



# On/In the Web – All for Free?

Digital Education Workshops in the Field of  
Data Protection, Algorithms and Online Advertising

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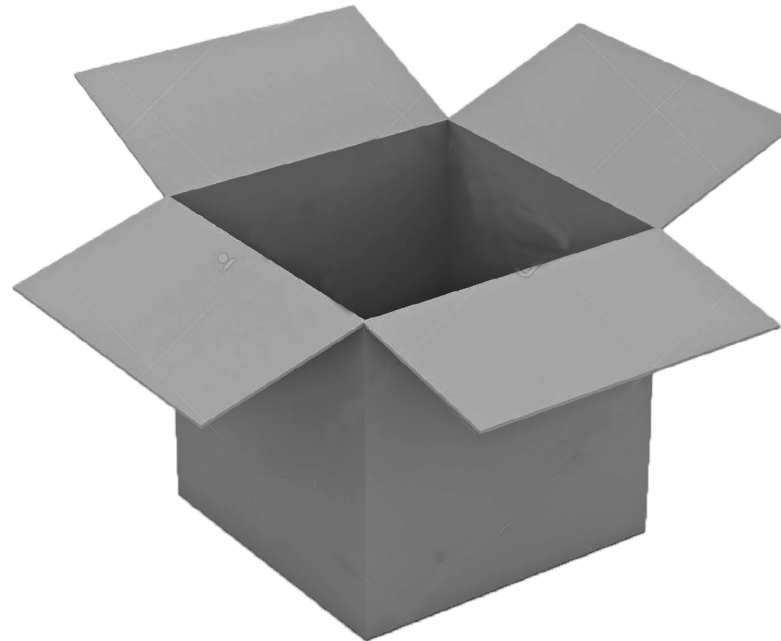
Network 06: Open Learning: Media, Environments and Cultures  
ECER 2023, Glasgow

# Black Box

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Algorithms  
Digitization  
Data Profiles



... referring to the example of Online-Advertising

# Iceberg



positively perceived effects

chances und potentials

**surface phenomena**

**underlying processes**

challenges and risks

negative / intransparent  
effekte and consequences



# Agenda

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- 1) Why promoting and supporting data literacy?
- 2) How to promote and support data literacy?
- 3) Challenges and demands
- 4) Examples: teaching aids
- 5) Results
- 6) Outlook
  
- 7) Discussion



# Why we should teach data literacy?

- participation gap
- transparency problem
- ethics challenge

Jenkins et al.  
(2009)  
„Challenges of  
Participatory  
Culture“

- ‘native speakers’ of digital language
- But: “less and less time and opportunity for reflection and critical thinking”

Prensky  
(2001)  
„Digital  
Natives“

Iske / Wilde  
(2018)

## “Online-advertisement from the point of view of young adults”

- everyday experience
- focus on surface
- underlying processes (often) intransparent
- feeling, less knowledge or reflection (“*privacy paradox*”)
- Differentiation: ‘good’ vs. ‘bad’ advertisement
- Ambivalence: non-use is no alternative



# Why we should teach data literacy?

Iske & Wilde  
(2018)

“Online-  
advertisement from  
the point of view of  
young adults”

- ambivalence between knowledge and action
- lack of basic knowledge about highly dynamic field
- practical personal possibilities of action

- “research results point to a **great heterogeneity and diversity of subjective relevancies, assessments and beliefs of young people** in the field of online advertising. This suggests that, for the field of both practical and university media education, there is a demand for sensitisation regarding differences and heterogeneity.”
- “In view of the target group of young people, it becomes clear that **growing up in digitally networked spaces (media socialization) does not automatically lead to the critical reflection of online advertising. In this respect, children and young people are actually no "digital natives"**. This underlines the central importance of addressing and handling online advertising in both school and non-school educational contexts.”

(Iske & Wilde 2018)

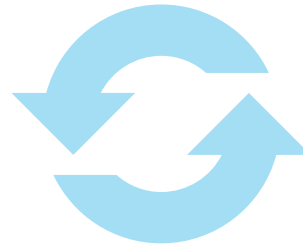


How can a self-reflected and competent handling  
of online advertising  
can be supported and promoted  
among young people?

# How support and promote data literacy?



- ✓ Reference to every day experience and practice
- ✓ Develop teaching aids



**reflective practitioner**  
(Schön 1983)

- reflection-in-action
- reflection-on-action



- ✓ activity-oriented  
(vs. instruction-oriented)
- ✓ formal settings  
(vs. informal learning)



# How to support and promote data literacy?



## 1.

### **Self-reference:**

Why and how am I (at all) affected?

knowledge   attitude



## 2.

How can I prevent, limit,  
manage my digital profile?

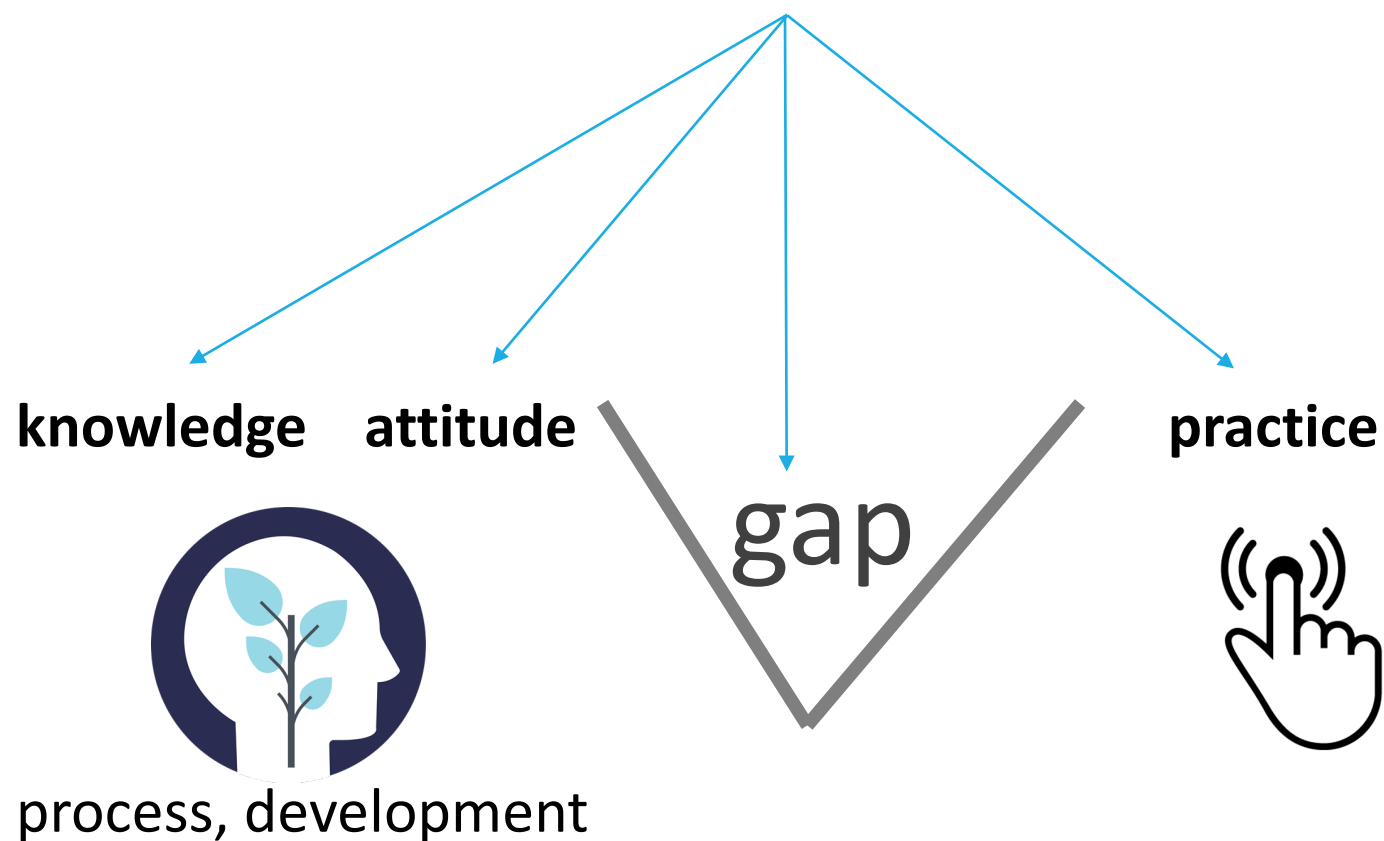
practice





# Focus on (self-)reflection

workshop-based **(self-)reflection** within group





# Challenges of Addressing the KAP-Gap

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## Promote self-reference

- Based on own experience; disrupt unreflected everyday practices: inquiries, release impulses
- looking for an individual reference point: personal feelings, relevances, concerns

## Experience and Discussion

- individual knowledge, attitudes and practices as a topic for discussion in social context / group (individual vs. social)

## Heterogeneity

- variety of different teaching aids
- different (didactic) approaches
- didactic diversity

## Flexible, open, reflective teaching aids

- leave free spaces
- no rating (no correct or incorrect answers)
- no request for knowledge
- a lot of time
- small working steps building on each other



# „Promotion of Digital Education of Young People in the Field of Data Protection and Algorithms using the Example of Online Advertising“



Prof. Dr. Stefan Iske, M.A. Katrin Wilde, M.A.  
Verena Kittelmann

**Project time**

**01/2022 – 08/2023**

**Project partner**

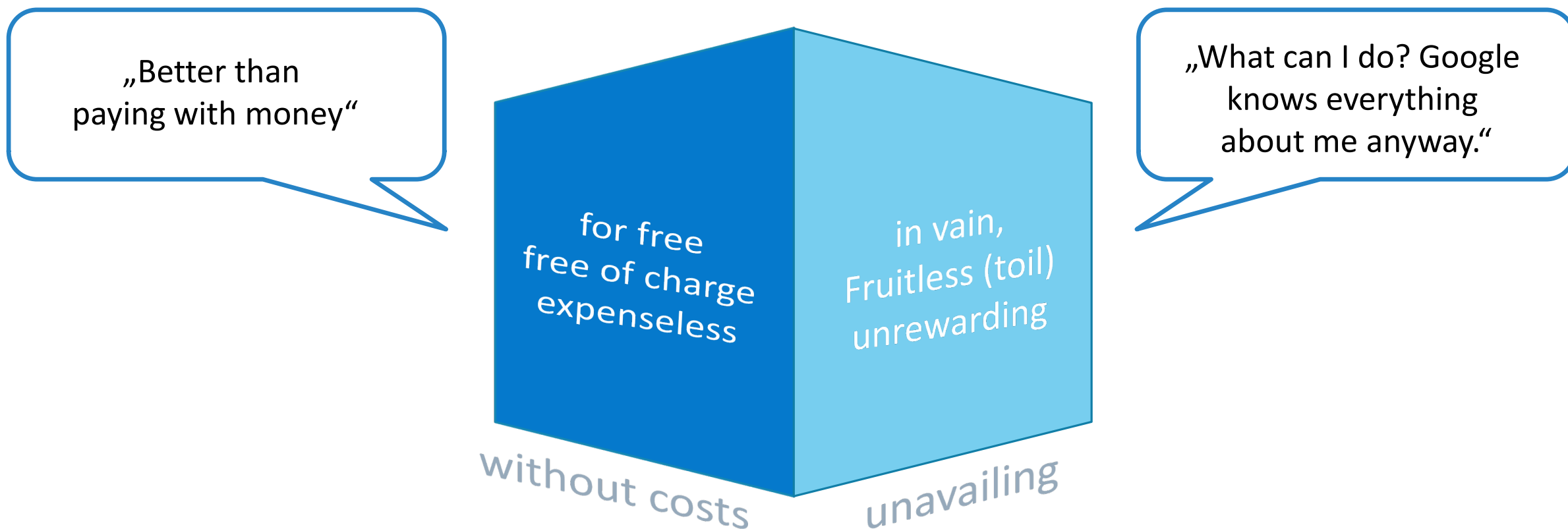
meko e.V. Magdeburg

**Funding**

**Ministerium für  
Infrastruktur und  
Digitales, Land  
Saxony-Anhalt, Germany**



# Play of Words – Space of Connotation



# Concept of Project: self-reference, self-reflection



**Promotion of data literacy** and online advertising competency

Development of innovative, interactive & cooperative **teaching aids**

Conception and implementation of (modular) **workshops**

Development of a **web-based environment** as a cooperative space for action and reflection

**formal & in-formal**

**activity-oriented**

**reflection oriented**

**Target group: 13-17 years**



# Workshop Examples

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**Does Instagram hear  
what I say?**



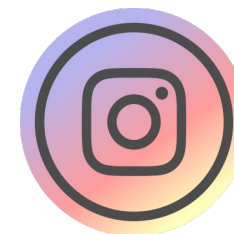
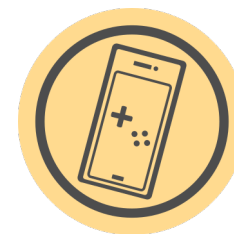
**Why do my Google  
results look different  
from yours?**



**How can TikTok know  
what I like?**



**And how does  
WhatsApp actually  
finance itself?**



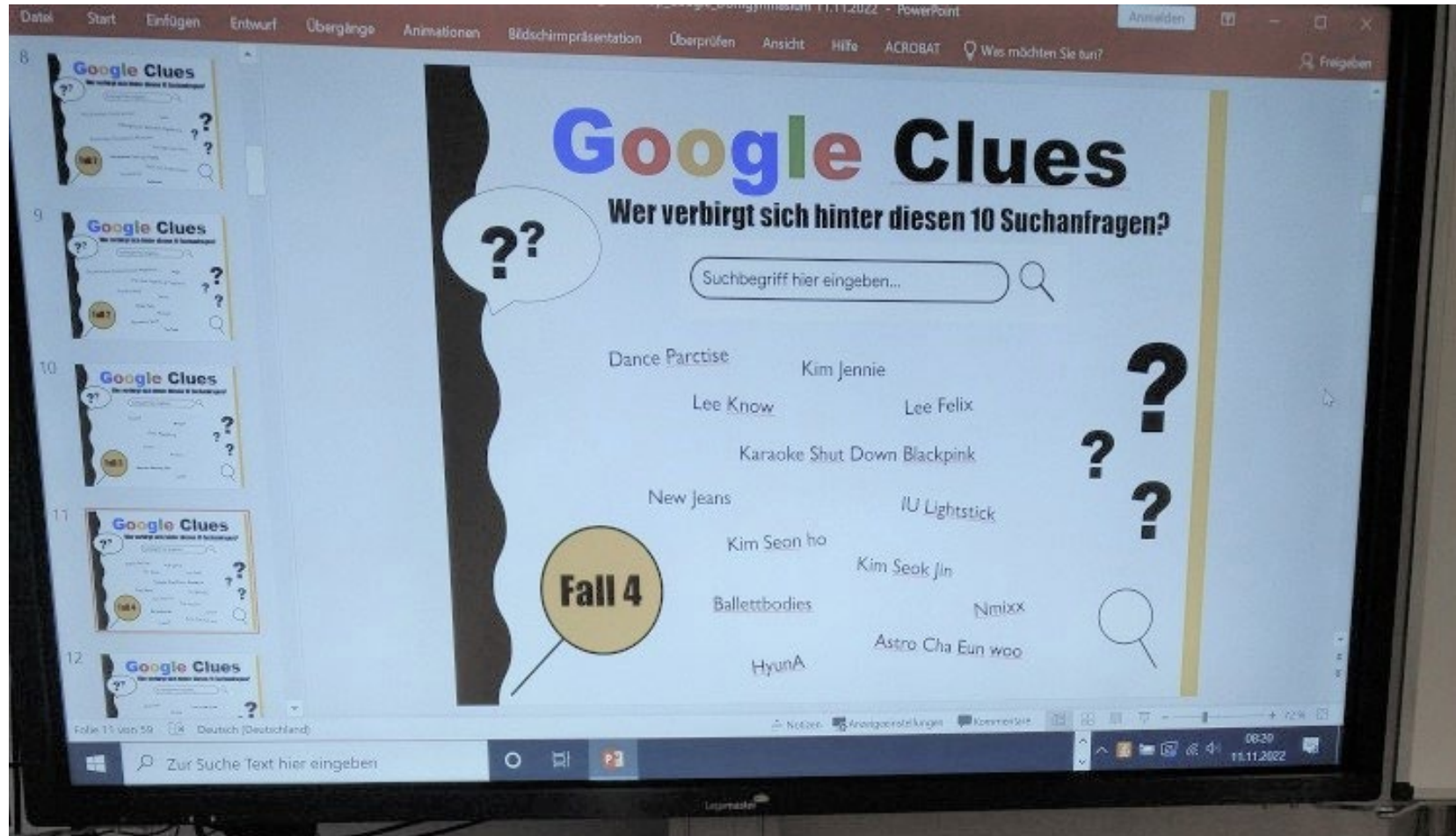
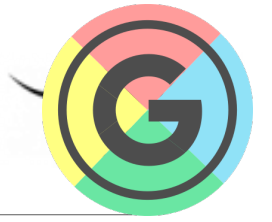
# “Who cares what I was searching for on the Internet?”



- What was searched previously?
- What are other People searching for and why?
- How does a search engine work?
- Google is more than a search engine
- Is it possible to create a double based on search queries?
- Is it possible to find out who you are from your last 10 searches?
- What can we find out about the person?
- What Google really knows about you?
- What is Google doing with all of this data?
- What can I do to cut off Google's access to my data?



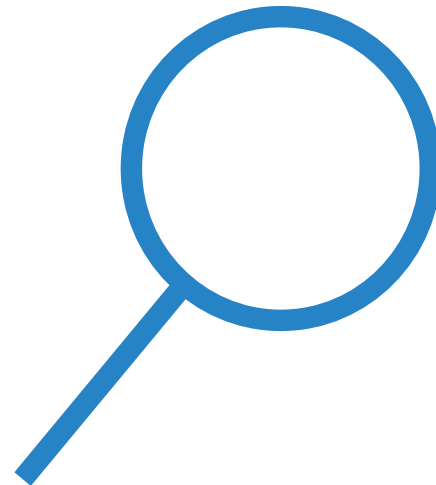
# Google Clues



Enter search question here...



## Who's behind these 10 searches?





## Who's behind these 10 searches?

??

Harry Styles Tour 2022

zodiac sign

study of architectureHamburg

south greece typical architecture

gold jewelry bracelet

DSAB-Sports Acrobatics Federation

fashion trends autumn 2022

case 8

Converse shoes

five love languages test

Cro Tour 2023

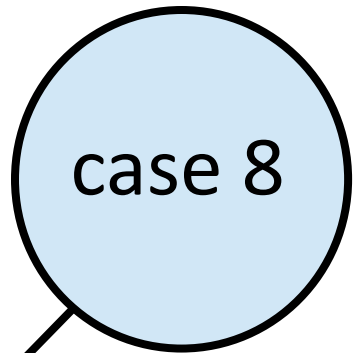
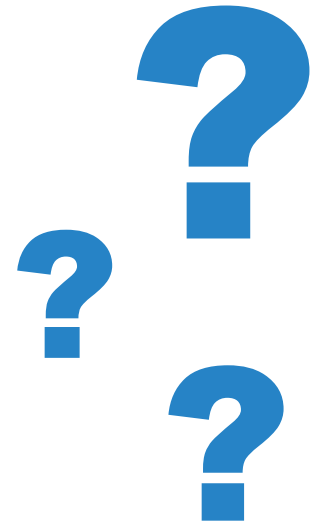
Dark brown hair color



## Who's behind these 10 searches?

### Friedi

- loves Harry Styles
- wearing Converse shoes
- Has dyed her hair brown
- Likes jewelry
- was at the Cro concert
- Doing acrobatics



# Google Clues



Enter search question here...

## What can you deduce from this about Google?

- Search queries describe a person pretty accurate
- Google possesses a lot of personal data of each user
- There are also search queries that do not stand for characteristics but e.g. for research (lesson topics)
- music taste
- personal interests e.g. music taste, sport, ...
- Age can be deduced
- Sexual orientation can be deduced
- Combination of search terms leads to findings

## Certain topics are typical for one gender?

Male characteristics:

what the girls say: PC, Playstation, soccer, hair gel,  
what the boys say: bodybuilders, soccer, sports, fresh hairstyles, cartoons

Female characteristics:

hair color, clothes, AboutYou, hairstyles for certain length, high heel shoes, jewelry, bracelets, earrings, music taste, K-Pop, gendering in search queries by professions (female doctor), women's clothing (women as an specification for the search)

# FICTIONAL INSTAGRAM PROFIL



1. Profile of the person with demographic data and interests
2. Creation of the channel and training of the algorithm
3. Comparison of the discovery feed before/after

→ Reflection:

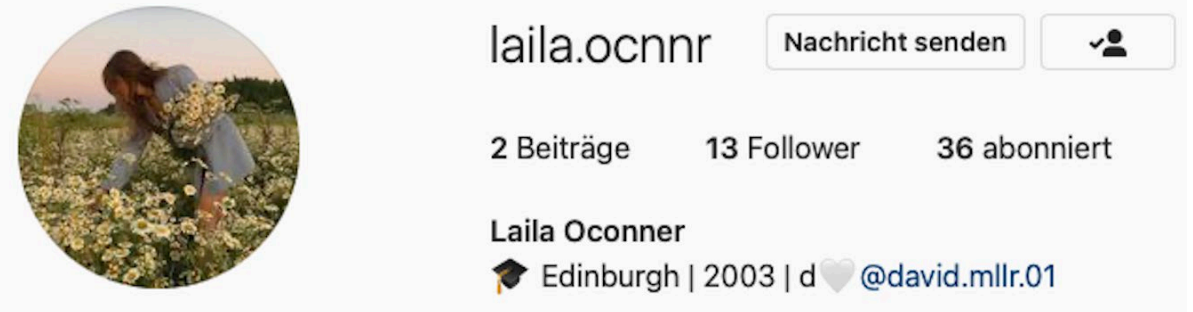
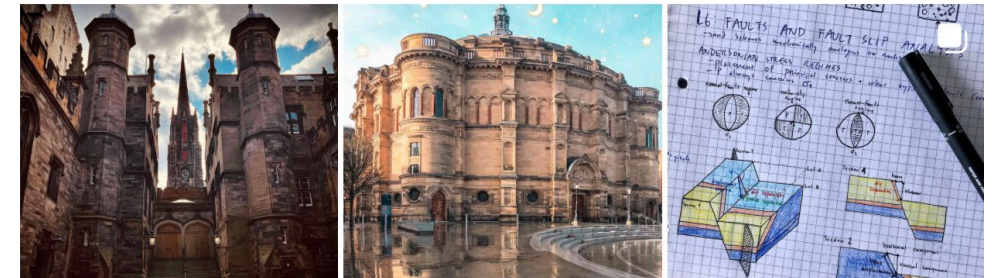
What is changing?

What impact do certain activities have?

What does this mean for me?



Top-Beiträge



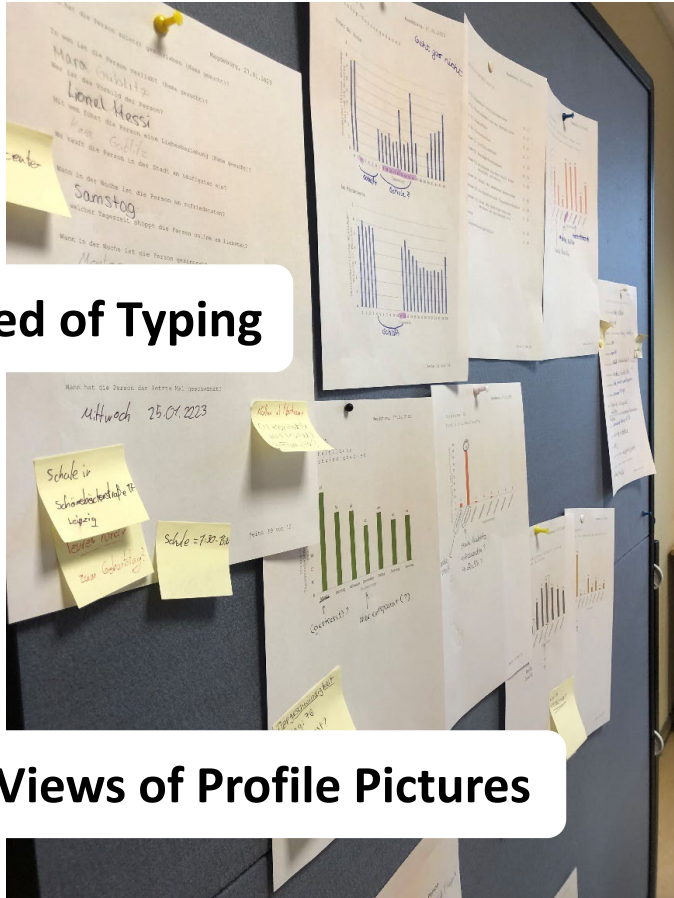




# DATA DETECTIVES - ON THE TRACK OF METADATA

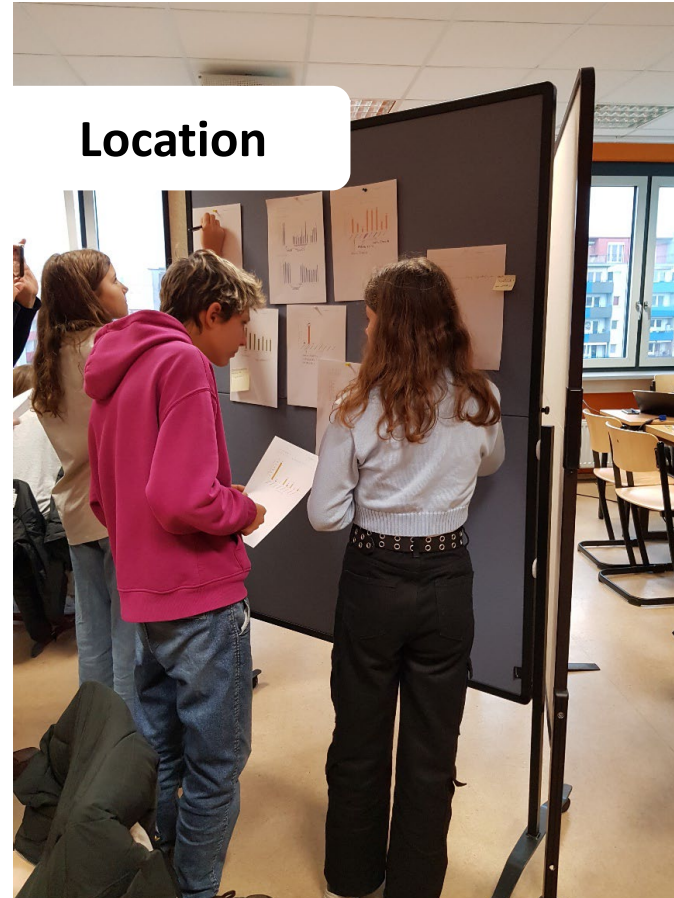


Speed of Typing

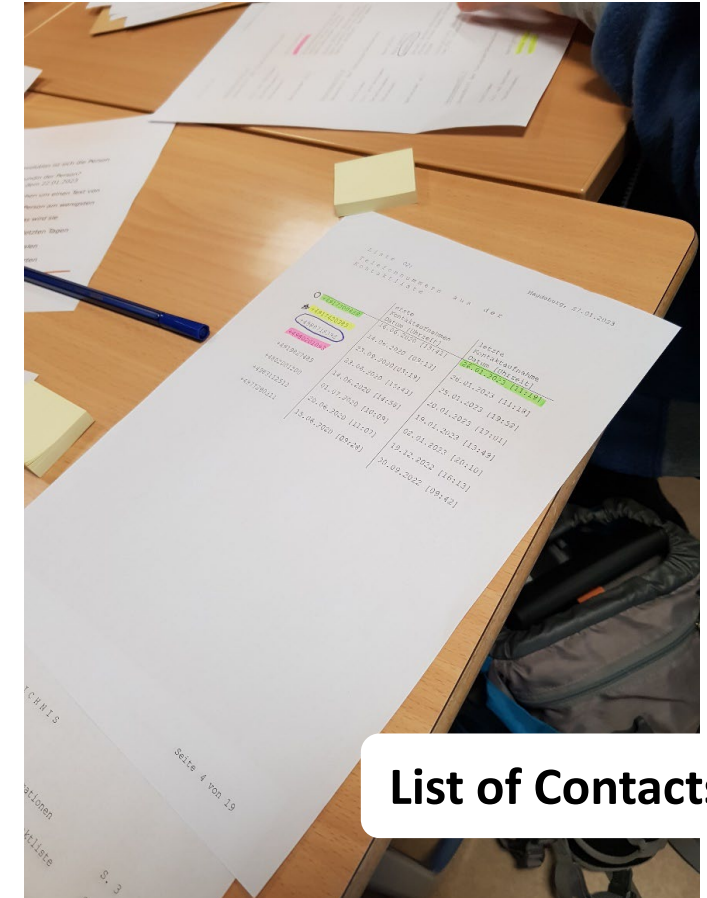


Views of Profile Pictures

Location



List of Contacts





# Do workshops, teaching aids meet their targets?



## reflection of knowledge and attitudes?

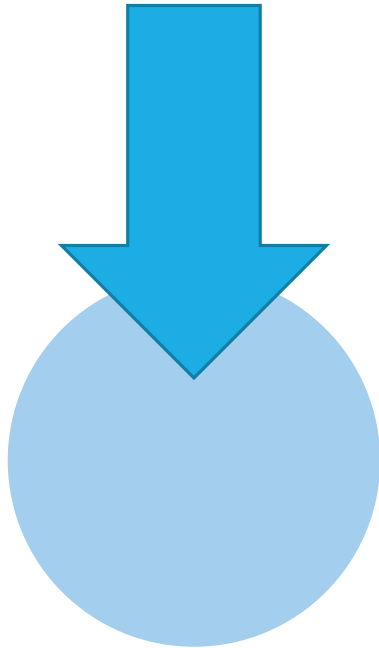
- working on teaching aids: results and process
- Questions, discussion, feedback

## practice?

- workshops enhanced by online-platform
  - Analysis of server logfiles: use of further (hands-on) information...
- Follow-up workshops: "in the meantime"

# Results

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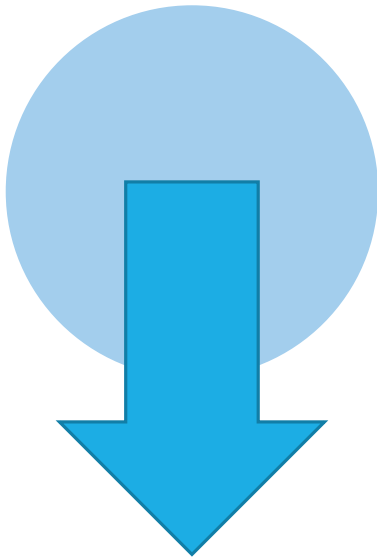


## Prove of value: contribute to data literacy

- Teaching aids / reflection-oriented methods
  - Facilitation discussion and reflection
  - Irritation and challenge
  - Reflection of (own) knowledge and attitude
  - Precondition for transformation of practice
- 
- *Privacy Paradox: “uneasy feeling”*  
-> “knowledge”, “attitude” and “practice”
- 
- Young adults are worried about own data;  
they are not indifferent!

# Outlook

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- Keeping update to **dynamic development**
- extend teaching aids by **new target groups**
- Implement teaching aids: **online plattform**
- Workshops based on competency and knowledge:  
-> provide **train the trainers**



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# Thank you!

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<<https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part2.pdf>>
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# Graphics

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[https://your.mindset.co.uk/files/\\_general-library/growth-mindset.png](https://your.mindset.co.uk/files/_general-library/growth-mindset.png)

<https://icon-library.com/images/action-icon/action-icon-24.jpg>

<https://clipart-library.com/clip-art/thinking-person-silhouette-19.htm>

[https://publicdomainvectors.org/download.php?file=scott\\_kirkwood\\_scales.svg](https://publicdomainvectors.org/download.php?file=scott_kirkwood_scales.svg)





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# Complementary Slides



# Fun Fact

## Whova Conference App: 13 Tracker + 33 Permissions





### TrackerControl

#### Tracker-Bibliotheken

TrackerControl erkennt Tracking im Code ('Bibliotheken') und im Netzwerkverkehr von Apps.

Tracking, das im Netzwerkverkehr erkannt wird, kann mit TrackerControl blockiert werden.

*Erkannte Tracker-Bibliotheken:*

- Amplitude
- Facebook Analytics
- Facebook Login
- Facebook Share
- GIPHY Analytics
- Google AdMob
- Google Analytics
- Google Cloud Audit Logs
- Google CrashLytics
- Google Firebase Analytics
- Google Play Install Referrer
- Google Tag Manager
- IAB Open Measurement



**The privacy audit platform for Android applications**

<https://reports.exodus-privacy.eu.org/en/reports/com.whova.event/latest/>

# knowledge   attitude   ||   practice

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e.g. WhatsApp

## **daily routine**

our need for convenience often keeps us from replacing WhatsApp by Signal/Threema

## **mistrust**

changing our own habits while other are not often strikes us as unfair or one-sided.

## **self-interest**

the moment is what counts: we want immediate gratification for our behaviour, causing us to lose sight of long-term goals like personal data protection.

## **presumed ineffectiveness:**

"Nothing will come of it if I am the only one making changes." We often tend to doubt the impact of our own behavior, which is why we don't change anything"



# Why we should teach data literacy?

Jenkins et al.  
(2009)  
„Challenges of  
Participatory  
Culture“

- participaton gap
- transparency problem
- ethics challenge

"Some defenders of the new digital cultures have acted as though youths can simply **acquire these skills on their own** without adult intervention or supervision. Children and youths do indeed know more about these new media environments than most parents and teachers.

In fact, we do not need to protect them so much as **engage them in critical dialogues** that help them to **articulate more fully their intuitive understandings of these experiences**.

To say that children are not victims of media is not to say that they, any more than anyone else, have **fully mastered the complex and still-emerging social practices**."

(Jenkins et al. 2009, 15)



# Why we should teach data literacy?

Prensky  
(2001)  
„Digital  
Natives“

- 'native speakers' of the digital language
- But: less and less time and opportunity for reflection and critical thinking

One key area that appears to have been affected is **reflection**. Reflection is what enables us, according to many theorists, to generalize, as we create —mental models|| from our experience. It is, in many ways, the process of —learning from experience.||

In our twitch-speed world, there is **less and less time and opportunity for reflection**, and this development concerns many people.

One of the **most interesting challenges** and opportunities in teaching Digital Natives is to figure out and invent **ways to include reflection and critical thinking** in the learning (either built into the instruction or through a process of instructor-led debriefing) but still do it in the Digital Native language. We can and must do more in this area."

(Prensky 2001)

# (Critical) Data Literacy

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“What is critical big data literacy and how can it be implemented?”

Sander  
(2020)

Pangrazio,  
Selwyn  
(2019)

Ahlborn,  
Verständig,  
Stricker  
(2021)

„‘Personal data literacies’:  
A critical literacies  
approach to enhancing  
understandings of personal  
digital data“

„Embracing Unfinishedness. Kreative Zugänge zu Data Literacy“