors. The latter should consist of different trophic structure layers: primary producers (plants), consumers (e.g., animals, bacteria), detritivores (e.g., worms), and decomposers (fungi)

3

Create a list of all actors in the ecosystem that are impacted during all lifecycle phases.

5

Assign 1 actor to each remaining student

4

Select a group of 3 students that will lead the next activity.

Part 1 Today

Part 2 Today

6

Prepare materials
Spread out with a 1m
distance

7

Make relations
between actors with
yarn strings and
discuss relations
Think about habitat,
nutrients, fertilization and
food etc.

8

Consider case
impact during the
entire product
lifespan through
intuitive impact
expression

9

Define impact
through worksheets

10

Distribute Impact
weights

11

Reflection

Let's **reflect!**
What did you
learn?

What will be your
takeaways to take to
future design
projects?

Interconnectedness & dynamic nature of MTH ecosystem

Complexity, interconnectedness, harmony
vs friction, continuous context involvement,
endlessness

Positionality as a designer in a MTH context

Your relation, human perspective,
representability, collective effort
non-human agency

Careful considerations in MTH design (approaches)

Situatedness, exploration, material
choice, HCD vs MTHCD, seasonality

This teaching activity was developed as part of the MOVA project co-funded by the European Union. <https://mova.uni.mau.se/>



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