Bildungspotenziale in Zeiten digitalen Wandels

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WhoAmI

GOETHE UNIVERSITÄT FRANKFURT AM MAIN

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School of Computer Science
Goethe University Frankfurt
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Frankfurt am Main, Germany

DIPF
Educational Research and Educational Information

Welten Institute
Research Centre for Learning, Teaching and Technology
Open University, Heerlen, The Netherlands

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SHEILA

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SOCIETY for LEARNING ANALYTICS RESEARCH

SURF

Leitfragen

1. Was sind die **Chancen** bei der Nutzung digitaler Medien in der Hochschule?
2. Was sind die **Hindernisse** beim Einsatz digitaler Medien in der Hochschule?
3. Was ist der aktuelle Erkenntnisstand in der Forschung und welche **Lücken** gibt es **im Forschungsprogramm**?
4. Was sind **kurze- und mittelfristige Ziele** für den Einsatz digitaler Medien in der Hochschule?
5. Welche Implikationen ergeben sich für die **Bildungspolitik**?

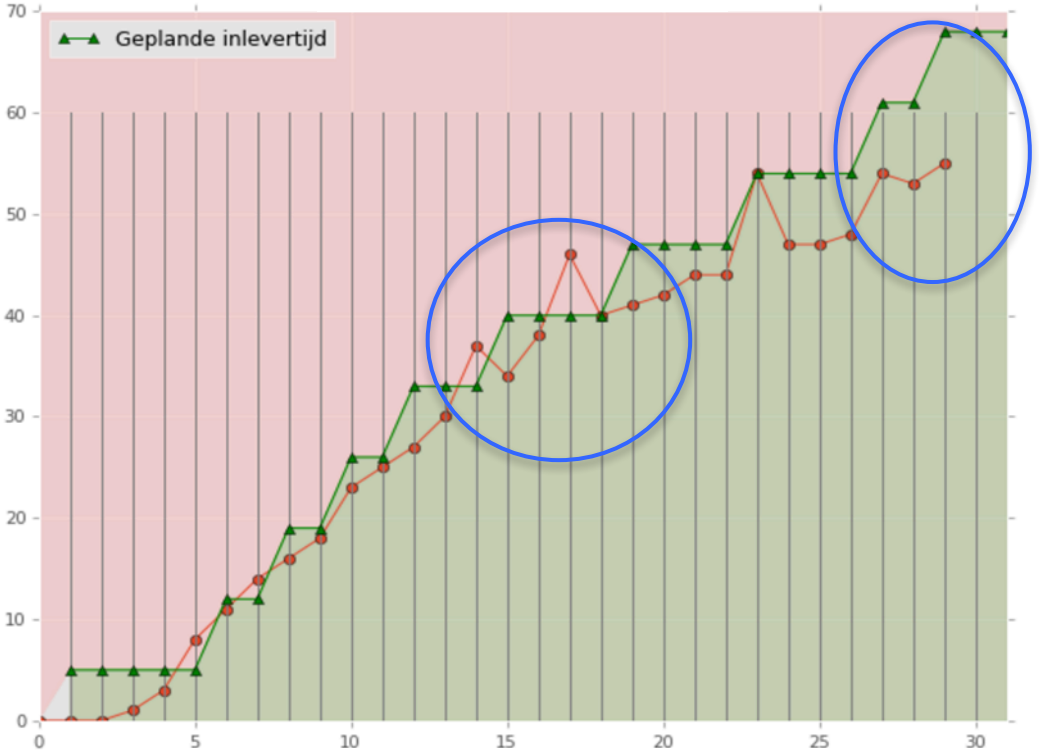
1. Was sind die **Chancen** bei der Nutzung digitaler Medien in der Hochschule?

Neue Erkenntnisse aus - und neue Instrumente für das Bildungssystem, die das Lernen effektiver, effizienter und attraktiver machen.

Chancen

Learning Analytics der tatsächlichen Studienzeit vs. dem geplantem Kursdesign

Studienzeit in Tagen



Lernaktivitäten im Kurs (0 – 30)

Koper, 2015

Erkenntnisse:

1. Abweichungen des tatsächlichen Lernverhaltens vom geplanten Lernverhalten bei Lernaktivität 15, 17, und 20 bei einem Studenten.

2. Die letzten Lernaktivitäten werden kaum genutzt.

Chancen

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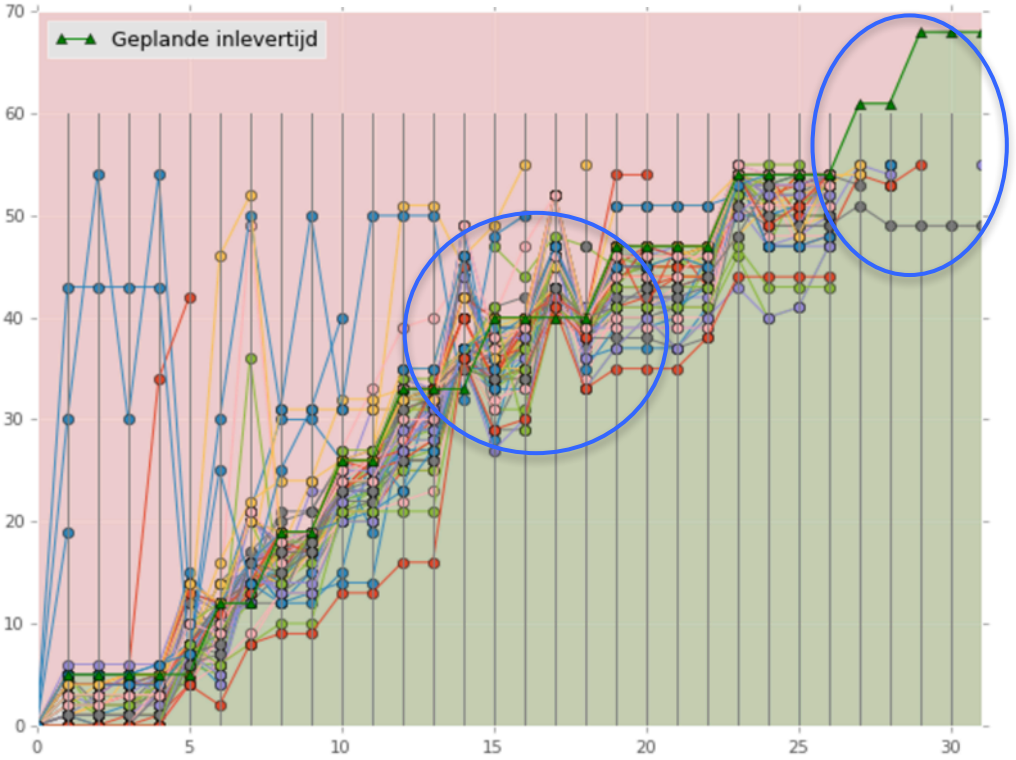

Lernaktivitäten im Kurs (0 – 30)

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Erkenntnisse:

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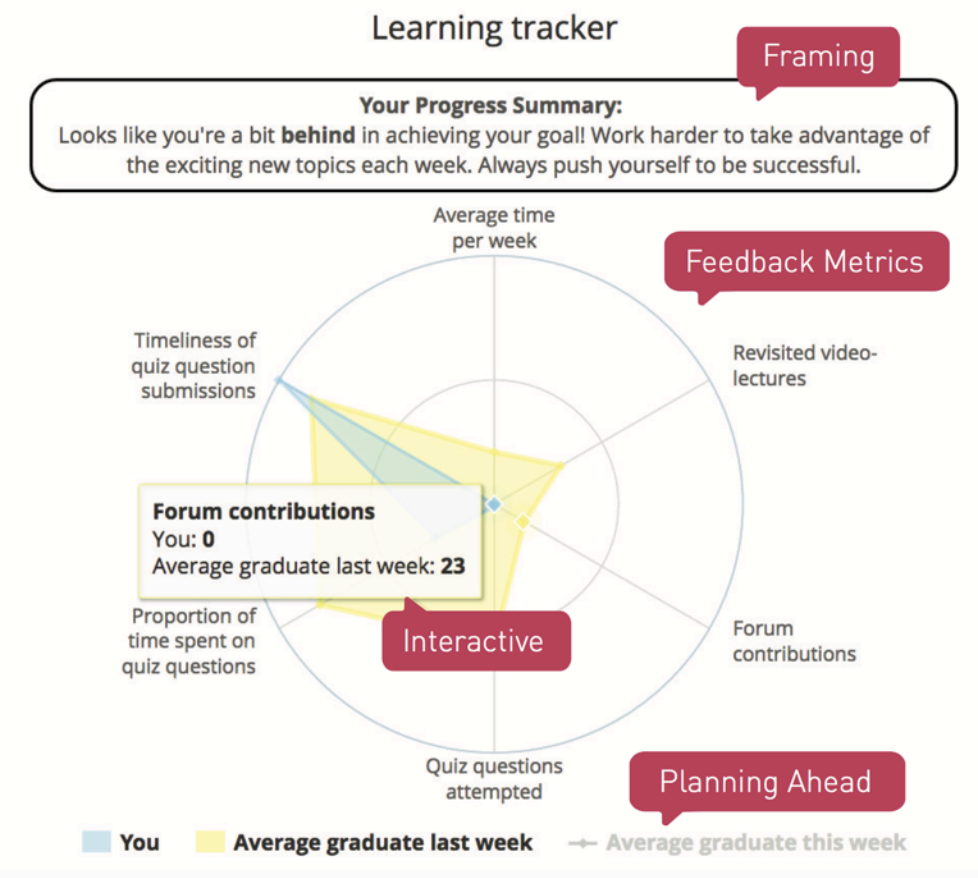
2. Die letzten Lernaktivitäten werden kaum genutzt.

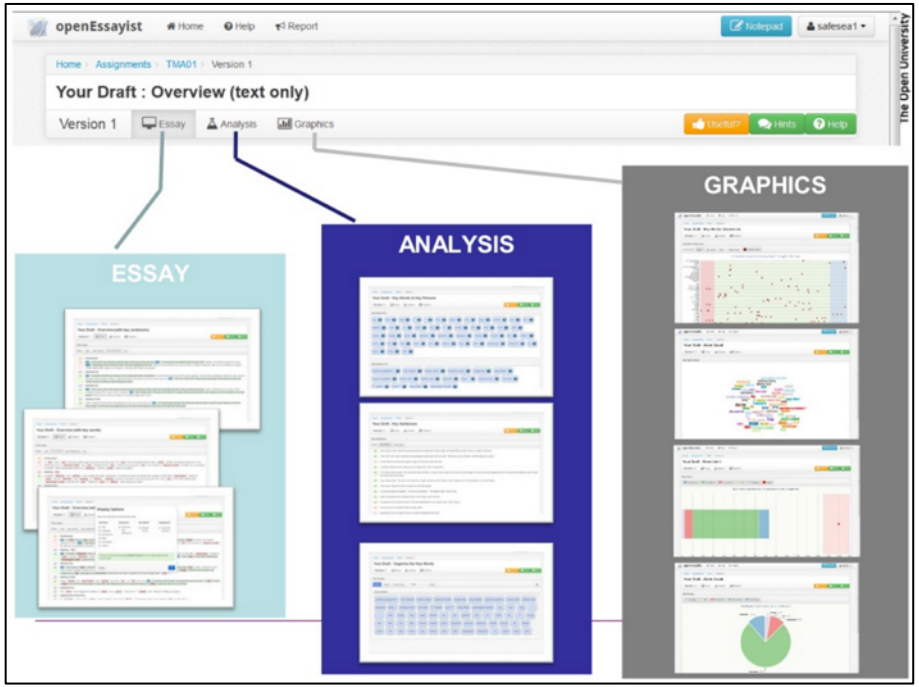
Chancen - Personalisiertes Feedback



- Feedback für individuelle Lernziele
- Neue Analysetechniken zur Identifizierung von erfolgreichem und weniger erfolgreichem Faktoren für das Lehren und Lernen

Davis, D., Chen, G., Jivet, I., Hauff, C. & Houben, G.J. (2016, April). ***Encouraging Metacognition & SelfRegulation in MOOCs through Increased Learner Feedback.*** Presented at the Learning Analytics for Learners workshop, co-located with LAK 2016.

Chancen - Automatisiertes Feedback

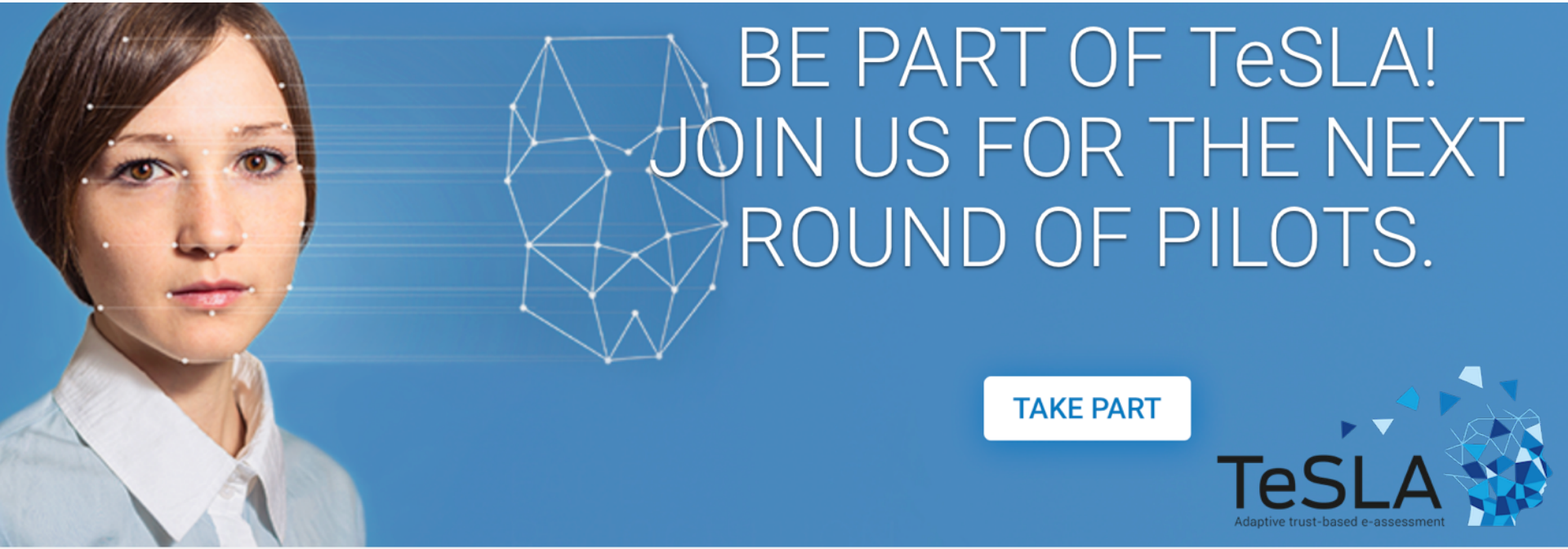


- Text mining als Feedback für Lehrer und Studenten
- Reduzierung des Arbeitsaufwands für den Dozenten durch Hilfssysteme
- Direktes Feedback für Studierende über die Qualität ihres Textes

Whitelock, Denise; Twiner, Alison; Richardson, John T. E.; Field, Debora and Pulman, Stephen (2015). OpenEssayist: a supply and demand learning analytics tool for drafting academic essays. In: 5th International Learning Analytics & Knowledge Conference (LAK15), 16-20 March 2015, Poughkeepsie, NY, USA |
Url: http://dl.acm.org/citation.cfm?id=2723599.

Chancen - Technologie-unterstütztes Assessment

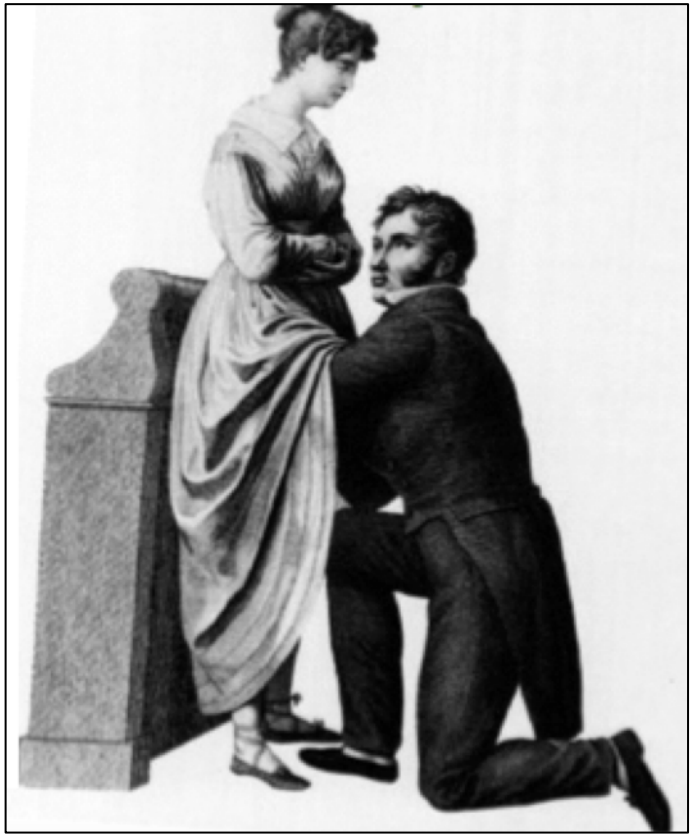
- Wachsendes Interesse in Online Lernformen benötigt ebenfalls online Assessment und Feedback Systeme.
- Biometrics (face, voice, keystroke recognition) zur Authentifizierung
- Plagiarism & forensic Tools zur Kontrolle der Autorenschaft



2. Was sind die **Hindernisse** beim Einsatz digitaler Medien in der Hochschule?

Hohe Datenschutzauflagen und Ängste des Datenmissbrauches, geringes Bewusstsein über Mehrwerte und mangelnde Transparenz.

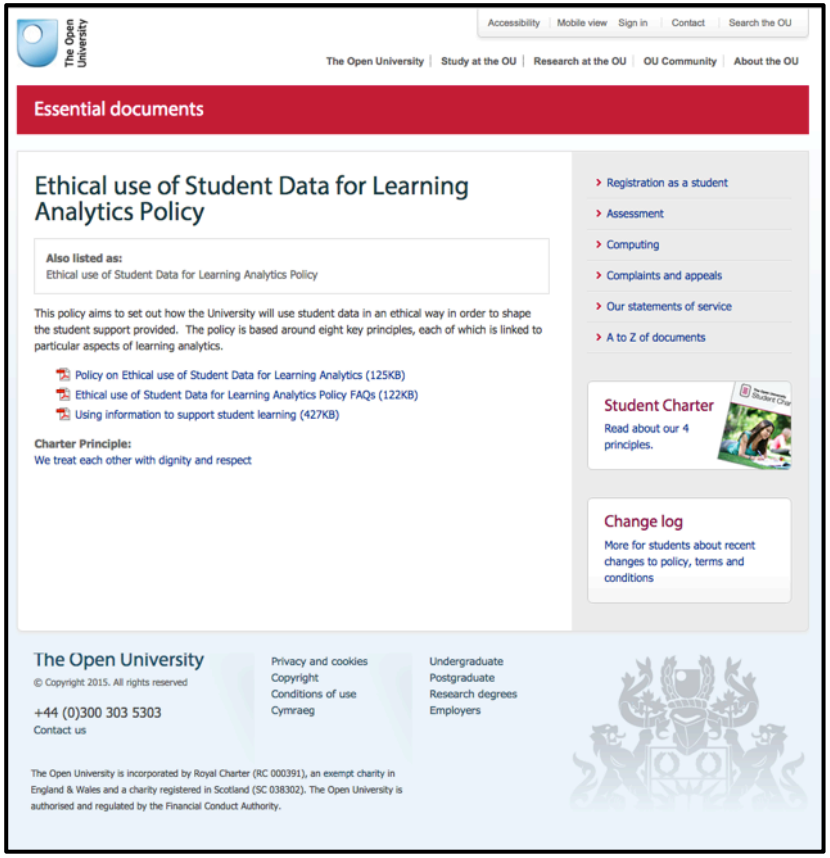
Hindernisse



1. Ethics & Privacy
2. Transparency
3. Trust
4. Ownership

=> Policies

Hindernisse



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Essential documents

Ethical use of Student Data for Learning Analytics Policy

Also listed as:
Ethical use of Student Data for Learning Analytics Policy

This policy aims to set out how the University will use student data in an ethical way in order to shape the student support provided. The policy is based around eight key principles, each of which is linked to particular aspects of learning analytics.

- Policy on Ethical use of Student Data for Learning Analytics (125KB)
- Ethical use of Student Data for Learning Analytics Policy FAQs (122KB)
- Using information to support student learning (427KB)

Charter Principle:
We treat each other with dignity and respect

- Registration as a student
- Assessment
- Computing
- Complaints and appeals
- Our statements of service
- A to Z of documents

Student Charter
Read about our 4 principles.

Change log
More for students about recent changes to policy, terms and conditions

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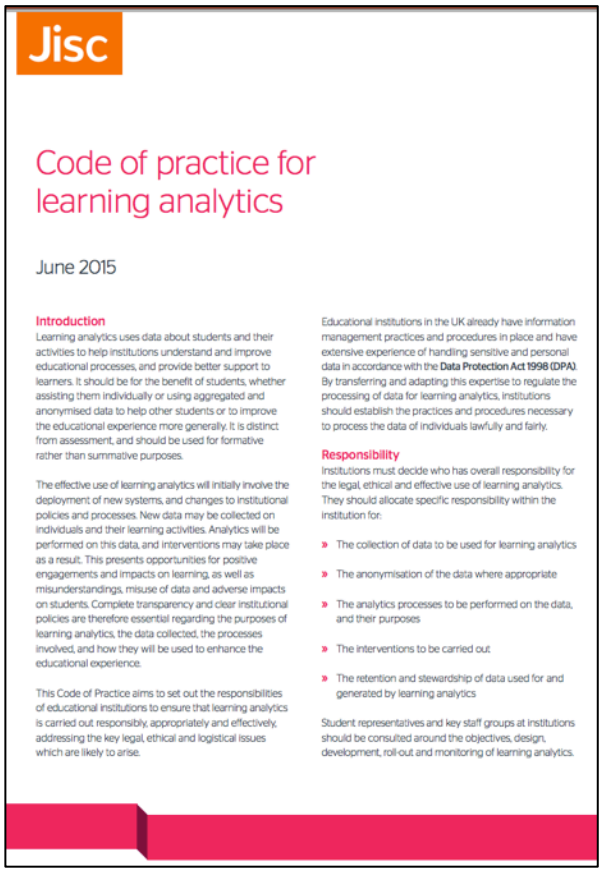


Jisc

Code of practice for learning analytics

June 2015

Introduction
Learning analytics uses data about students and their activities to help institutions understand and improve educational processes, and provide better support to learners. It should be for the benefit of students, whether assisting them individually or using aggregated and anonymised data to help other students or to improve the educational experience more generally. It is distinct from assessment, and should be used for formative rather than summative purposes.

The effective use of learning analytics will initially involve the deployment of new systems, and changes to institutional policies and processes. New data may be collected on individuals and their learning activities. Analytics will be performed on this data, and interventions may take place as a result. This presents opportunities for positive engagements and impacts on learning, as well as misunderstandings, misuse of data and adverse impacts on students. Complete transparency and clear institutional policies are therefore essential regarding the purposes of learning analytics, the data collected, the processes involved, and how they will be used to enhance the educational experience.

This Code of Practice aims to set out the responsibilities of educational institutions to ensure that learning analytics is carried out responsibly, appropriately and effectively, addressing the key legal, ethical and logistical issues which are likely to arise.

Educational institutions in the UK already have information management practices and procedures in place and have extensive experience of handling sensitive and personal data in accordance with the **Data Protection Act 1998 (DPA)**. By transferring and adapting this expertise to regulate the processing of data for learning analytics, institutions should establish the practices and procedures necessary to process the data of individuals lawfully and fairly.

Responsibility
Institutions must decide who has overall responsibility for the legal, ethical and effective use of learning analytics. They should allocate specific responsibility within the institution for:

- The collection of data to be used for learning analytics
- The anonymisation of the data where appropriate
- The analytics processes to be performed on the data, and their purposes
- The interventions to be carried out
- The retention and stewardship of data used for and generated by learning analytics

Student representatives and key staff groups at institutions should be consulted around the objectives, design, development, roll-out and monitoring of learning analytics.

Hindernisse

D **DETERMINATION** – Why you want to apply Learning Analytics?
- What is the added value (Organisational and data subjects)?
- What are the rights of the data subjects (e.g., EU Directive 95/46/EC)

E **EXPLAIN** – Be open about your intentions and objectives
- What data will be collected for which purpose?
- How long will this data be stored?
- Who has access to the data?

L **LEGITIMATE** – Why you are allowed to have the data?
- Which data sources you have already (aren't they enough)?
- Why are you allowed to collect additional data?

I **INVOLVE** – Involve all stakeholders and the data subjects
- Be open about privacy concerns (of data subjects)
- Provide access to the personal data collected (about the data subjects)
- Training and qualification of staff

C **CONSENT** – Make a contract with the data subjects
- Ask for a consent from the data subjects before the data collection
- Define clear and understandable consent questions (Yes / No options)
- Offer the possibility to opt-out of the data collection without consequences

A **ANONYMISE** – Make the individual not retrievable
- Anonymise the data as far as possible
- Aggregate data to generate abstract metadata models (Those do not fall under EU Directive 95/46/EC)

T **TECHNICAL** – Procedures to guarantee privacy
- Monitor regularly who has access to the data
- If the analytics change, update the privacy regulations (new consent needed)
- Make sure the data storage fulfills international security standards

E **EXTERNAL** – If you work with external providers
- Make sure they also fulfil the national and organisational rules
- Sign a contract that clearly states responsibilities for data security
- Data should only be used for the intended services and no other purposes

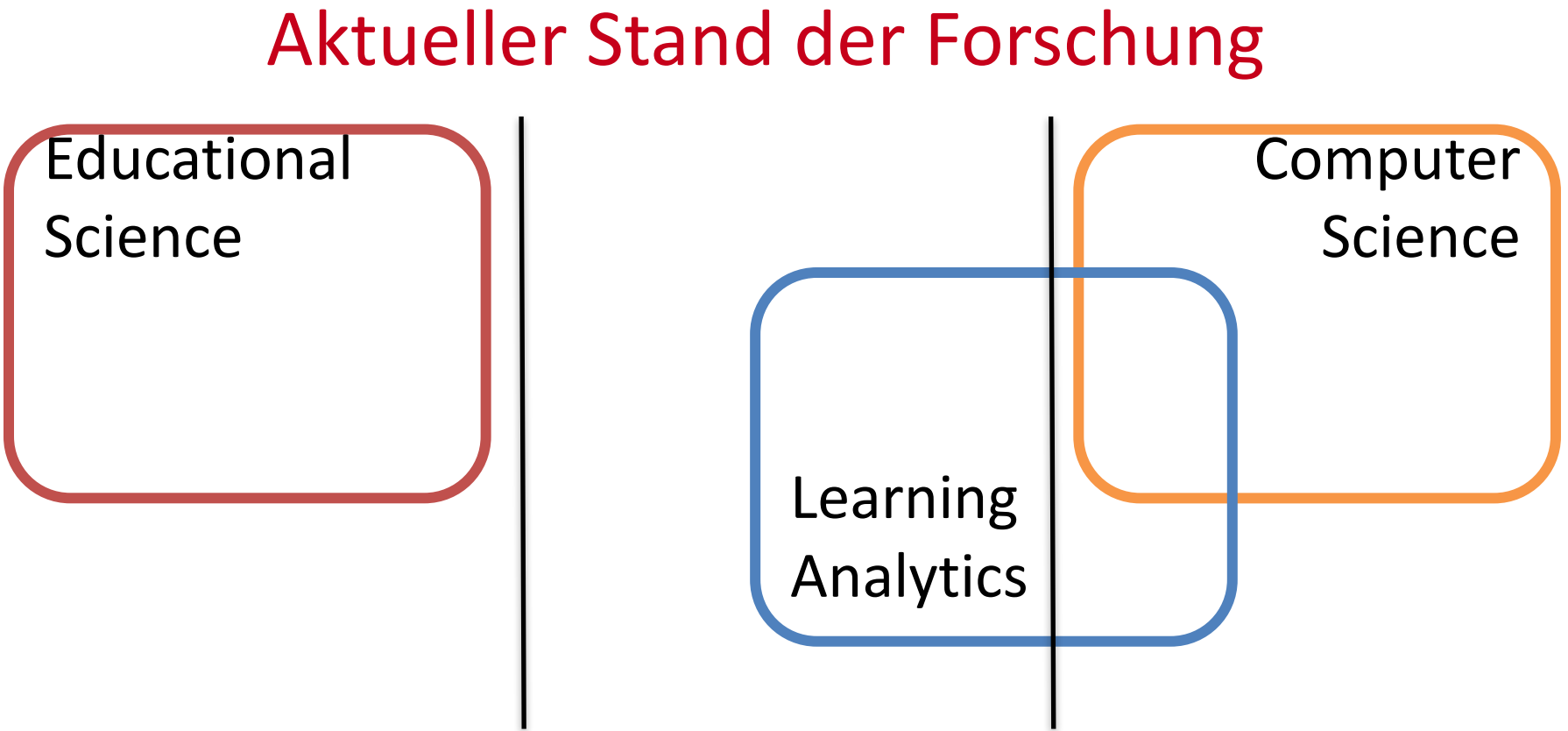
Drachsler, H. & Greller, W. (2016). **Privacy and Analytics – it's a DELICATE issue. A Checklist to establish trusted Learning Analytics.** LAK 2016, April 25-29, Edinburgh, UK.

Engelfriet, A., Jeunink, E., Manderveld, J. (2015). **Learning analytics onder de Wet bescherming persoonsgegevens**

3. Was ist der aktuelle Erkenntnisstand in der Forschung und welche **Lücken** gibt es **im Forschungsprogramm**?

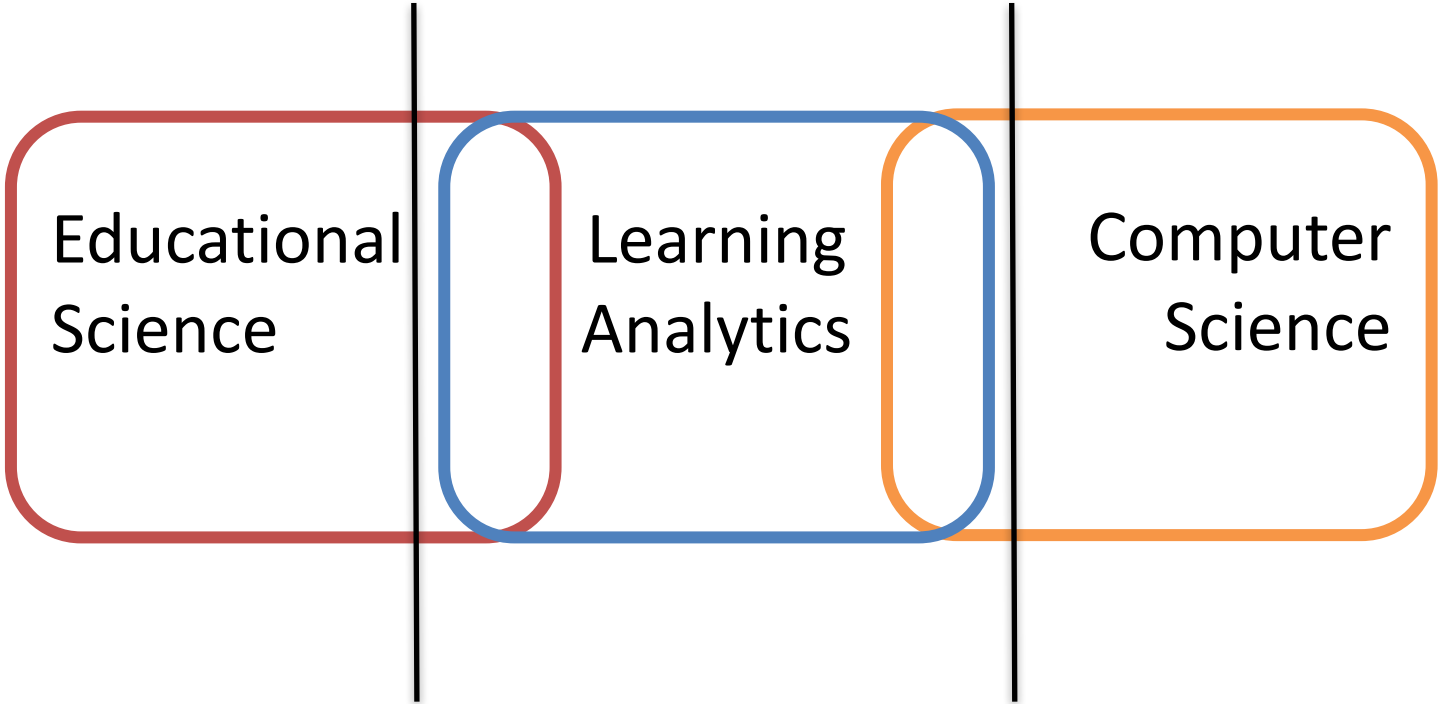
Technologie und Didaktik muss von Anfang an zusammengedacht werden.

Lücken in der Forschung

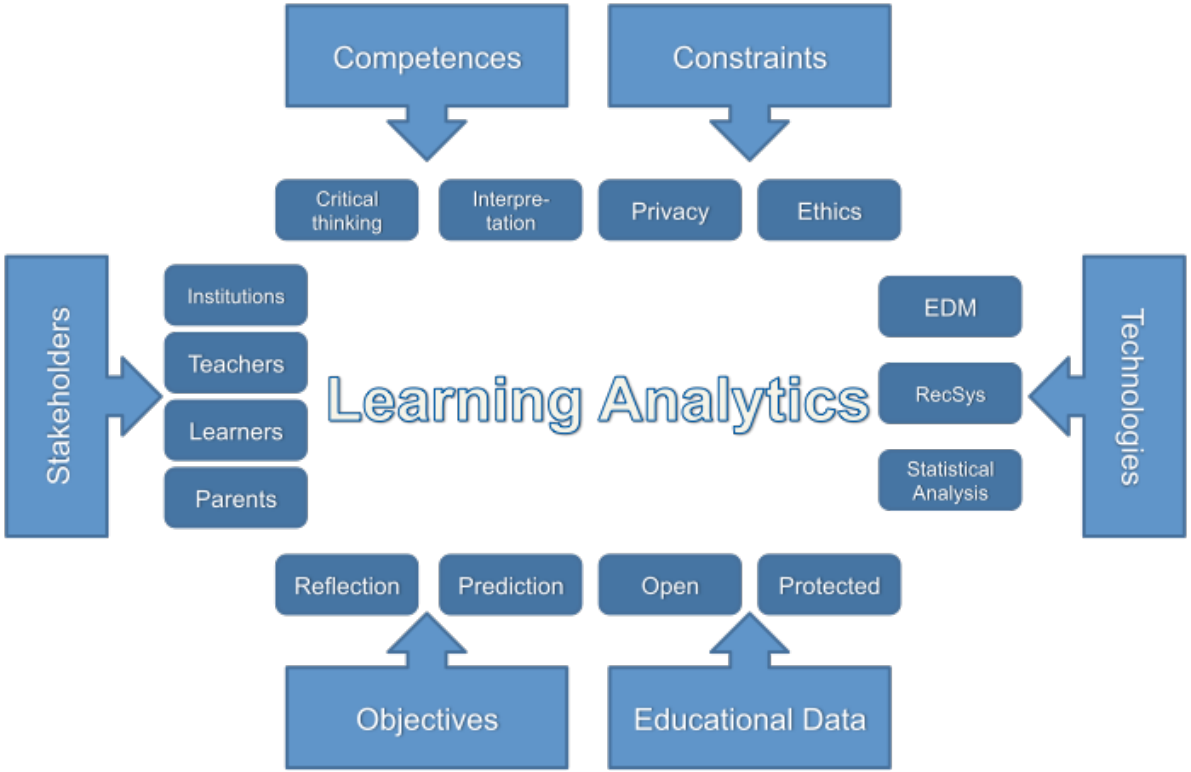


Lücken in der Forschung

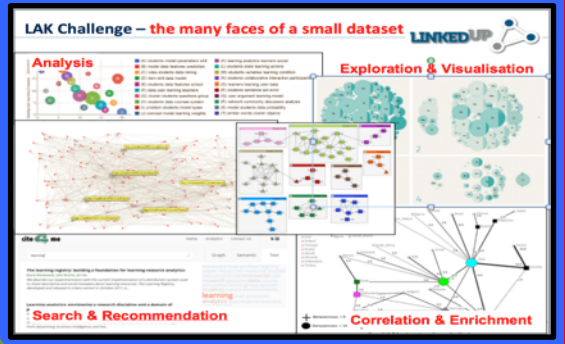
Ziel: Eine holistische Herangehensweise zur Digitalisierung der Bildung



Lücken in der Forschung



Greller, W. & Drachsler, H. (2012). **Turning Learning into Numbers**. **Towards a Generic Framework for Learning Analytics**. Journal of Educational Technology & Society. http://ifets.info/journals/15_3/4.pdf


LAK Challenge – the many faces of a small dataset
LINKEDUP
Analysis
Exploration & Visualisation
Search & Recommendation
Correlation & Enrichment


D
DETERMINATION – Why you want to apply Learning Analytics
What is the added value (Organisational and data subjects)
What are the rights of the data subjects (e.g., EU Directive 95/46/EC)
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How long will this data be stored?
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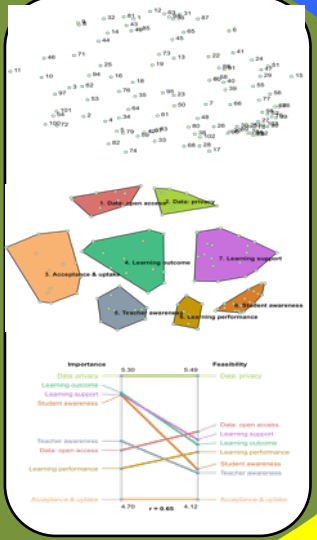
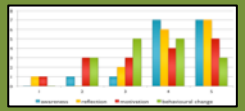
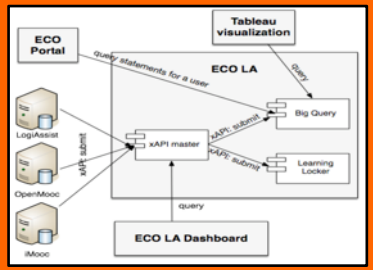
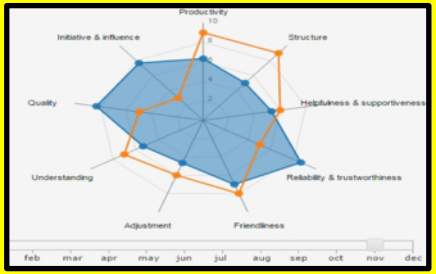
SOLAR
Best Paper Award
The 6th International Learning Analytics and Knowledge Conference (LAK16)
Hendrik Drachsler and Wolfgang Greller
For
Privacy and Analytics – it's a DELICATE Issue. A Checklist for Trusted Learning Analytics

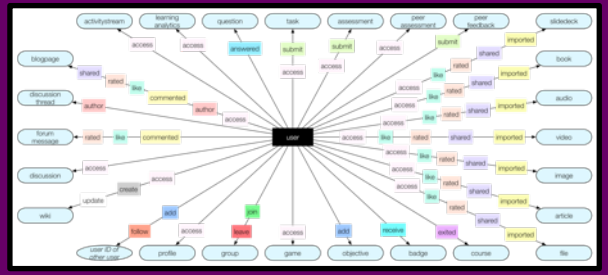

1. Data: open access
2. Data: privacy
3. Acceptance & uptake
4. Learning outcome
5. Learning support
6. Teacher awareness
7. Learning performance
8. Student awareness
Importance
Feasibility
5.30
5.49
4.70
4.12
r = 0.65


awareness
reflection
motivation
behavioural change


Competences
Constraints
Critical thinking
Interpre-tation
Privacy
Ethics
Stakeholders
Institutions
Teachers
Learners
Parents
Learning Analytics
EDM
RecSys
Statistical Analysis
Technologies
Reflection
Prediction
Open
Protected
Objectives
Educational Data


ECO Portal
Tableau visualization
query statements for a user
ECO LA
Query
LogiAssist
xAPI master
Big Query
xAPI: submit
OpenMooc
xAPI: submit
Learning Locker
query
iMooc
ECO LA Dashboard


Productivity
Initiative & influence
Structure
Quality
Helpfulness & supportiveness
Understanding
Reliability & trustworthiness
Adjustment
Friendliness
feb
mar
apr
may
jun
jul
aug
sep
oct
nov
dec


activitystream
learning analytics
question
task
assessment
peer assessment
peer feedback
slidedeck
blogpage
discussion thread
forum message
discussion
wiki
user
book
audio
video
image
article
profile
group
game
objective
badge
course
file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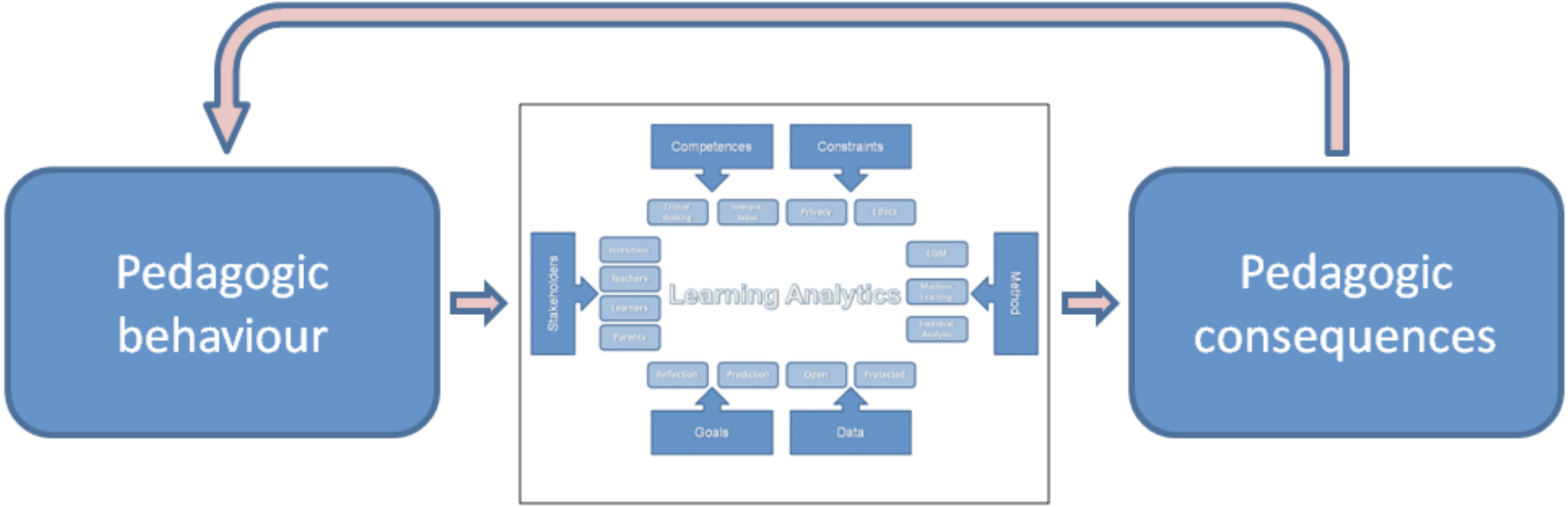
Lücken in der Forschung



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Lücken in der Forschung

- **Network of Excellence oder Community Support Action**
  = STELLAR oder EU LACE Project
  = Joint Policy making zwischen Bildungsforschern und Regierungsbeamten
  = Raum für innovative Lehr- Lernkonzepte

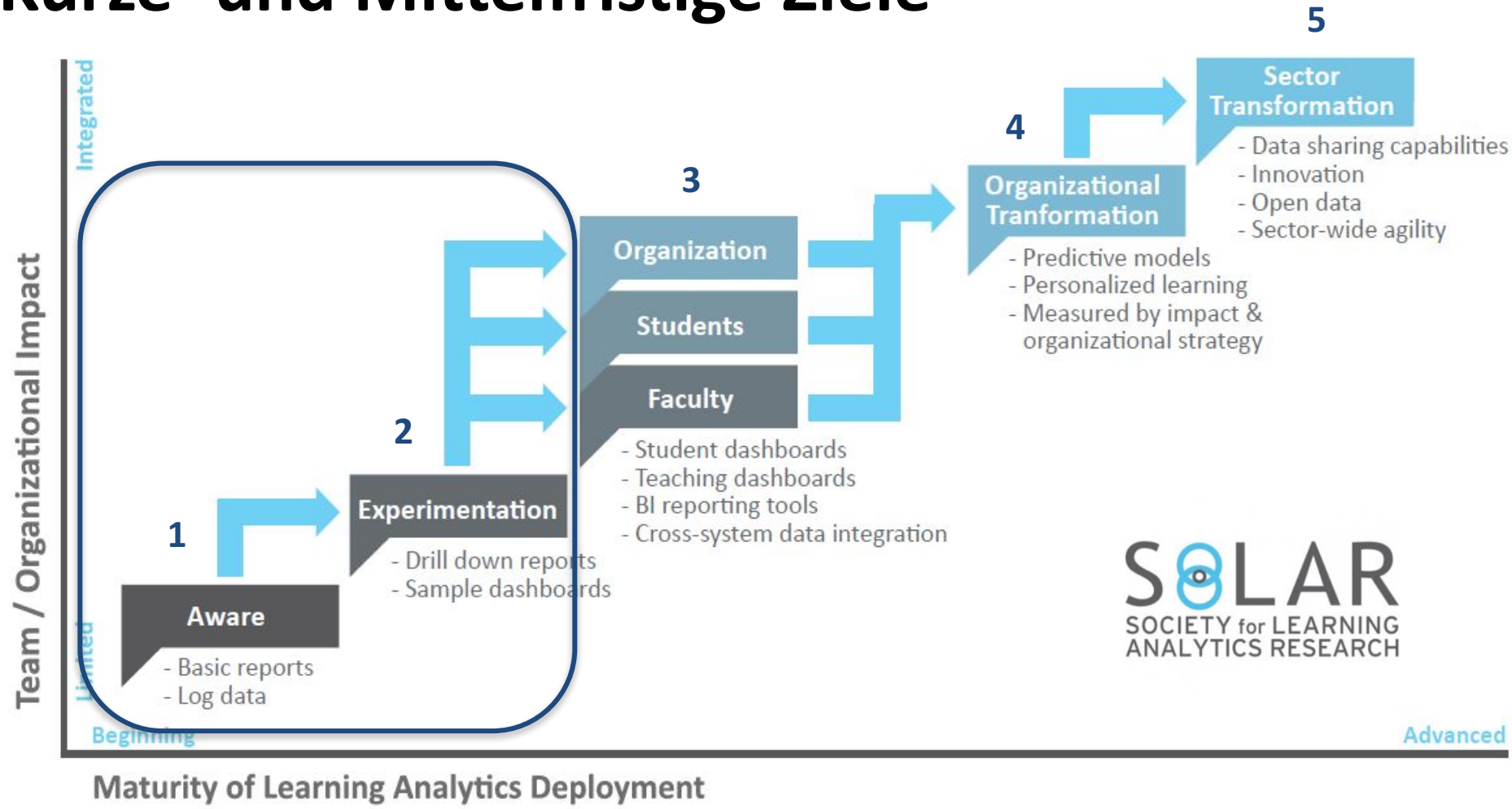
- **Homogenisierung der digitalen Infrastruktur in Deutschland**
  = Zentrale Studierenden E-portfolios
  = Offene Curricula, die auch Leistungsnachweise anderer Hochschulen automatisiert anerkennt

- **Zentrale Datensammlungen aus dem Bildungsbereich**
  = Um Universitäten und Forschern die Möglichkeit zu geben innovative Instrumente für die Bildung zu entwickeln

4. Was sind **kurze- und mittelfristige Ziele** für den Einsatz digitaler Medien in der Hochschule?

Vernetzung von Systemen (Bibliothek, Prüfungsamt, Lehre, etc.) , Digitalisierung bestehender Prozesse, Entwicklung von Data Science für die Bildung.

Kurze- und Mittelfristige Ziele



5. Welche Implikationen ergeben sich für die **Bildungspolitik**

Digitale Bildung als primären Prozess annehmen, Stimulierung von innovativen Lehr- Lernformen, Öffnen der Hochschule für das Lebenslange Lernen

Bildungspolitik

- **Etablierung digitaler Bildung als primärer Prozess im Bildungssystem**
  = Vollständiges Mandat und personelle Ausstattung für dieses Ziel
  = Ausbreitung und Verstetigung digitaler Infrastrukturen in Deutschland
  = Standardisierung und Vernetzung bestehender und zukünftiger Infrastruktur
  = Agile Bildungsprozess, die effiziente und effektive Anpassungen zulassen
  = Nationale Koordinationsstelle ähnlich wie SURF in den Niederlanden

- **Anreize zur Etablierung von innovativen Lehr- und Lernformen**
  = Weiterbildungszentrum für Lehrpersonal für disruptive Technologien
  (3D print, AR & VR, Mobile and Wearable Learning, Maker Industrie)
  = Leistungsorientierte Belohnung von Hochschulen und Lehrpersonal

- **Öffnung des Bildungssysteme für das Lebenslange Lernen**
  = Open & Blended Education (ortsunabhängiges Lernen)
  = Assessment von Vorwissen und praktischen Erfahrungen