A satellite view of Earth from space, showing the curvature of the planet and the sun's glow on the horizon. The image is a composite of two satellite images, with the top half showing a different view of the Earth's surface than the bottom half. A white rectangular box is overlaid on the center of the image, containing text.

Exploring and strengthening our impact  
related to climate and biodiversity

The background of the slide is a high-resolution image of Earth as seen from space. The top half shows the dark void of space with a few stars, while the bottom half shows the curvature of the Earth with blue oceans and brownish-green landmasses. A white semi-transparent box is overlaid on the top half, and another white semi-transparent box is overlaid on the bottom half.

Facilitator

**Nils Petter Hauan**

Head of Development

VilVite, Bergen Vitensenter AS

Bergen Norway

Plan for the session

- Presenting five approaches + Questions & Answers
- Doing an activity in groups
- Reflecting on evaluation of the activity



Speaker

**Pernille Kjølholt**

Director

Økolariet

Vejle Denmark



# Økolariet

A knowledge &  
Experience Center  
in Denmark

*By Pernille Kjølholt – Director*

# - Build to inspire for a sustainable development and actions

- Get insight and **knowledge** about sustainability and the importance of the choices you make in your daily life and
- Play and interact with the exhibitions to grasp the concept of sustainability
- Give courage and guidelines for action
- **90.000 guests yearly**

Økologiet was built as a direct consequence of the resolution signed by all 193 nations of the world in Rio 1992, that demanded all nations and all municipals in the world to act in a more sustainable way

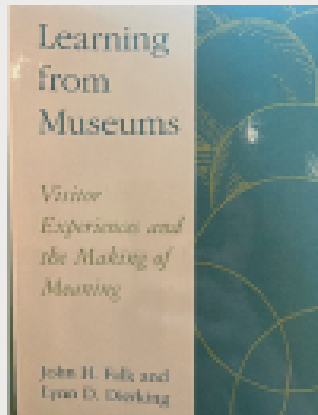


# Theoretical foundation of experience

## The Personal Context

“All learning, even the most logical topic, involves emotion(...)it seems that every memory comes with an emotional stamp attached to it”.

John H Falk & Lynn D Dierking



Central to all learning is our perceptual system.

Information must somehow be perceived  
**seen, heard, smelled, tasted, touched**

A filter - what is worthy of remembering? Now entering our limbic system

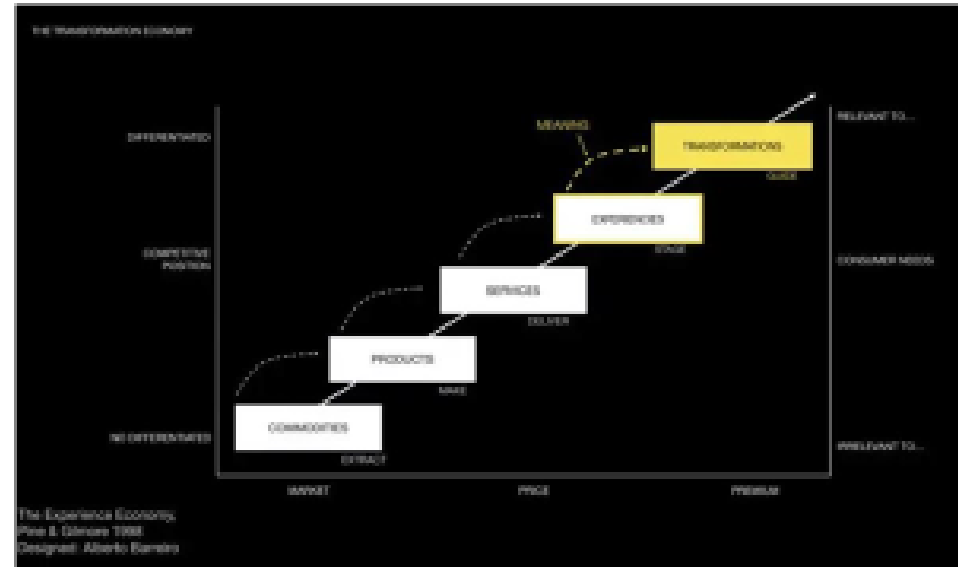
Screening for meaningfulness and personal relevance

“Will this be important information in the future”

“Does it relate to something I know, feel or believe?”

## Transformation Economy (Pine & Gilmore)

Creating a transformative experience is about evolving the way people make meaning



In the transformation economy, the value for consumers lies in the opportunity to change. Experiences must therefore not just create memories but lead to lasting personal change



Curiosity, ownership,  
safty feeling, relatable,  
adventure, engagement  
unexspected, discovery,  
welcoming, openness

**FUN**



# Sustainable journey

– behind the scenes



## Environmental policy



### Økolariets miljøagenda 2023

Økolariet er et videns- og oplevelsescenter, der blev bygget i 2000 på baggrund af Vejle Kommunes engagement i Agenda 21. Agenda 21 er et globalt projekt, der græder i en 300 sider plan om strategien for at opnå bæredygtig udvikling i det 21. århundrede i mange af verdens lande. Planen har senere været udgangspunktet for ENs Global Compact principper vedrørende miljø.

Økolariets kundevært grunder derfor i en tomte på miljø og bæredygtighed, og er i sig selv opført af diverse bæredygtige materialer, som Leks, brug af alternative og bæredygtige isoleringsmaterialer i byggeriet: Parqite (vulkanisk øks).

#### Code of Conduct (adfærdskodeks)

I Økolariet arbejder vi ud fra et bæredygtigt adfærdskodeks. Det er italesat retningslinjer, der tyder på at medarbejdere i Økolariet altid stiller bæredygtige krav til, husets leverandører og hele tiden selv fortæller sig til de bedste bæredygtige løsninger, såsom at genanvende eller genbruge materialer, når det er muligt. Det er vores private Code of Conduct IFL Økolariets miljøagenda.

Hver dag arbejder vi sammen om at styrke den bæredygtige retning gennem formidling, udtøllinger og vores samtaler med gæster og

#### Forfattet af

Lene M. 15.08.2020  
Karin M. 20.08.2020  
FLU@veje.dk

27. juni 2023





- A behavioral mission engaging and relating



But...how do we know if it works?



# Classic survey

## Revisitors

## Ambassadors

## Mystery shopper

## Dialogue

### Summary of results

- 77.6% answer affirmatively to "Have you been motivated/inspired to become more climate conscious in your everyday life after the visit to the Økolariet?"
- 84.9% score affirmatively above average in relation to "Have you learned about something you didn't know beforehand?"
- 48.5% score above average in relation to "Have you specifically changed your climate behavior after the visit?"
- 97% have a positive opinion of the Økolariet.
- 50% have an "Extraordinarily positive" experience
- 92.8% score above average in relation to "How did you experience the service you received at the Økolariet?"
- 53.8% state that the service is "Extremely good"
- 91.1% score above average in relation to "How was it to find your way around the Økolariet?"
- 39.8% state that it is "easy to find around"
- 78% score above average in relation to "How do you rate the site in relation to the number of visitors to the Ecolary last time you were there?"
- 30.9% indicate that there is "good space".

Økolariet  
Survey Q2, 2023

### Sammenfatning af resultater

- 36 nye abonnenter (Typeform)
- 226 besvarelser på [survey](#)
- 226 profiler i [audience](#), der kan beriges med specifikke [survey](#)-præferencer
- 2.764 åbninger på e-mails og 253 [clicks](#)
- 7.456 eksponeringer på site
- Specifikt for [survey](#):
  - 591 åbninger
  - 365 starter
  - 243 indsendelser
  - 202 personificerede (deltagere i konkurrence)

### Mystery shopper report

#### BAGGRUND OG METODE

##### BAGGRUND

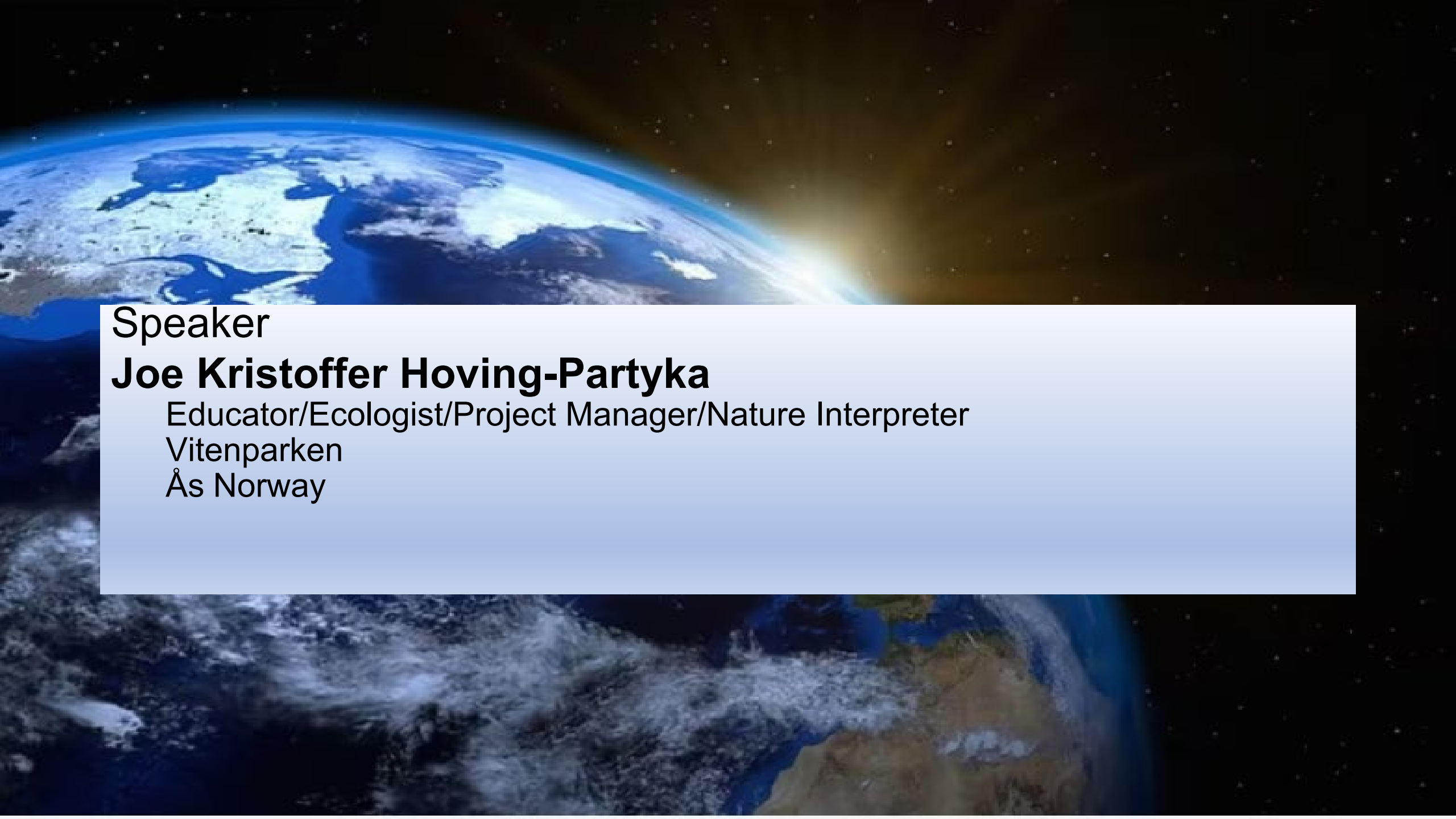
Økolariet ønsker blandt andet at "være åben for kritik, som hjælp og oplæring går op i en faglig ånd" (Økolariet.dk). Blandt andet derfor er det vigtigt for Økolariets ledelse og medarbejdere konstant at opdatere alle aspekter af den samlede oplevelse. I den forbindelse indgik Årsmålsrapporten, Økolariet, og John Nord, HøfØK, i slutningen af maj 2023 en aftale om en analyse af Økolariet med udgangspunkt i den metode, som i 2022 blev anvendt til en analyse i 2022 af 112 danske museer. Indværende hotel præsenterer resultaterne af analysen.

Den gennemførte analyse fokuserede på, hvordan museerne arbejder med oplevelsesdesign (branding). Hvordan tager de forbehold mod gæsterne? Hvordan opger de forsvet? Og har de en årligt signifikant succes? Hvor kommer indtægten i oplevelsen? Dette var blot nogle af de mange spørgsmål, som analysen søgte at besvare.

##### METODE (1)

Metoden, som er blevet anvendt i forbindelse med analysen af Økolariet tager udgangspunkt i principperne i eXPER, som er et værktøj til oplevelsesdesign. eXPER er udviklet på Århus Universitet. Det er dette værktøj, som blev anvendt til den gennemførte analyse af 112 danske museer. Gennemgangen af Økolariet har fokus på de gode oplevelser for gæsterne = på det samlede besøg, som i eXPER også består af den overordnede oplevelse.





Speaker

**Joe Kristoffer Hoving-Partyka**

Educator/Ecologist/Project Manager/Nature Interpreter

Vitenparken

Ås Norway

# Classic nature interpretation



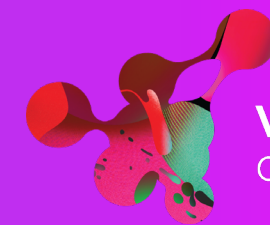
vitenparken  
Campus Ås

# Using digital tools to create connections with nature through gamification

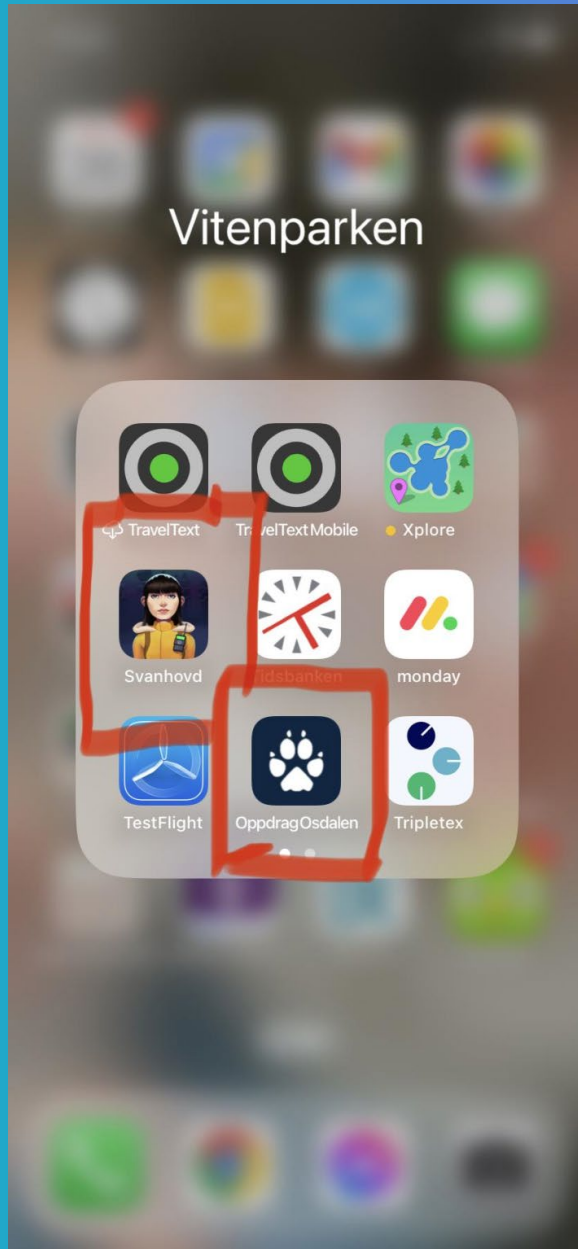


# MYSTERIET I ØSTMARKA

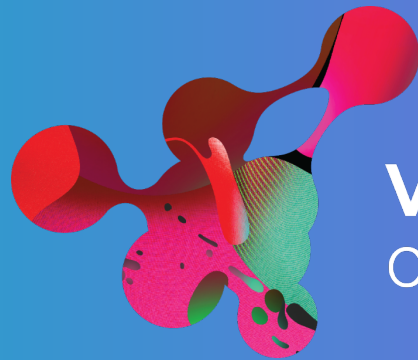
# Hybrid Solutions



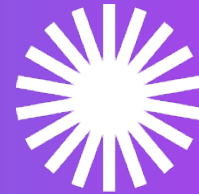
# Digital Solutions



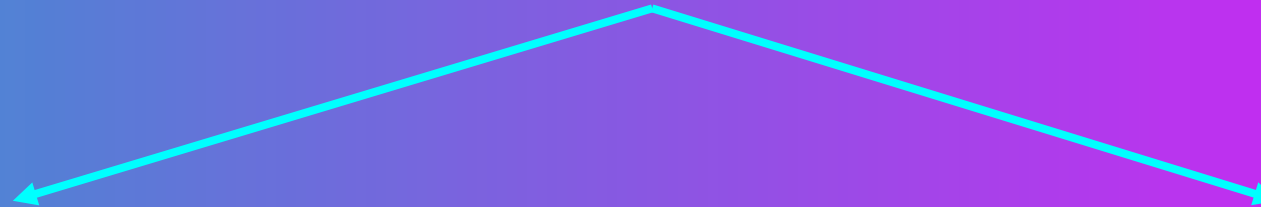
# Digital tools - Do they work?



**vitenparken**  
Campus Ås



**Surrounded  
by Science**



**Is our activity changing childrens  
perception of large carnivores?**

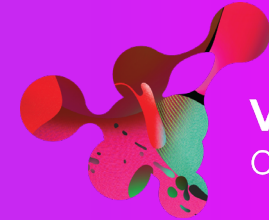
**What is the role of the hybrid  
teaching tool in a learning situation?**



# Digital tools - Do they work?



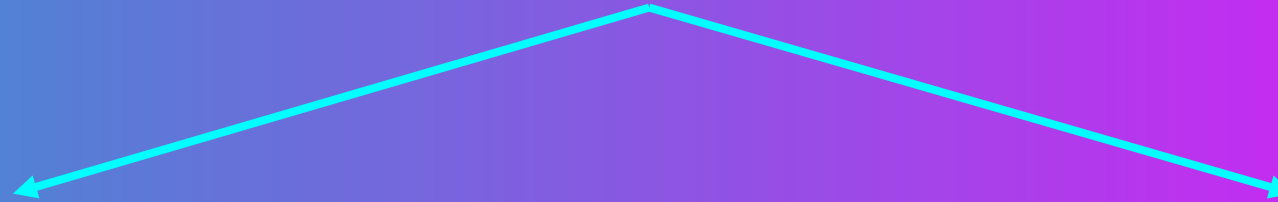
Surrounded  
by Science



vitenparken  
Campus Ås



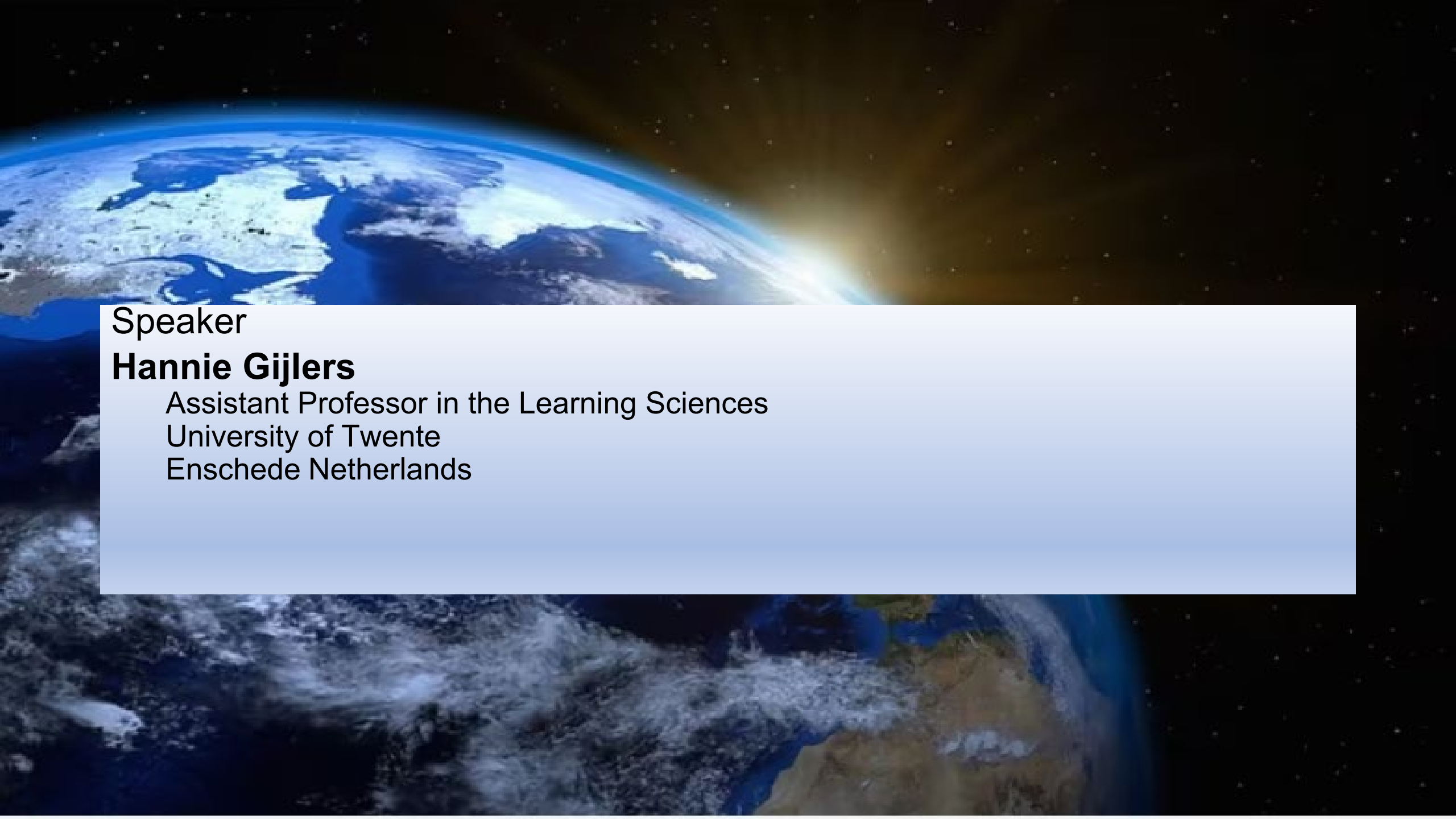
Preliminary results



Is our activity changing childrens  
perception of large carnivores?

What is the role of the hybrid  
teaching tool in a learning situation?

# So far, so good!



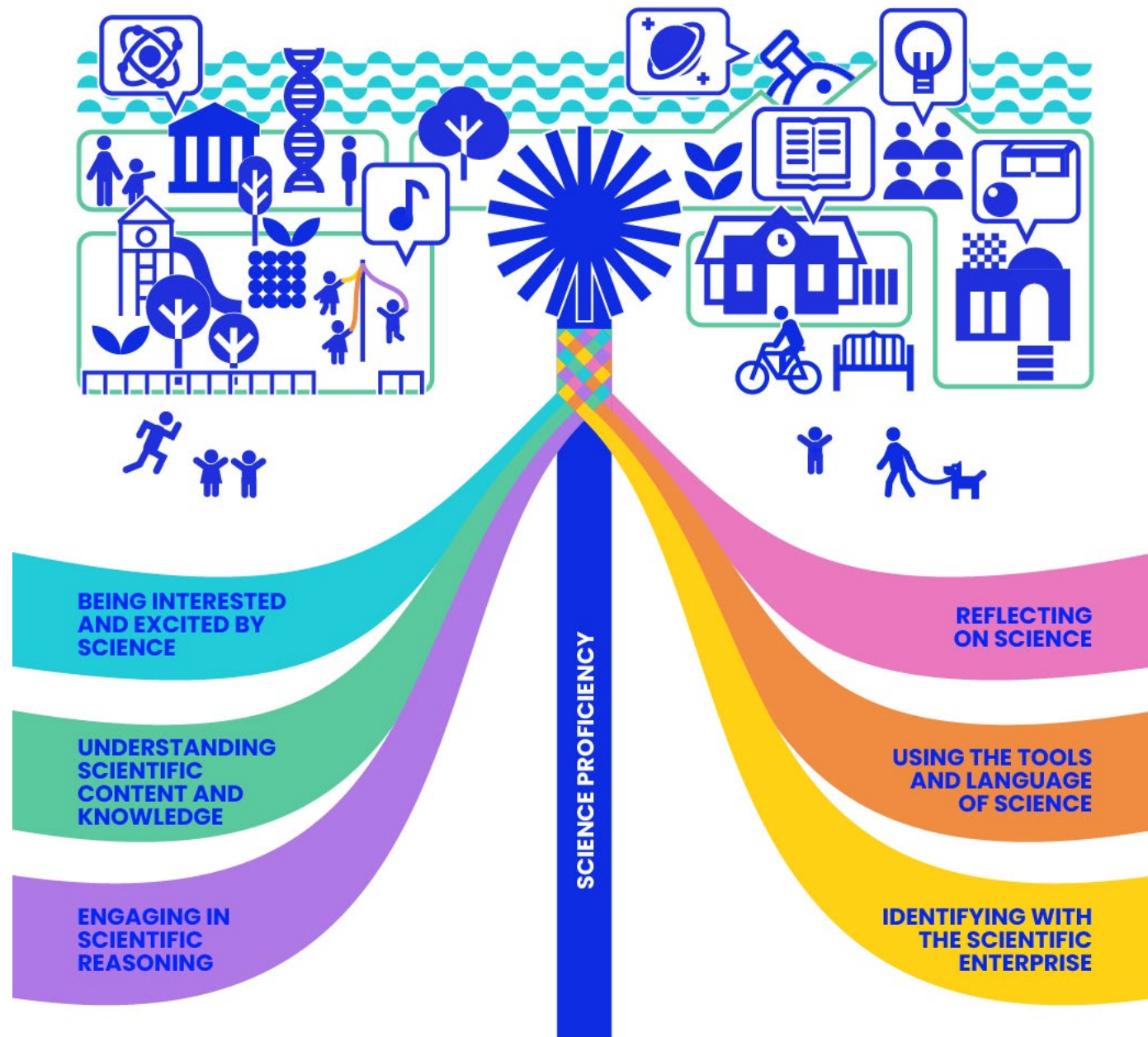
Speaker

**Hannie Gijlers**

Assistant Professor in the Learning Sciences  
University of Twente  
Enschede Netherlands

# The digital toolbox for assessment in an informal setting

Hannie Gijlers



## The Digital toolbox

- A toolbox aimed at expanding our understanding of the impact of iSTEM activities on science proficiency.
- *Delivering activities, assessments and experiences to the users/visitors.*
- *Interacting with content, participating in the assessment*
- Collecting data.
- Advise tool.

## Evidence - based research methodology



Three building blocks:

1. DTM manager
2. Science Chaser
3. Science Booster

# Digital toolbox manager

Tool for project members and organizations.

- Create & manage accounts
- Create & Edit content
- Create sequences

# Digital toolboxmanager

Profile Science organisations Results About

**Edit account**

first name \*  
Hannie

last name  
Gijlers

email \*  
a.h.gijlers@utwente.nl

preferred language \*  
UK

alternative languages

Profile Science organisations Results About

science organisations

Iter

List of science organisations

Name	Nr of artefacts	Created at	Last modification at
Citta della scienza	2	Feb 24, 2023, 10:09:25	May 2, 2023, 13:58:29
Nordhorn zoo	6	Mar 23, 2023, 13:46:04	May 16, 2023, 14:12:17
Ellinogermaniki Agogi	8	Jan 18, 2023, 14:29:36	Apr 19, 2023, 14:31:54
Museumfabriek	2	Feb 27, 2023, 13:21:58	Mar 1, 2023, 15:49:07

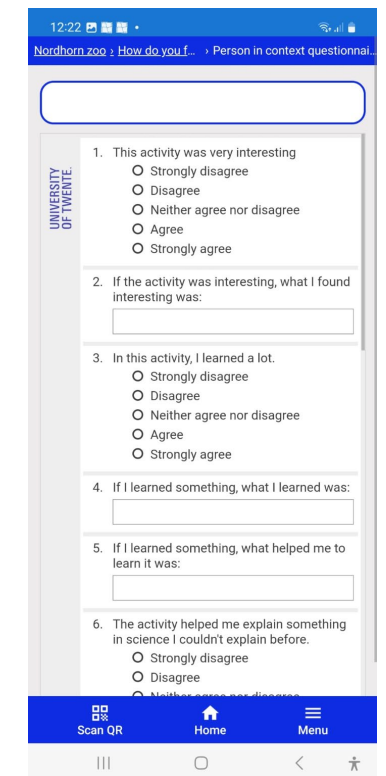
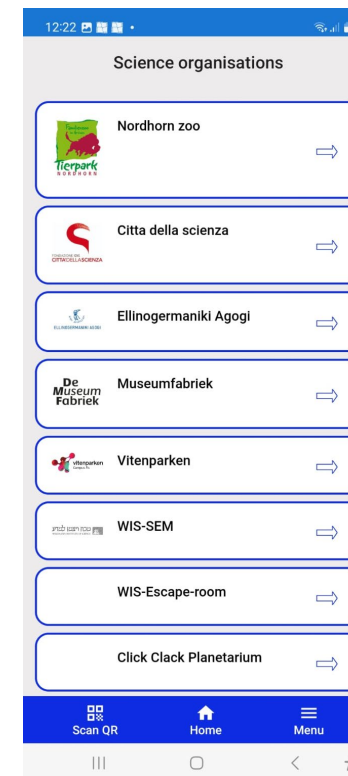
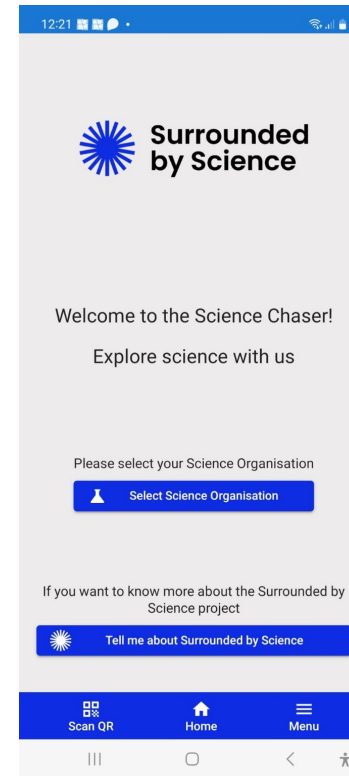
# The science chaser

## Interact with the visitors

- Provide experiences
- Deliver assessment
- Follow the activities of the visitors.

DTM: <https://pilots.surroundedby.science/dtm/>  
Chaser: <https://pilots.surroundedby.science/chaser/>

# Innovative impact assessment



# Interacting with the visitors



Vervolgonderwijs (bedoeld voor leerlingen vanaf ongeveer 10 jaar)

## Van wolf tot hond

Afstamming en verschillen tussen huisdieren en vrij levende dieren

## De taal der dieren

Communicatie bij verschillende diersoorten

12:10 Nordhorn zoo › Language of Wolves › Language of Wolves

12:09 Nordhorn zoo

**Nordhorn zoo**  
 Tierpark NORDHORN  
 For more information, visit: <https://www.tierpark-nordhorn.de/>

Visitor Questionnaire →

How do you feel about wolves? →  
 Questionnaire

Wolves in Europe →  
 extra info

What does a wolf eat? →  
 information about the diet of the wolf

Language of Wolves →  
 This artefact is about the body language of wolves

Wolves in Germany →  
 News item about wolves in Germany

relaxed wants to play high rank order threatening someone

low rank order

12:08 Nordhorn zoo › How do you feel about ... › How do you feel about ...

UNIVERSITY OF TWENTE

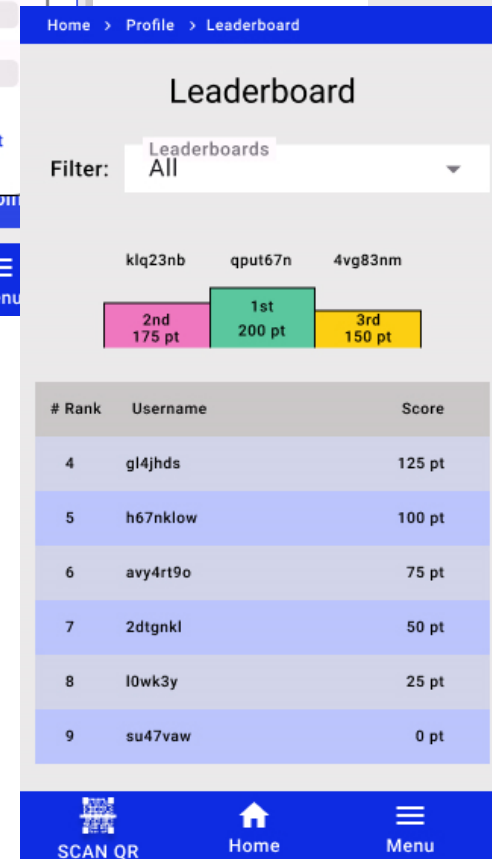
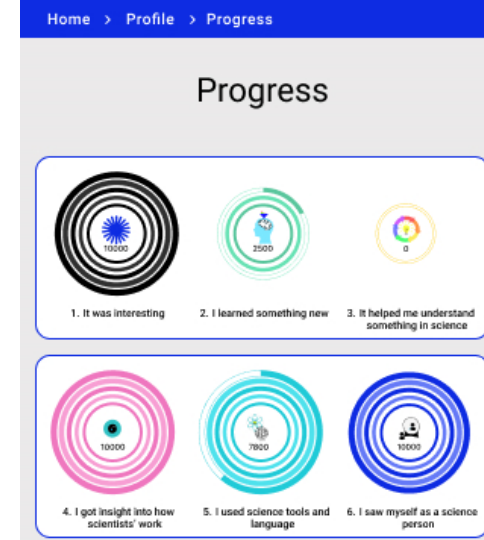
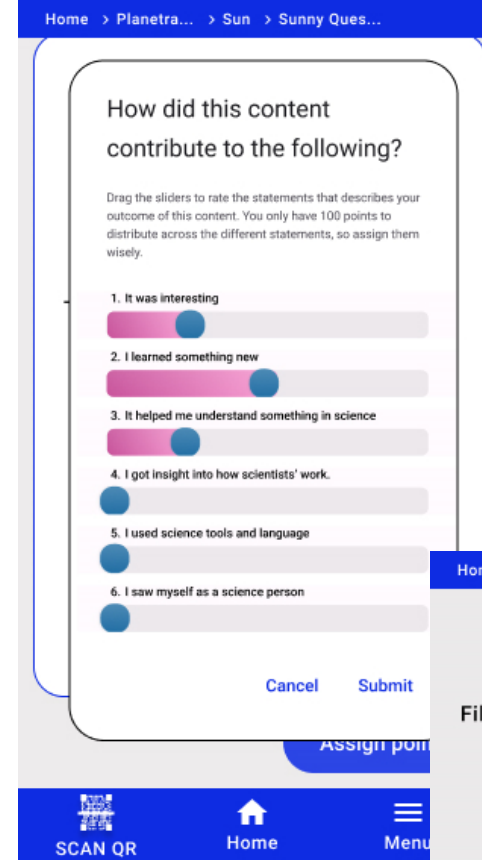
- I like animals
  - I like animals a lot
  - I like animals
  - Neutral
  - I don't like animals much
  - I hate animals
- Who has the most right to use nature?
  - Sheep farms alone
  - Sheep farmers, but they must share with other animals
  - Neutral
  - Predators, but farmers also need to use nature for their animals
  - Predators alone
- There are too many Wolves in Germany
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
- There are too many sheep grazing in nature
  - Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly disagree
- I feel unsafe in nature because of the presence of predators.

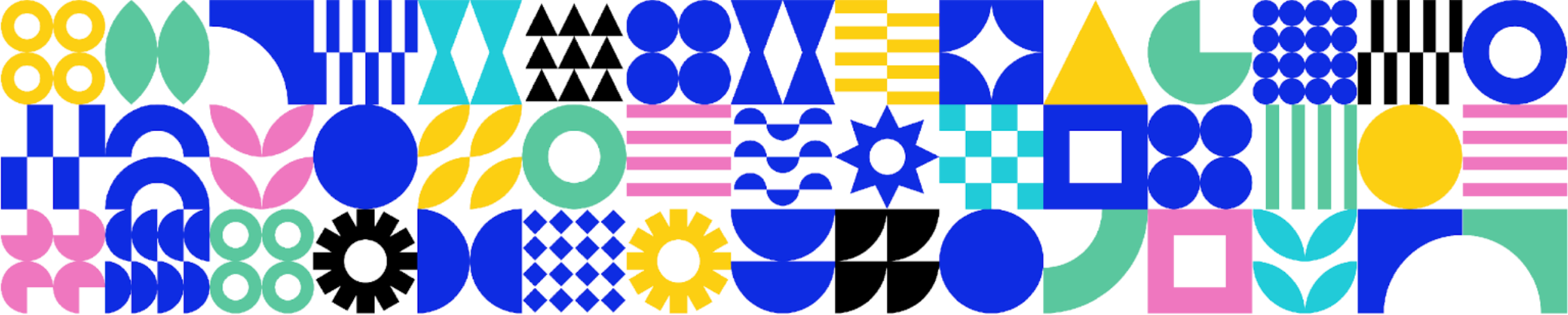


# Everyday life perspective Self-reporting activities

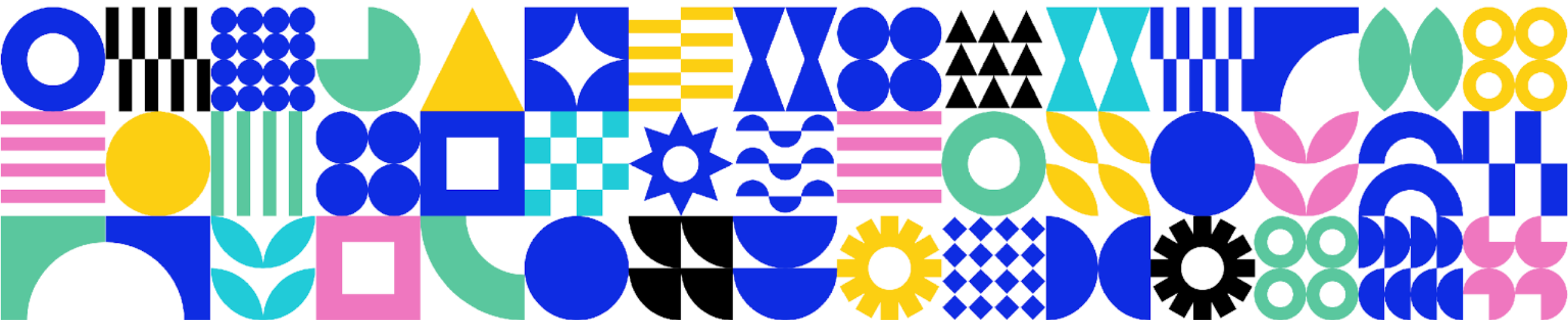
- Activity on own initiative
- Report it in the chaser
- Self-report tool
- Gamification
  
- Work in progress

DTM: <https://pilots.surroundedby.science/dtm/>  
Chaser: <https://pilots.surroundedby.science/chaser/>





**Surrounded by Science**





Speaker

**Jen DeWitt**

Senior Research Fellow

IOE (UCL's Faculty of Education & Society)

London, United Kingdom

# Supporting environmental science agency: The case of Wonderseekers



# Wonderseekers' strategy

Impact goal: Children (are empowered) to take (collective) action on biodiversity and climate.

Outcomes:

- Children have a greater connection to nature.
- Children value and see the relevance of science.
- Children want to play their part.
- Children can use their science enquiry skills.

# Theory of change

Impact (2)

Impact (1)

Outcomes

Specific activities

Themes of activity

Children feel powerless to address the climate and biodiversity emergency.



Evaluation =  
distance travelled

# Evaluation: The journey

Stage	1	2	3	4	5	6	7	8	9
What we do with this group	Show them WOW and engage them with the Wonder.				Engage them with the Wonder and involve them with discussion, sharing their voice and promoting their thoughts.			Engage them with the Wonder, encourage, support and signpost their actions.	



- Environmental-related engagement; science enquiry skills (confidence)
- Descriptions + examples
- Track/map across the stages



Speaker

**Anne Land**

Assistant professor informal science education

Leiden University

Leiden Netherlands



# IMPACTLAB

Collaborated with over  
100 scicom projects



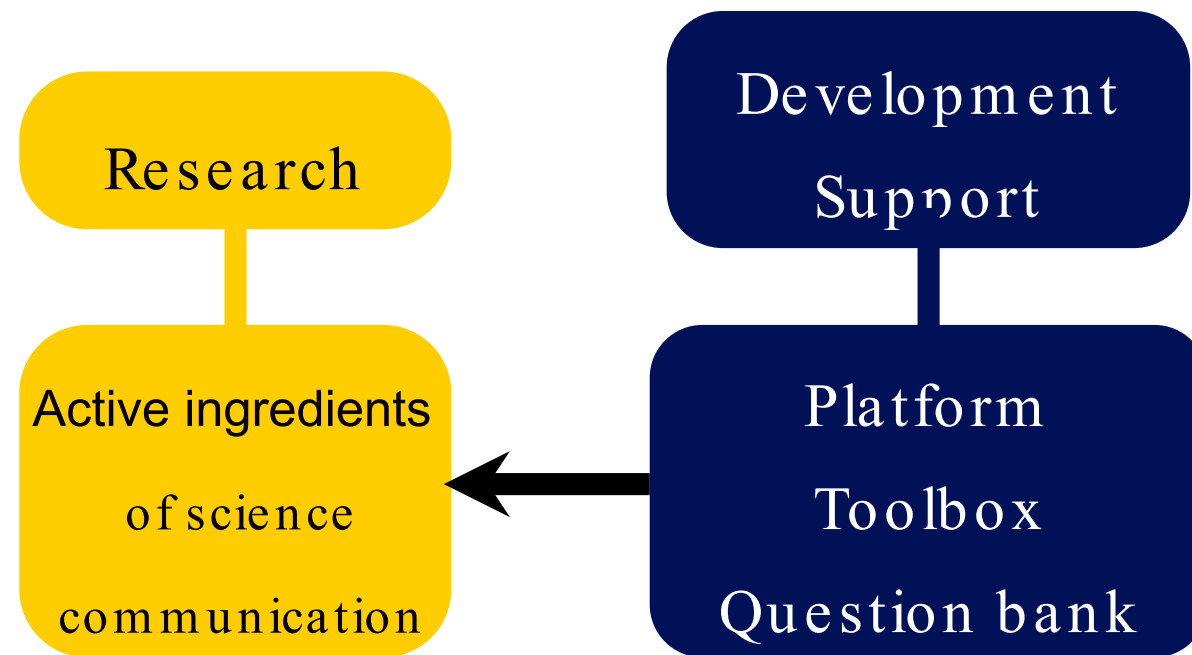
City Deal  
Kennis Maken



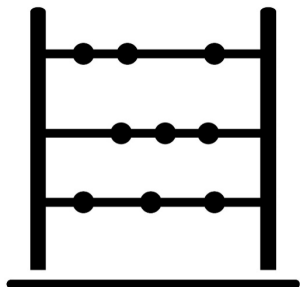
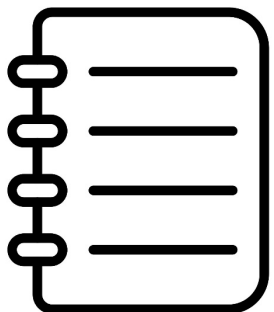
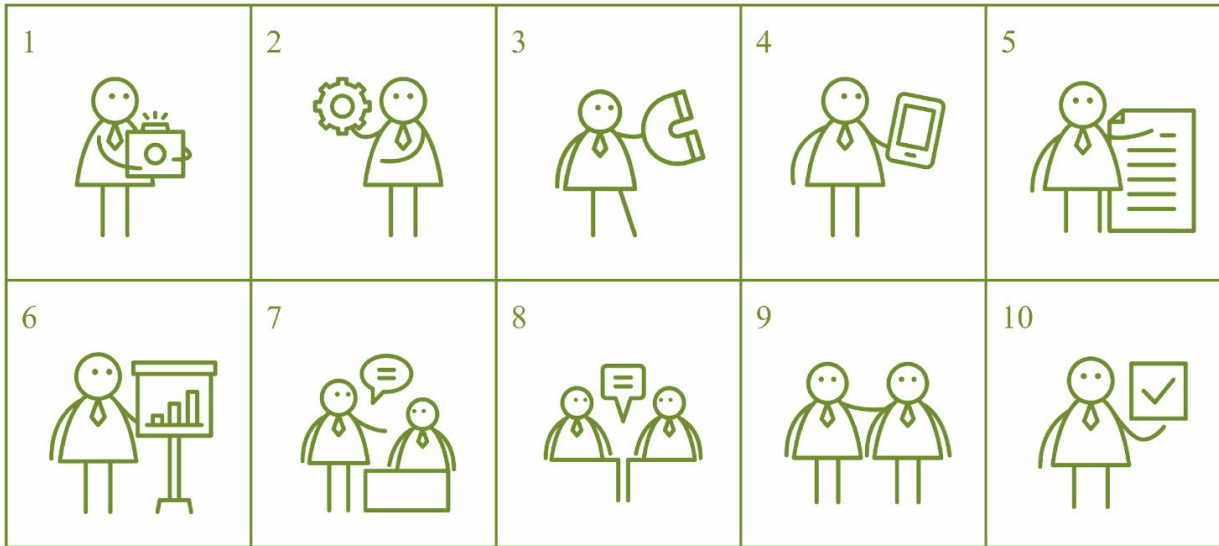
Utrecht University



Universiteit  
Leiden



# TOOLS



- Different types of instruments
- Depending on goals, target audience
- Decision tree
  
- Behavior or attitude change
  - *Diaries*
  - *Survey statements*
  - *Longitudinal data*

# LESSONS LEARNED I: make a choice

## LOWLANDS

- **Event:** art installation about data and algorithms at a music festival
- **Audience:** adults
- **Number:** 750
- **Setting:** festival, 1 moment of measurement



# LESSONS LEARNED I: make a choice

- Awareness  
...with 3 statements



"DATA & ALGORITHMS MAKE MY LIFE EASIER"



"DATA & ALGORITHMS MAKE MY LIFE MORE FAIR"



"DATA & ALGORITHMS MAKE MY LIFE MORE EFFICIENT"



# LESSONS LEARNED II: embed measurement

## EXPEDITIE NEXT

- Goal: inspire about science
- Audience: children 6 -12 years old
- Number: 100+
- Setting: science festival for kids



# LESSONS LEARNED II: embed measurement

- Online tool
  - Questions: simple and visual
  - Storytelling comic strip
  - Quiz: “What type of researcher are you?”



TECHTOPPER

50%



NATURE TALENT

75%



KNOWLEDGE  
ATHLETE

10%



## Next steps

- Doing an activity in groups (starting 15:00)
- Reflecting on evaluation of the activity (starting 15:20)

# The Challenge

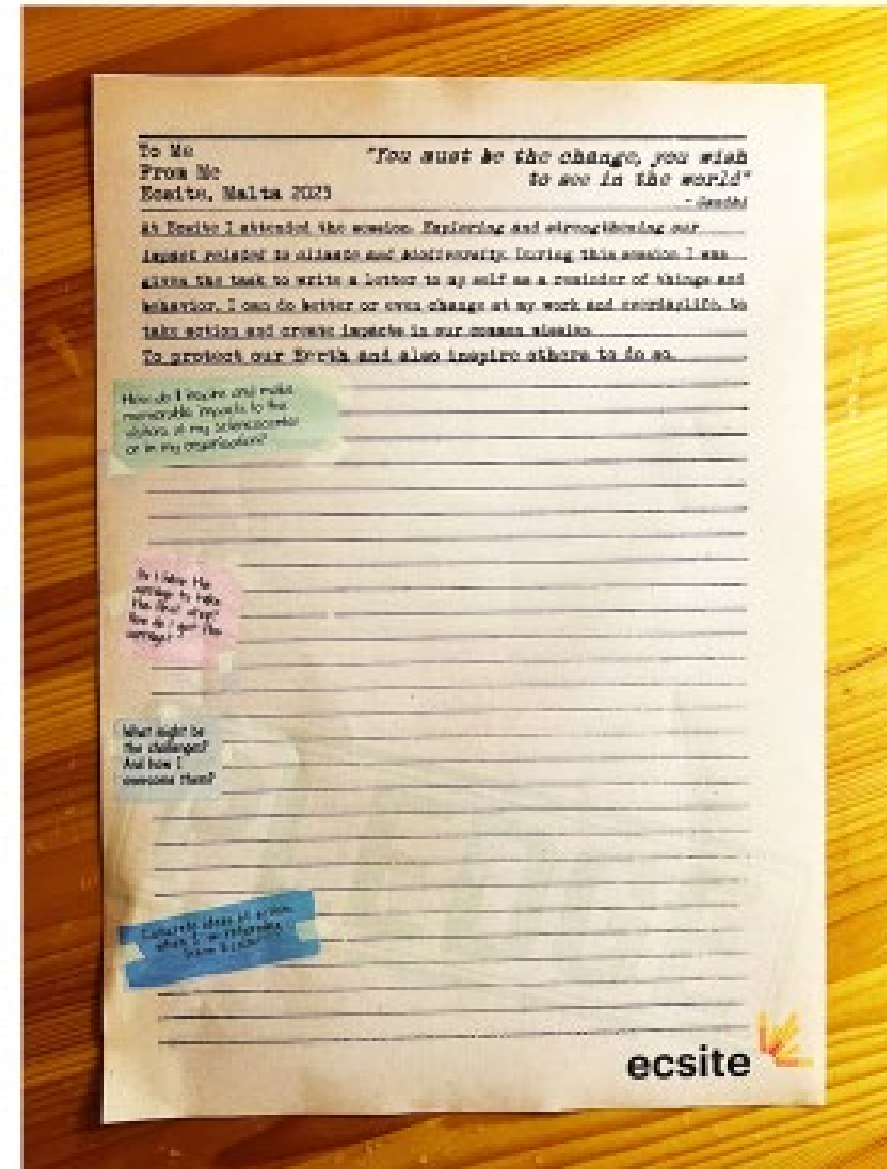
*Do not dare, not to dare*





# From me to me

- Write your reflections on your ideas on making a change
- Talk with people around you
- Reflections



- 
- Reflecting on evaluation of the activity (starting 15:20)