



# VIRTUAL COLLABORATION IN DER HOCHSCHULBILDUNG

**Dr. Christian M. Stracke**

Forschungskolloquium des IHF online am 16.05.2023

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# About me



**Coordinator Virtual Collaboration, University of Bonn**



**Adjunct Professor, Korean National Open University**



**Advisory Professor, East China Normal University**



**Founder & Director, European Research Institute eLC**



**100+ research projects with 55+ Mio. € budgets**



**150+ scientific publications incl. 87 peer-reviewed / SSCI**



**Creative design & training for 15,000 teachers & 5,000 schools**



**Elected Chair of ISO & CEN Standardization Committees**

# **Die Entwicklung der (digitalen Hochschul-) Bildung**

# Digitalisierung



*Städtischer Handelshafen,  
Breslau vor 1910  
(Unbekannter Fotograf, SLUB/  
Deutsche Fotothek)*



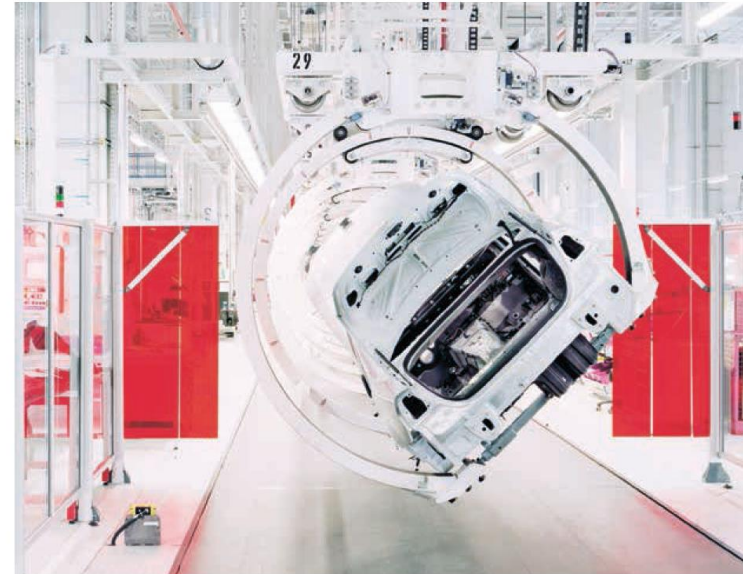
*Containerterminals, Hamburg  
(Henrik Spohler)*

Photo: <https://www.bmas.de/DE/Service/Publikationen/a877-01-werkheft.html>

# Digitalisierung



*Industrie-Transport  
Sachsenring, 1964  
(Peter, Richard jun., SLUB/  
Deutsche Fotothek)*



*Assembly line  
(Henrik Spohler)*

Photo: <https://www.bmas.de/DE/Service/Publikationen/a877-01-werkheft.html>

# Digitalisierung



*Salaternte der Arbeiterinnen  
und Arbeiter der Landwirt-  
schaftlichen Produktions-  
genossenschaft Marzahn,  
Berlin 1984*

*(Winkler, ddrbildarchiv.de)*



*Anbau junger Salatpflanzen  
in Süddeutschland*

*(Henrik Spohler)*

Photo: <https://www.bmas.de/DE/Service/Publikationen/a877-01-werkheft.html>

# Digitalisierung



*Paketumschlag zu Weihnachten  
1950er-Jahre, Herne  
(Erich Höhne & Erich Pohl,  
SLUB/Deutsche Fotothek)*

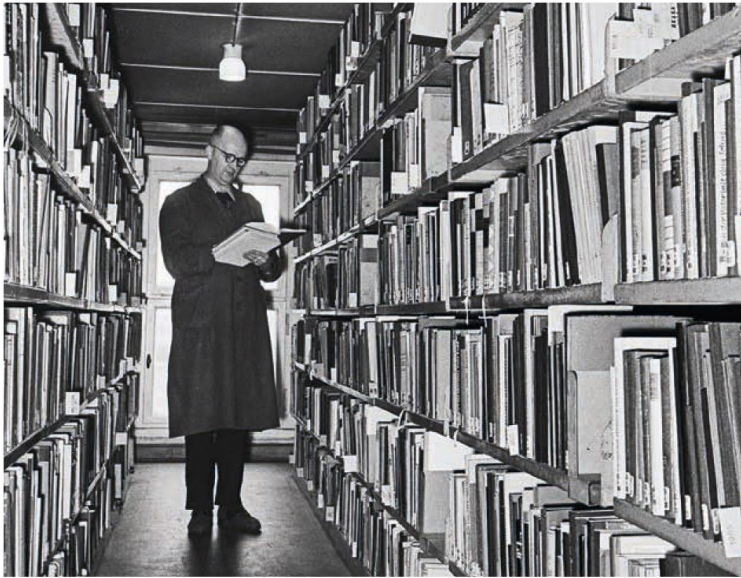


*Paketlogistik, Verteilzentrum  
am Flughafen Köln/Bonn  
(Henrik Spohler)*

Photo: <https://www.bmas.de/DE/Service/Publikationen/a877-01-werkheft.html>



# Digitalisierung



*Bibliothekar vor Bücherregalen  
im Magazinbereich der Deutschen  
Bücherei, Leipzig 1955  
(Renate und Roger Rössling,*



*0/1 Dataflow #1  
(Henrik Spohler)*

Photo: <https://www.bmas.de/DE/Service/Publikationen/a877-01-werkheft.html>

# Digitalisierung in der Bildung?



Photos: <https://www.pixabay.com> (345950) <https://www.pexels.com> (207691)

# Digitale Bildung vor 2000

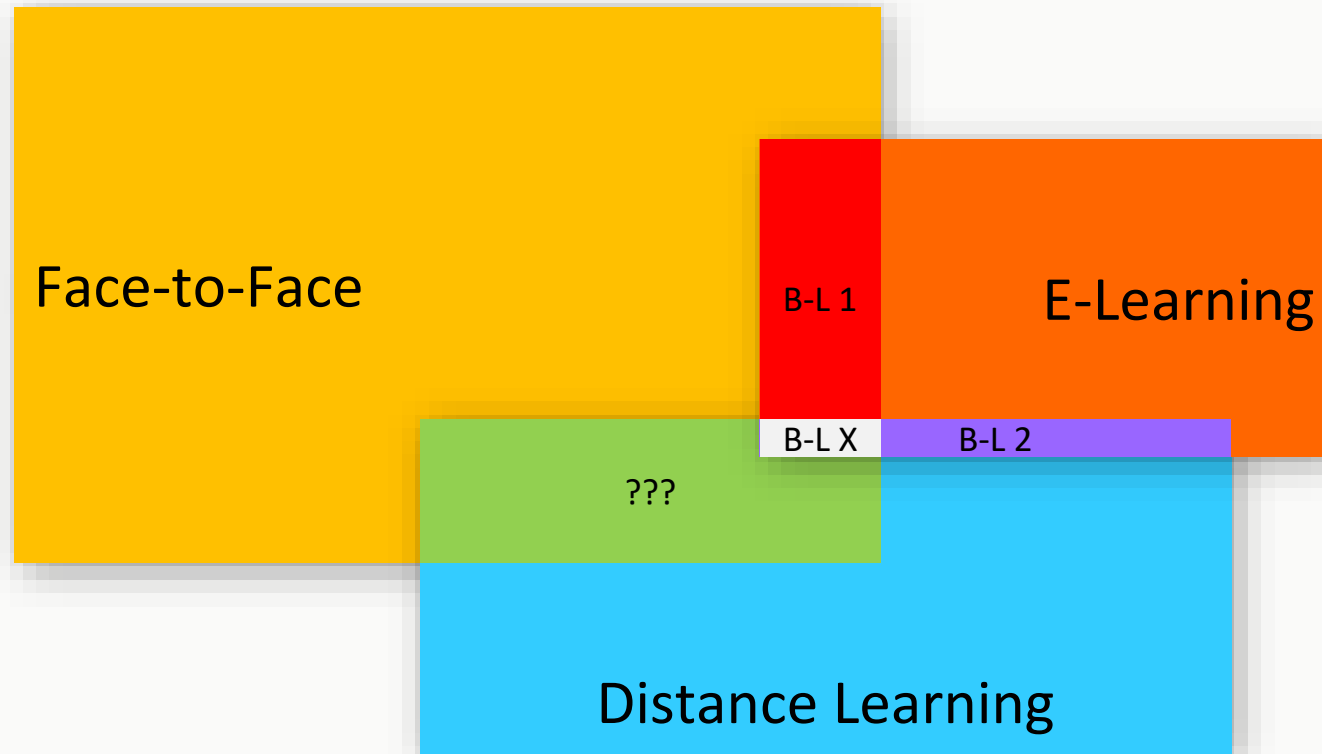


Figure is only indicative and not true to scale (B-L = Blended Learning)

# Digitale Bildung nach 2000

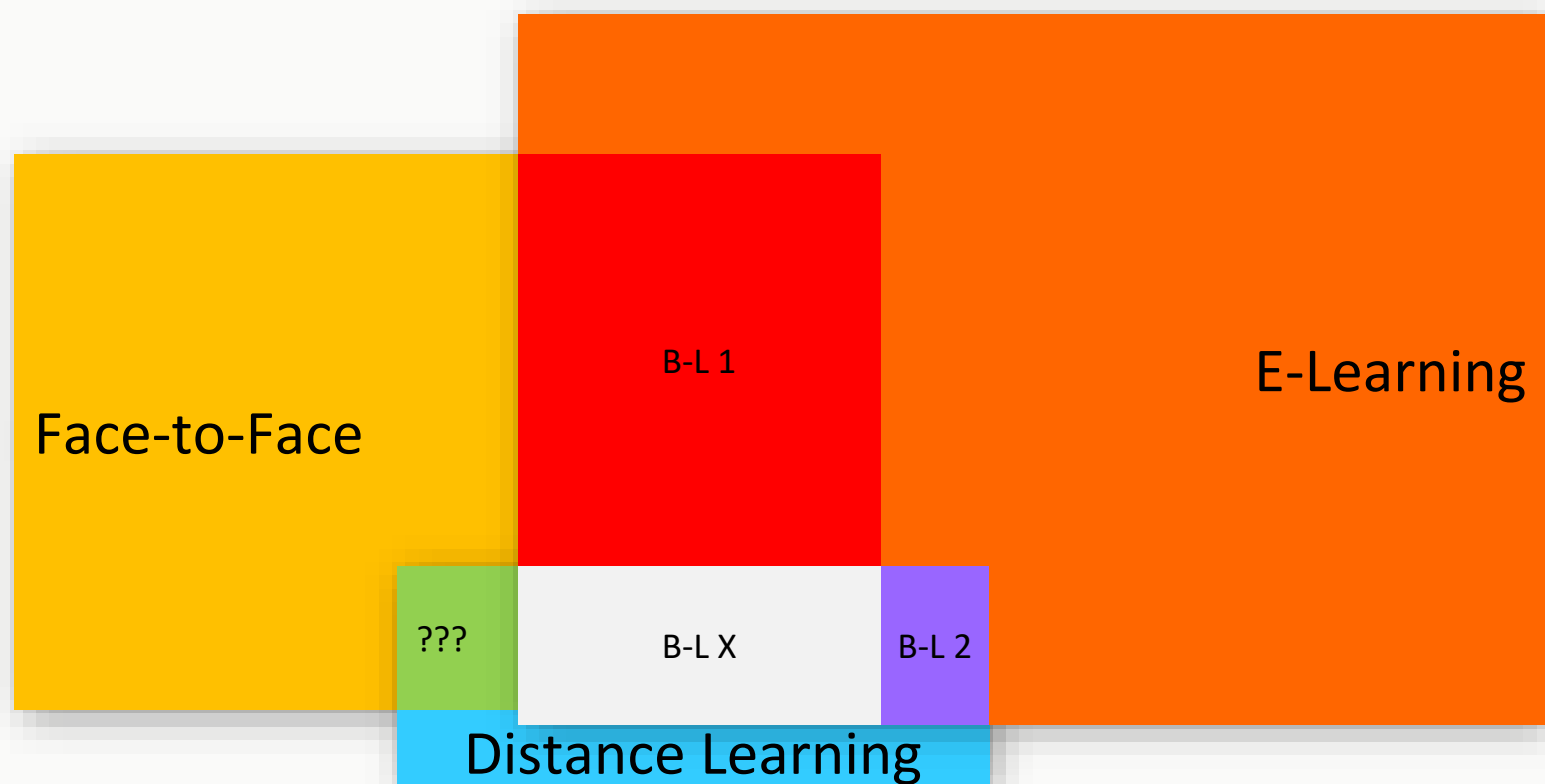


Figure is only indicative and not true to scale (B-L = Blended Learning)

# Online-Bildung ist digital

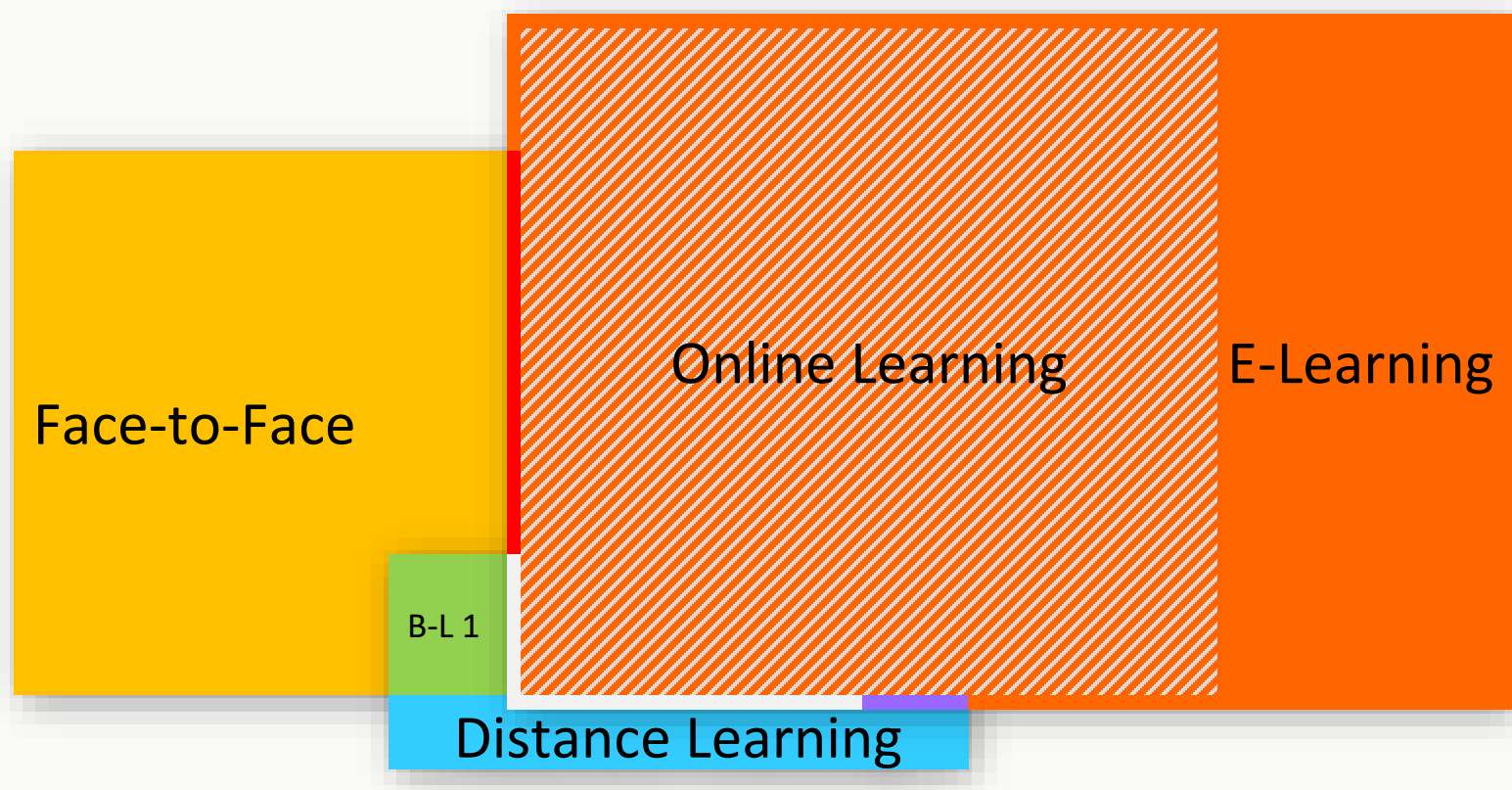


Figure is only indicative and not true to scale (B-L = Blended Learning)

# Zukunft der Hochschulbildung?

**Demokratisierung**

**Digital divide**

**Social Media**

**Fake news**

**Bildungsideal**

**Verwertungsideal**

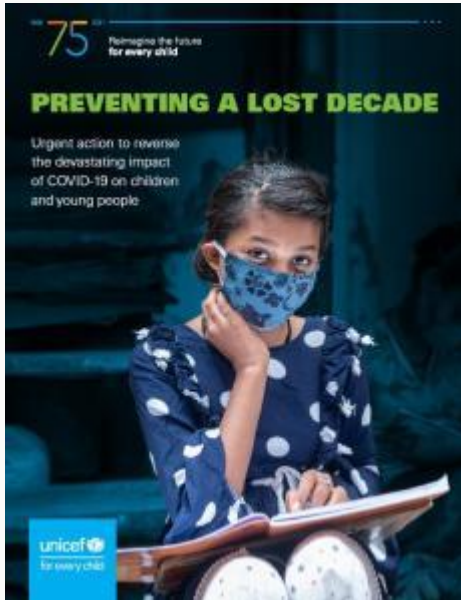
**Hochschule 5.0**

**E-Learning 8.0**

**Zusammenarbeit**

**Egoismus**

# Aktuelle Herausforderungen



**New Normal?**

<https://www.unicef.org/reports/unicef-75-preventing-a-lost-decade>

**COVID-19 Pandemie & Lockdowns**

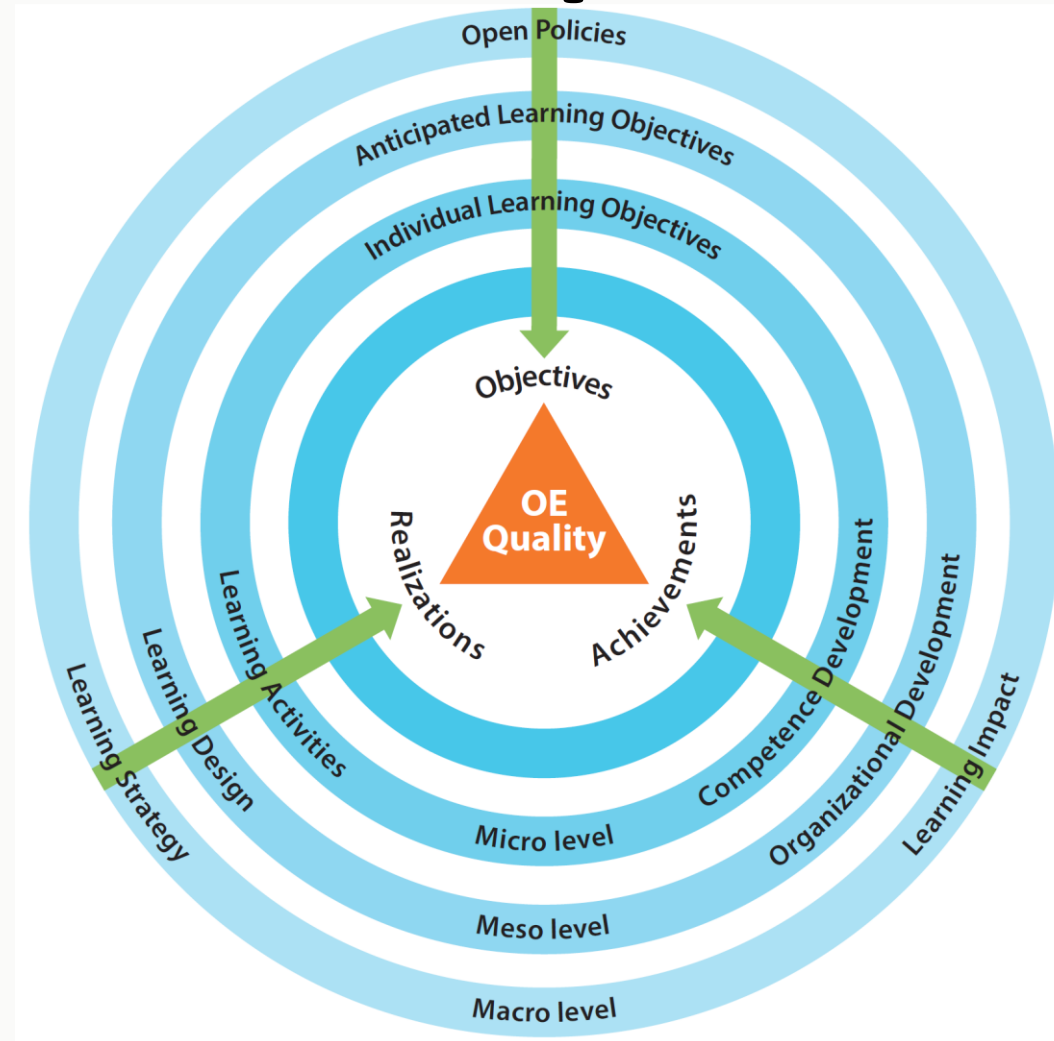
**Krieg in Ukraine & vielen Ländern**

**Klimawandel, Armut, Hunger**

**We need innovative and high quality**

**Open Education for all** as human right

# Qualität von Open Education

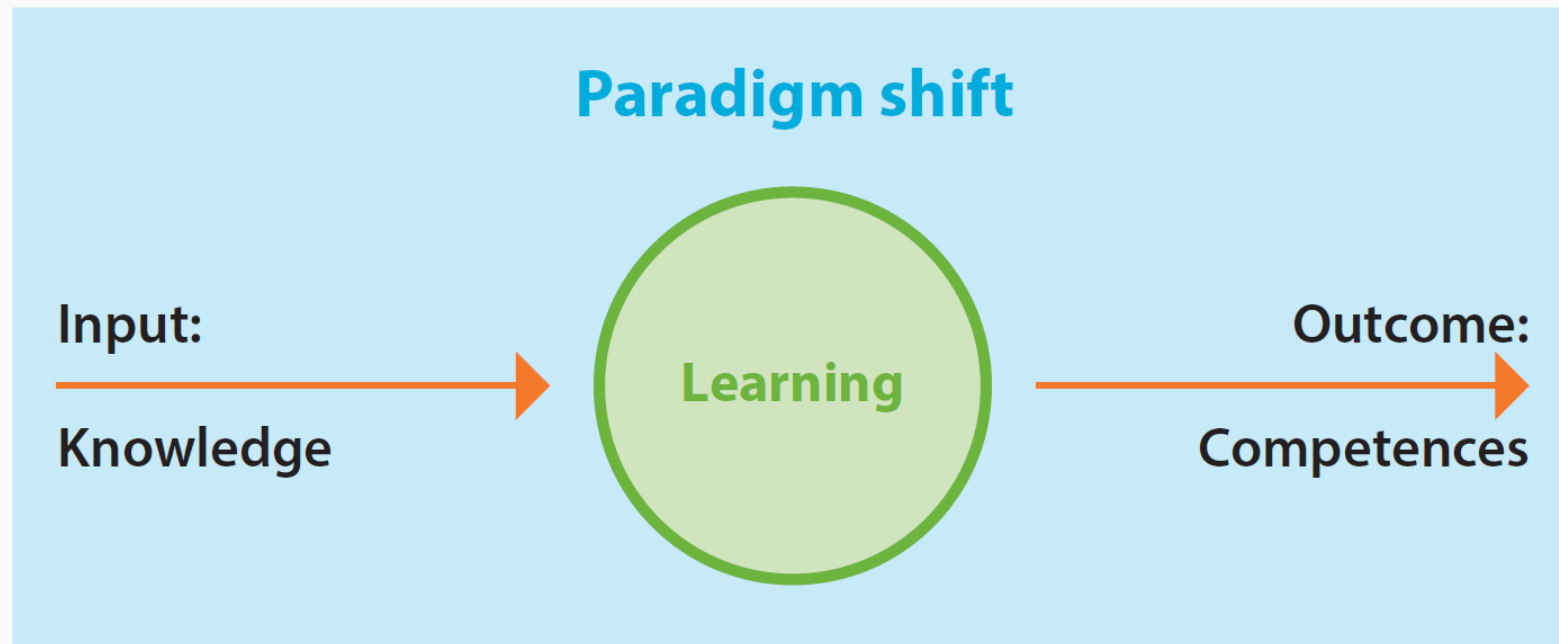


Stracke, C. M. (2019). Quality Frameworks and Learning Design for Open Education. *IRRODL*, 20(2), 180-203. <http://doi.org/10.19173/irrodl.v20i2.4213>



# Ganzheitliche Kompetenzentwicklung

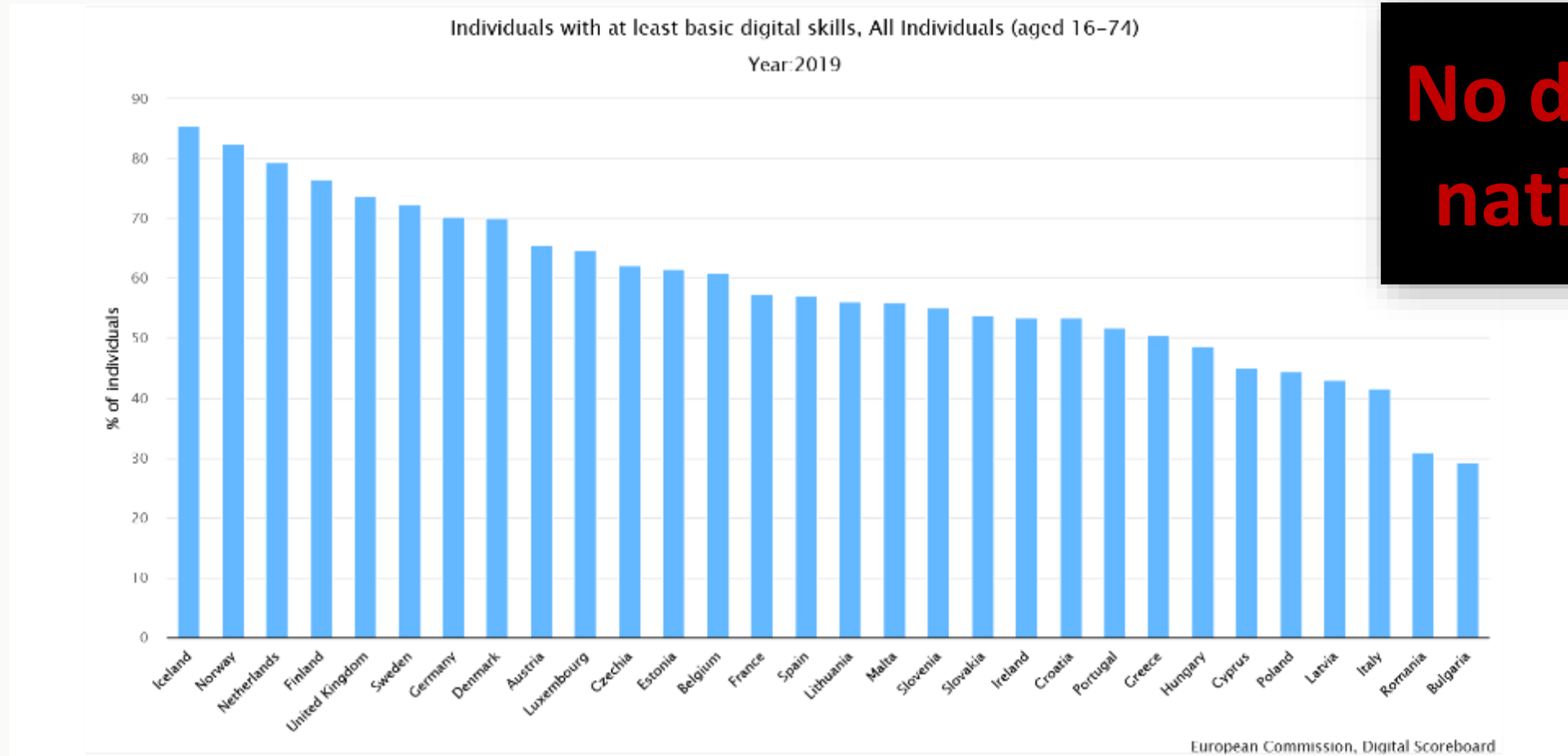
**Nicht Wissen, sondern Kompetenzen:**



**für zukünftige  
Aufgaben und  
Gesellschaften**

Stracke (2018). <https://doi.org/10.5281/zenodo.3956396>

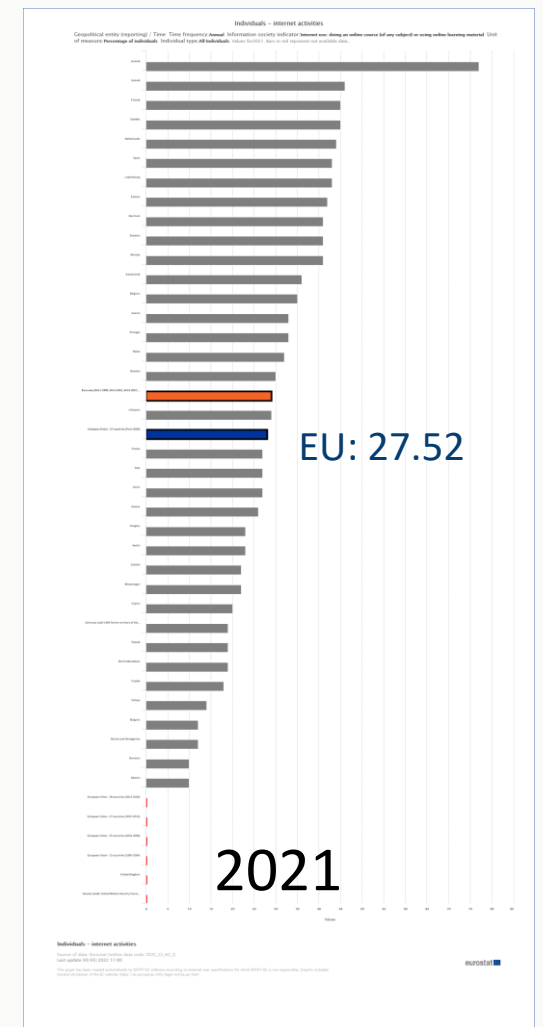
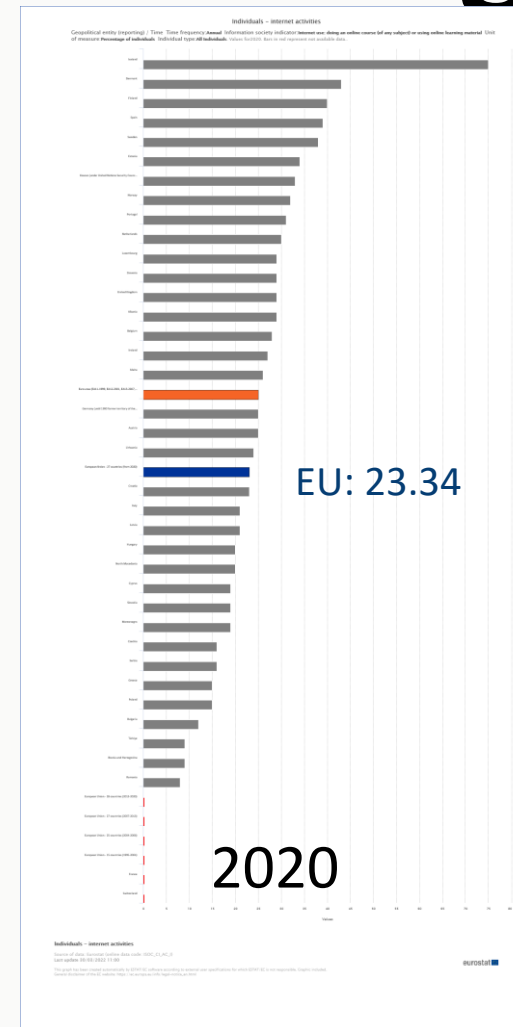
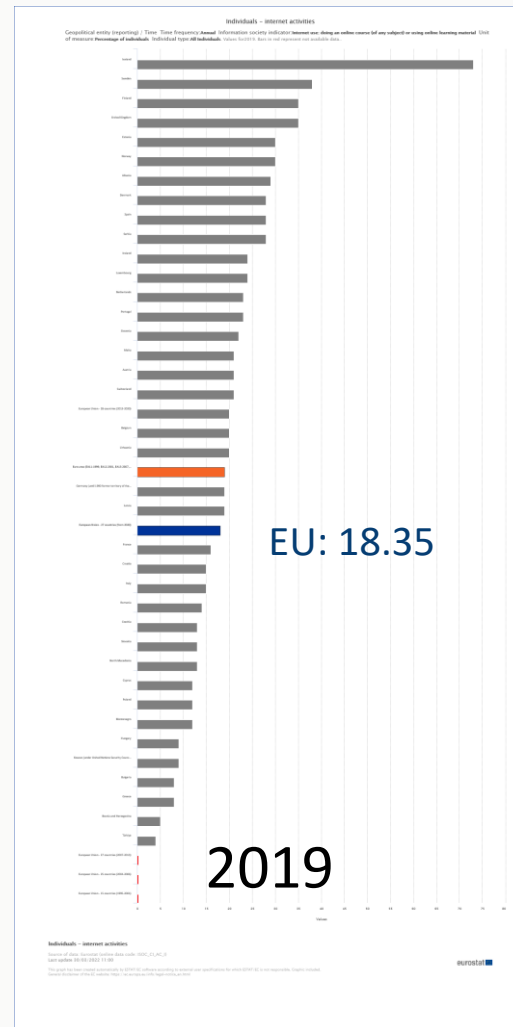
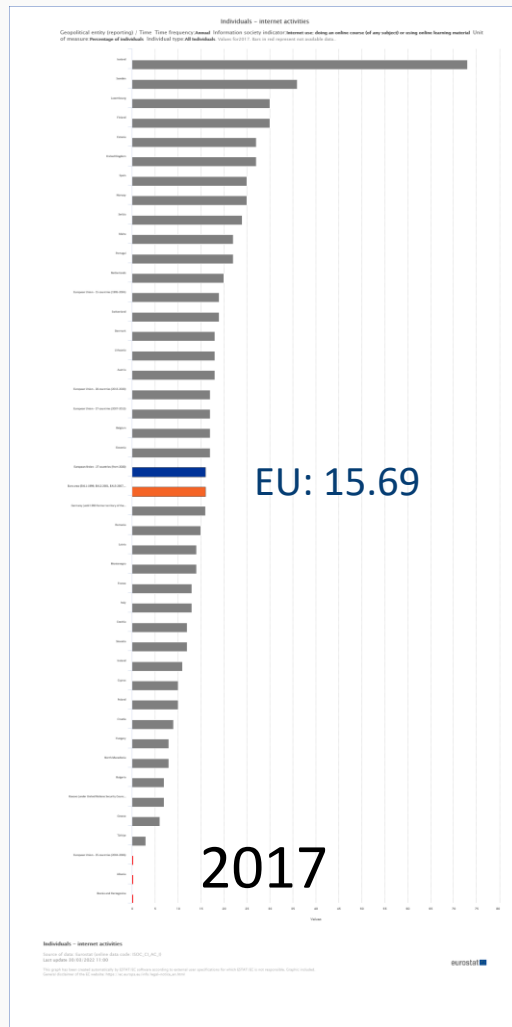
# Warum Digitalkompetenzen?



**No digital natives!**

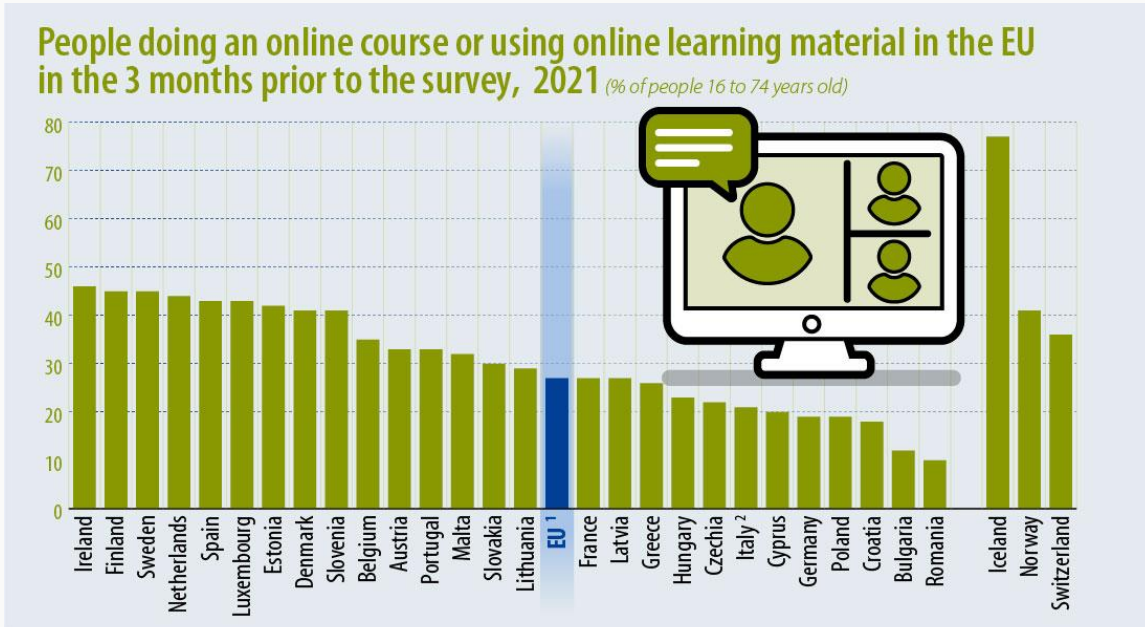
<https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries>

# Online courses or learning material



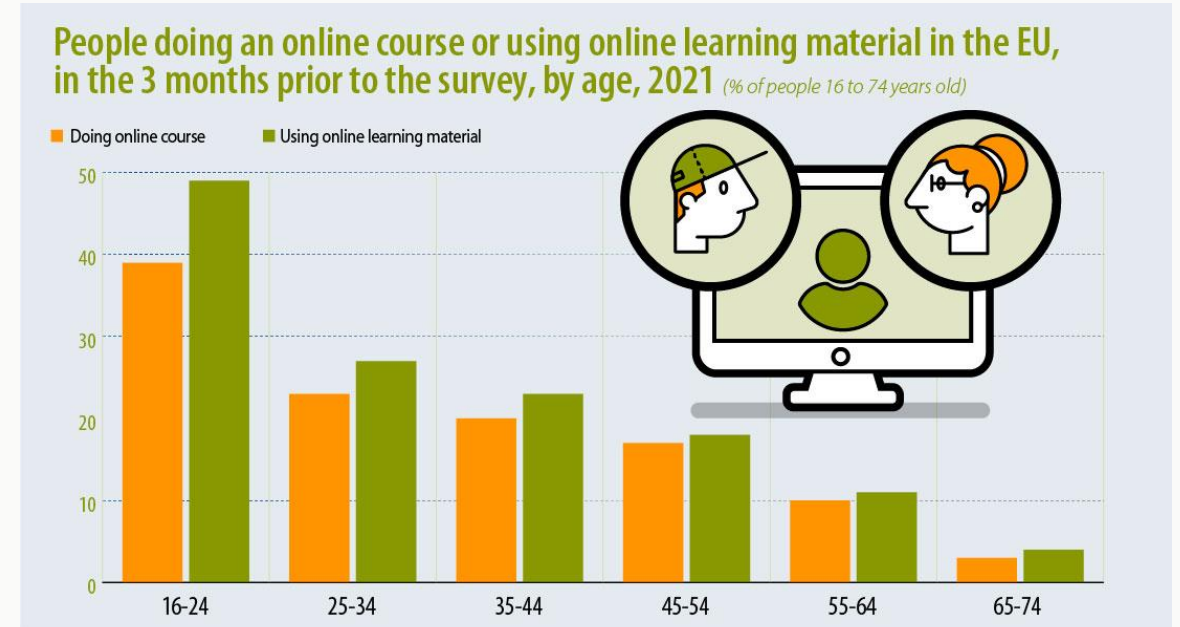
[https://ec.europa.eu/eurostat/databrowser/view/ISOC\\_CI\\_AC\\_I\\_\\_custom\\_1921685/bookmark/line?lang=en&bookmarkId=c59e1629-dec0-43e8-a6f1-de1c541f0932](https://ec.europa.eu/eurostat/databrowser/view/ISOC_CI_AC_I__custom_1921685/bookmark/line?lang=en&bookmarkId=c59e1629-dec0-43e8-a6f1-de1c541f0932)

# Keine Daten zu Digitalbildung



1) EU aggregate: estimated  
2) 2020 data

ec.europa.eu/eurostat



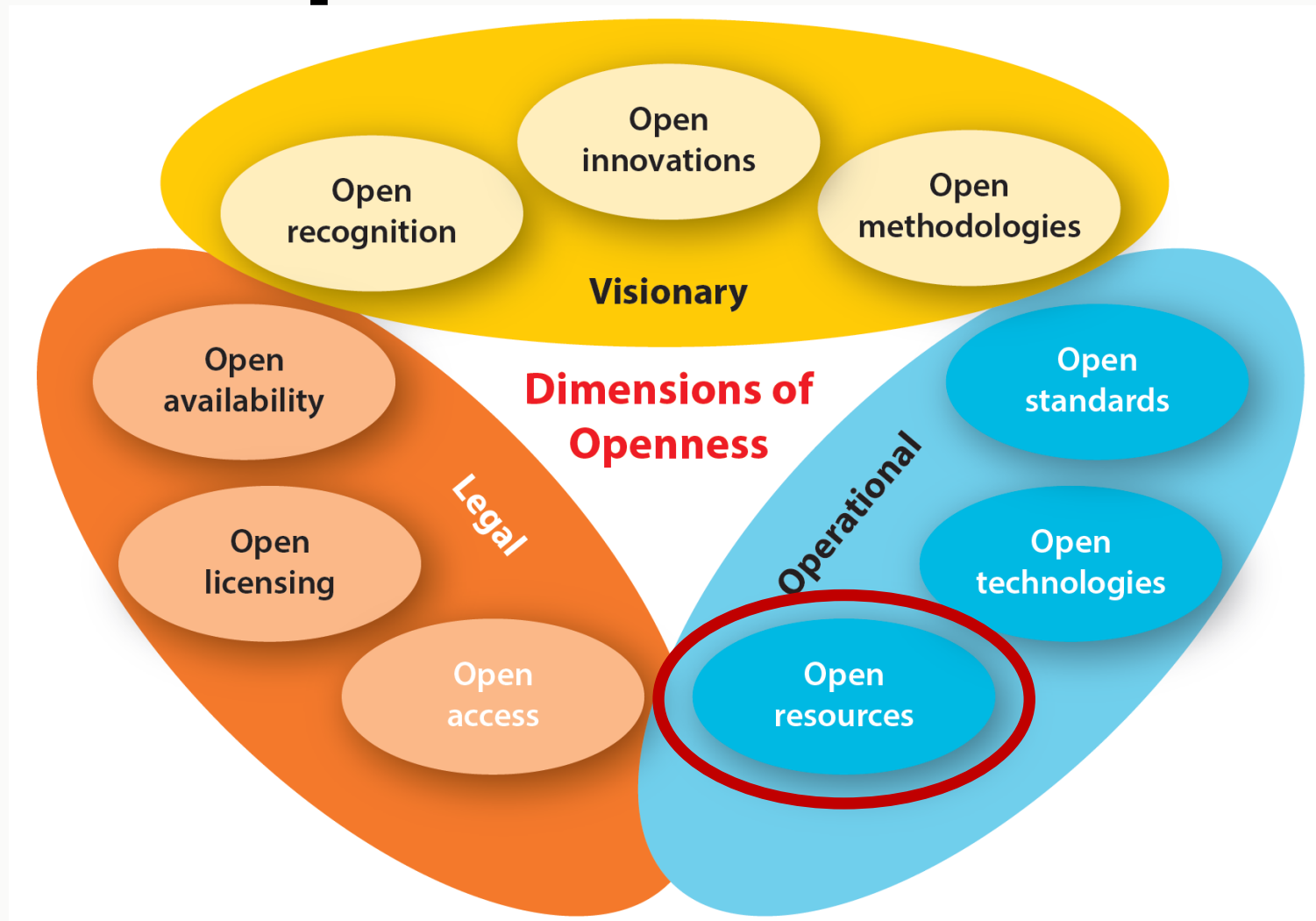
EU aggregate: estimated

ec.europa.eu/eurostat

## Longitudinal studies on digital education are lacking!

[https://ec.europa.eu/eurostat/databrowser/view/ISOC\\_CI\\_AC\\_I\\_\\_custom\\_1921685/bookmark/line?lang=en&bookmarkId=c59e1629-dec0-43e8-a6f1-de1c541f0932](https://ec.europa.eu/eurostat/databrowser/view/ISOC_CI_AC_I__custom_1921685/bookmark/line?lang=en&bookmarkId=c59e1629-dec0-43e8-a6f1-de1c541f0932)

# Open Education



Stracke (2017). The Quality of MOOCs: How to improve the design of open education and online courses for learners? [https://doi.org/10.1007/978-3-319-58509-3\\_23](https://doi.org/10.1007/978-3-319-58509-3_23)

# Open Educational Resources (OER)

<https://www.unesco.org/en/legal-affairs/recommendation-open-educational-resources-oer>

## UNESCO OER Recommendation adopted in 2019



Action Plan Satellite events Regional Consultations UNESCO OER Recommendation French  
About Programme Press Videos Virtual Congress Contact

### 2nd World Open Educational Resources (OER) Congress

OER for Inclusive and Equitable Quality Education: From Commitment to Action

18-20 September 2017, Ljubljana, Slovenia

#### Result: Ljubljana OER Action Plan

At the 2nd World Congress on OER delegates adopted the Ljubljana OER Action Plan 2017

#### Result: Ministerial Statement

Ministers call for actions in specific key areas to support the mainstreaming of OER

#### Result: Dynamic Coalition

The Slovenian government to create a placeholder to share open educational and OER initiatives, which can be replicated and scaled up across the world

#### Result: OER Slovenian case — From Commitment to Action

The Slovenian government is implementing open education and OER into its educational system

#### Result: Global infrastructure for OER

First step towards implementing the Ljubljana Action Plan by solving the problem of connecting all global OER sites

#### Result: Video Collection

Portfolio of keynotes and discussions forming the largest collection of OER themed talks

6 REGIONAL CONSULTATIONS

21 SATELLITE EVENTS

VIRTUAL CONGRESS

OER for Inclusive and Equitable Quality Education: From Commitment to Action

### How can the OER community put the UNESCO OER Action Plan into practice?

Panel @ OE Global 2018 in Delft  
by Christian M. Stracke, Zeynep Varoglu,  
Jane-Frances Agbu, Tel Amiel  
& Daniel Burgos



United Nations  
Educational, Scientific and  
Cultural Organization

Organisation  
des Nations Unies  
pour l'éducation,  
la science et la culture

Organización  
de las Naciones Unidas  
para la Educación,  
la Ciencia y la Cultura

Организация  
Объединённых Наций по  
вопросам образования,  
науки и культуры

منظمة الأمم المتحدة  
للترقية والعلم والثقافة

联合国教育、  
科学及文化组织

General Conference  
40th Session, Paris, 2019

# 40 C

40 C/32  
8 October 2019  
Original: English

Item 8.2 of the provisional agenda

DRAFT RECOMMENDATION ON OPEN EDUCATIONAL RESOURCES



United Nations  
Educational, Scientific and  
Cultural Organization

### Recommendation on Open Educational Resources (OER)

#### Preamble

The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), meeting in Paris from 12 to 27 November 2019, at its 40th session,

Recalling that the Preamble of UNESCO's Constitution affirms, "that the wide diffusion of culture, and the education of humanity for justice and liberty and peace are indispensable to the dignity of man and constitute a sacred duty which all the nations must fulfil in a spirit of mutual assistance and concern",

Recognizing the important role of UNESCO in the field of information and communications technology (ICT) and in the implementation of the relevant decisions in this area adopted by the General Conference of that Organization,

Also recalling Article I of UNESCO's Constitution, which assigns to UNESCO among other purposes that of recommending "such international agreements as may be necessary to promote the free flow of ideas by word and image",

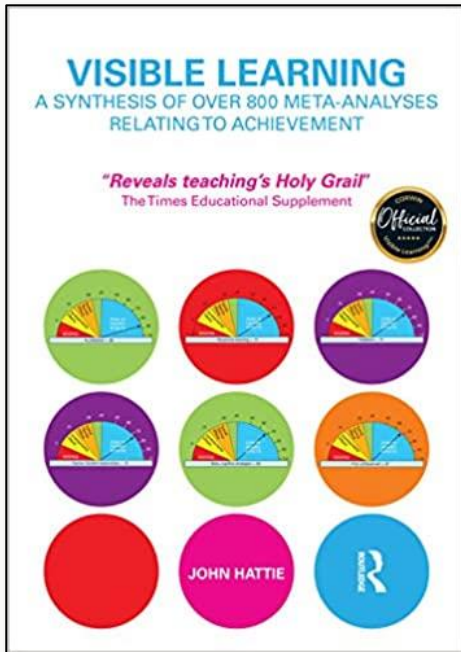
Affirming the principles embodied in the Universal Declaration of Human Rights, which states that all people have rights, duties and fundamental freedoms that include the right to seek, receive and impart information and ideas through any media and regardless of frontiers (Article 19), as well as the right to education (Article 26), and the right freely to participate in the cultural life of the community, to enjoy the arts, and to share in scientific advancement and its benefits; and the right to the protection of the moral and material interests resulting from any scientific, literary, or artistic production of which one is the author (Article 27),

Also affirming the 2007 United Nations Declaration on the Rights of Indigenous Peoples, which recognizes the rights of indigenous peoples in formulating national legislation and implementing national policy,

Noting the 2006 Convention on the Rights of Persons with Disabilities (Article 24), which recognizes the rights of persons with disabilities to education, and the principles contained in the 1960 Convention against Discrimination in Education,

Referring to the recommendation adopted at the 32nd session of the General Conference of UNESCO in 2003 with regard to the promotion of multilingualism and universal access to

# Messbarkeit?



**Evidences?**

<https://visible-learning.org>

**Meta-analyses of evidence-based studies by Hattie and others**

**See critics by Eacott (2017), McKnight & Whitburn (2018), Terhart (2011), & Wetter, Vogel, & Hetmanek (2017)**

# Unsere Forschung

**Open  
Edu**

**Formal education during the  
COVID-19 pandemic & lockdowns**

**Use and benefits of Open Education**

**40 researchers from 5 continents  
with case studies from 13 countries**

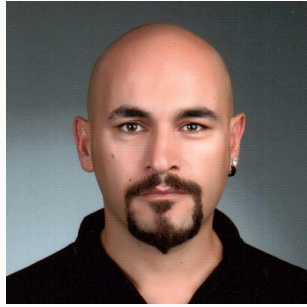
Schools & Higher Ed: <https://doi.org/10.3390/su14031876>

Open Education: <https://doi.org/10.19173/irrodl.v23i4.6120>





**Christian M. Stracke**



**Aras Bozkurt**



**Ramesh Sharma**



**Jon Mason**



**Ebba Ossiannilsson**



**Cécile Swiatek**



**Chrissi Nerantzi**



**Özlem Karakaya**



**Robert Farrow**



**Daniel Burgos**



**Jin Gon Shon**



**Andreia Inamorato  
dos Santos**



**Gema Santos-Hermosa**



**Grainne Conole**



**María Soledad  
Ramírez Montoya**



**Jane-Frances  
Obiageli Agbu**



**Marian Wan**



Christian M



Cécilia

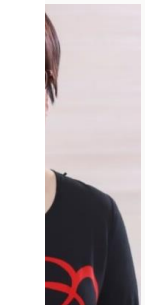


André

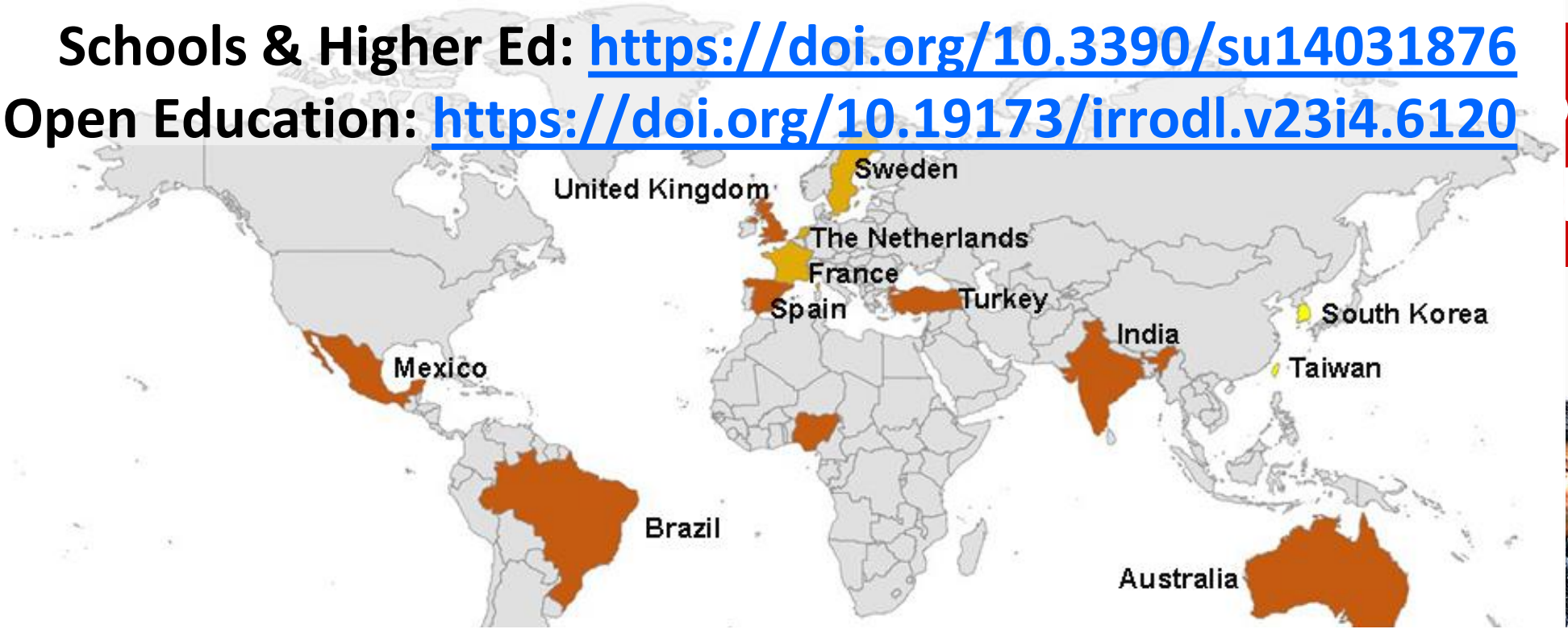
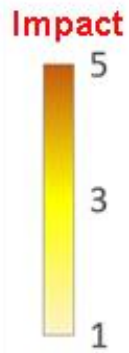
Schools & Higher Ed: <https://doi.org/10.3390/su14031876>  
 Open Education: <https://doi.org/10.19173/irrodl.v23i4.6120>



ion



an



Level	Key Aspect
Macro level	Formal education at a distance for first time
Macro level	Similar approaches for formal education
Macro level	Missing infrastructure and sharing open educational resources
Meso level	Diverse teaching and learning methods and practices
Meso level	Open education and access to open educational resources
Micro level	Urgent need for professional development and training for teachers
Micro level	Assessing and monitoring learning environments, teachers and students



Christian M

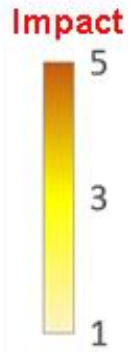


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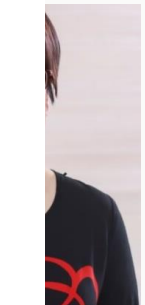


André

Schools & Higher Ed: <https://doi.org/10.3390/su14031876>  
 Open Education: <https://doi.org/10.19173/irrodl.v23i4.6120>



ion



an

**Awarded as Global TOP 10 COVID-19 Article in 2022  
 by the National Institute for Digital Learning, Ireland**  
<https://t.co/ryos810DvB>

Level	
Macro level	Missing information
Macro level	Diverse teaching
Macro level	Open education and access to
Meso level	Urgent need for professional development and
Meso level	Assessing and monitoring learning environments, teachers and students
Micro level	
Micro level	

**Was ist  
Virtual Collaboration?**

# Virtual Collaboration ist digital

**Formal (erstellt von Lehrenden) oder nicht-formal  
in Gruppenarbeit, Communities und Netzwerken**



**Vier Design- und Lern-Aspekte:**

- 1. Aufgaben**
- 2. Rollen**
- 3. Kommunikation**
- 4. Interaktionen**

# Virtual Collaboration ist digital

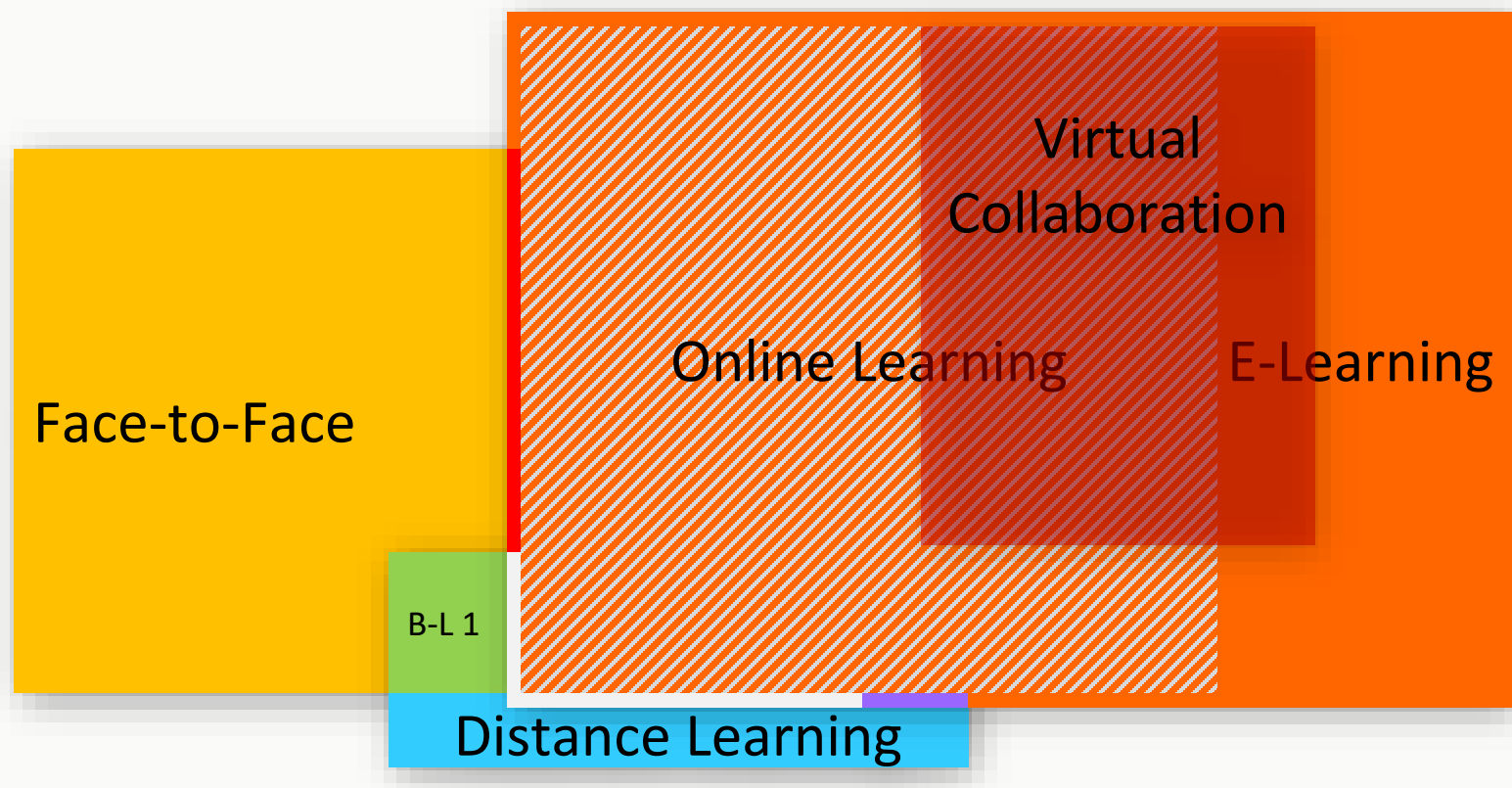


Figure is only indicative and not true to scale (B-L = Blended Learning)

# Interaktionen in digitaler Bildung

**Classical interaction types in learning (Moore, 1989):**

- 1. Learner-Facilitator (LF)**
- 2. Learner-Resource (LR)**
- 3. Learner-Learner (LL)**

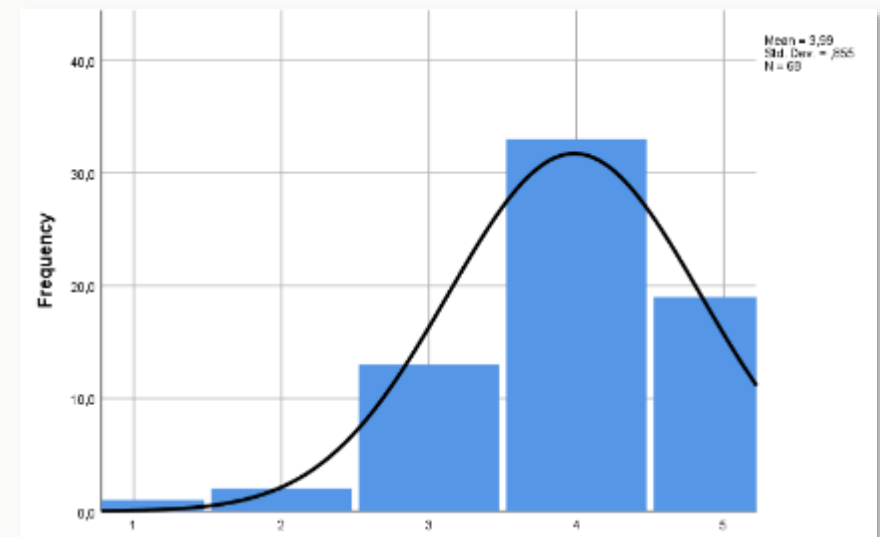
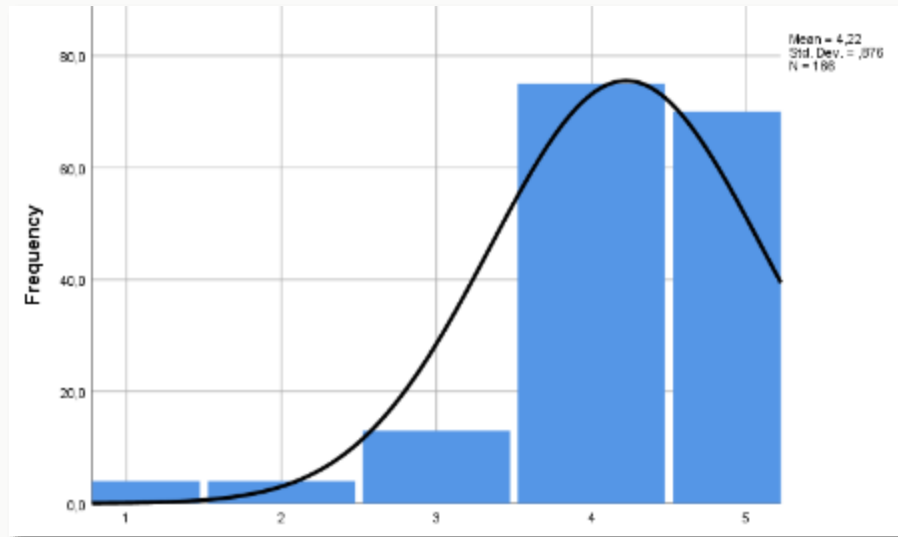
**New in digital learning (Stracke et al., 2018):**

- 4. Group-Group (GG)**

Stracke, C. M. et al. (2018). Gap between MOOC designers' and MOOC learners' perspectives ... <https://doi.org/10.1109/ICALT.2018.00007>

# Qualität digitaler Lernangebote

Learners' experiences vs. Designers' experiences



Stracke & Tan (2018). <https://doi.org/10.5281/zenodo.3715341>; Stracke et al. (2018). <https://doi.org/10.1109/ICALT.2018.00007>

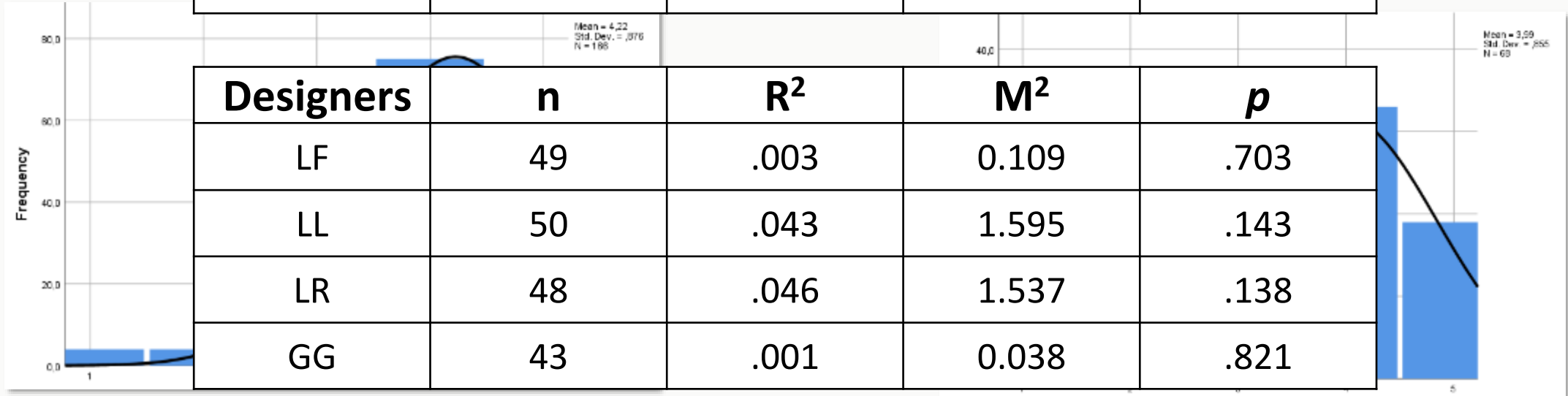


# Qualität digitaler Lernangebote

Learners

Experiences

Learners	n	R <sup>2</sup>	M <sup>2</sup>	p
LF	125	.094	9.382	.000***
LL	130	.101	10.818	.000***
LR	136	.112	12.286	.000***
GG	108	.045	4.131	.026*



LF: Interaction between learners and facilitators - LL: Interaction among learners  
 LR: Interaction between learners and learning resources - GG: Interaction among teams and groups

Stracke & Tan (2018). <https://doi.org/10.5281/zenodo.3715341>; Stracke et al. (2018). <https://doi.org/10.1109/ICALT.2018.00007>

# Virtual Collaboration (ViCo)

**Unsere Angebote an der Universität Bonn für universitätsweite Innovationen in der Lehre:**



[www.vico.uni-bonn.de](http://www.vico.uni-bonn.de)

- 1. Mediendidaktik**
- 2. Qualifizierung**
- 3. Evaluation**
- 4. Kooperation**
- 5. Kollegiales Netzwerk**

# Universität Bonn



**Rheinische Friedrich-Wilhelms-Universität Bonn**  
**Gegründet in 1818, Exzellenzuniversität seit 2019**  
**40.000 Studierende – 6.000 Wiss. Mitarbeitende**



# ViCo an der Universität Bonn

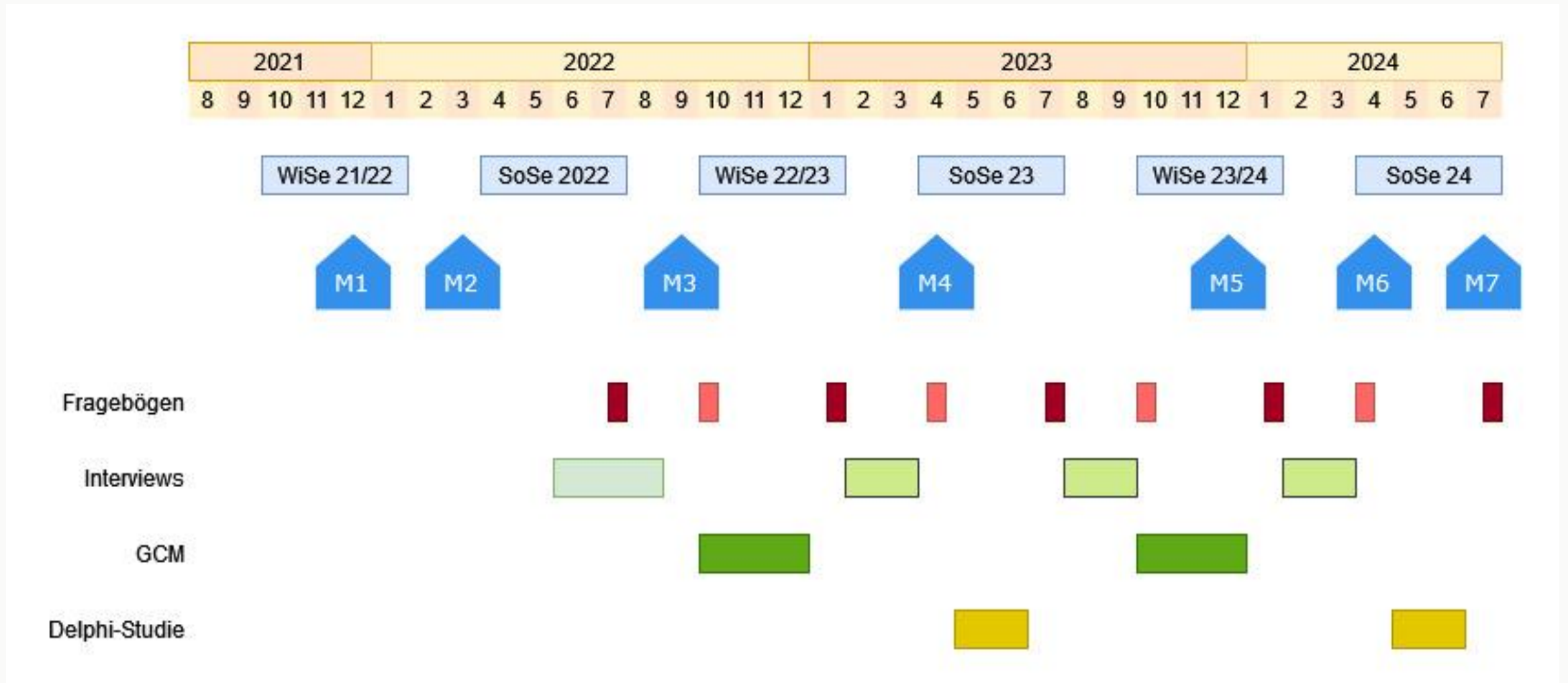


**ViCo = Virtual Collaboration für digitale Kleingruppen**  
**Innovative universitätsweite Angebote für die Lehre**



[www.vico.uni-bonn.de](http://www.vico.uni-bonn.de)

# ViCo: Timeline und Evaluation



# Virtual Collaboration in der Praxis

**Digitale Kleingruppenarbeit für die Lehre –  
gemeinsam für die Zukunft lernen**



[www.vico.uni-bonn.de](http://www.vico.uni-bonn.de)

**Vier Lernräume und Angebote:**

- 1. Annotationen von Medien**
- 2. Wissenschaftliches Rechnen**
- 3. 3D-Realitäten**
- 4. Kollegiales Netzwerk**

# ViCo: Annotationen von Multimedia



**Texte, Photos, Bilder, Grafiken,  
Scans, etc.:**  
**Wie können wir gemeinsam  
jede Art von Multimedia  
verstehen und analysieren?**

# ViCo: Wissenschaftliches Rechnen



**Kennen Sie JupyterHub?  
Die Online-Umgebung für  
wissenschaftliches Rechnen  
und Programmieren, jetzt auch  
in digitaler Kleingruppenarbeit**



# ViCo: Immersive 3D-Realitäten



**Tauchen Sie ein in digitale Lernwelten und erleben Sie mit ViCo antike Stätten und unzugängliche Orte:  
Immersiv und interaktiv**

# ViCo: Kollegiales Netzwerk



**Wir bauen das Netzwerk für ViCo-Lehrende auf:  
Bringen Sie sich aktiv ein und tauschen Sie sich mit Ihren Kolleg\*innen aus!**

# **ViCo: Interdisziplinäre Beispiele**

**Annotationen (4 Lehrende, 6 LV):**

**Mediävistik (+ SLZ, Linguistik, Philologien, Theologien)**

**Wissenschaftliches Rechnen (7 Lehrende, 6 LV):**

**Astronomie, Wirtschaftswissenschaften, Bioinformatik  
(+ ULB, Informatik, Jura, Medizin, Geschichte, Geodäsie)**

**3D-Welten (3 Lehrende, 3 LV):**

**Kunstgeschichte, Archäologie, Jura, Medizin, Theologien)**

# ViCo: Unsere Erfahrungen

**Digitale Kleingruppenarbeit in die Lehre integrieren:  
Vor allem eine pädagogisch-didaktische Aufgabe**

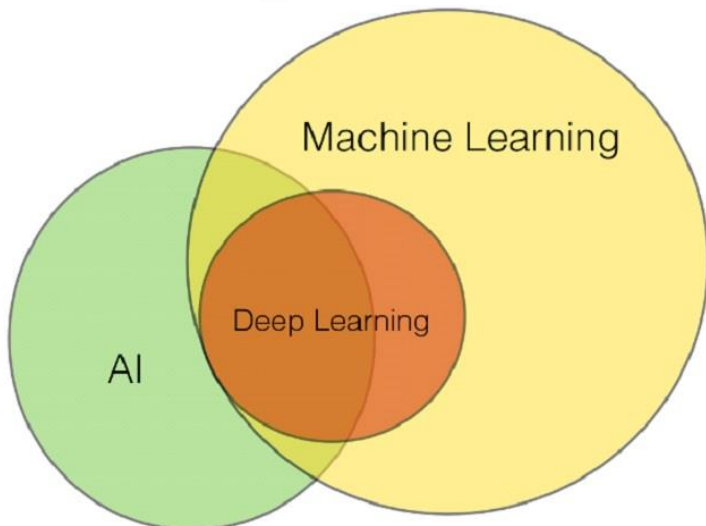
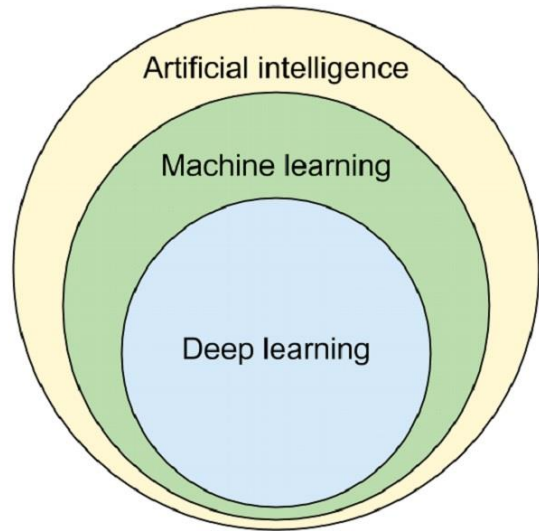


[www.vico.uni-bonn.de](http://www.vico.uni-bonn.de)

- 1. Interdisziplinarität**
- 2. Internes Marketing**
- 3. Individuelle Beratung**
- 4. Workshops & Qualifizierung**
- 5. Finanzierung für Hilfskräfte**

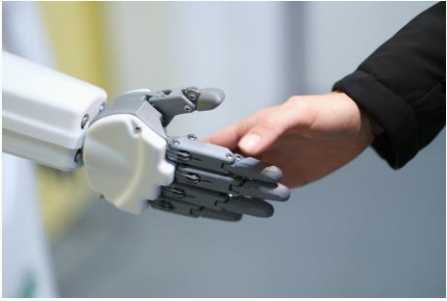
**Und was bringt  
die Zukunft?**

# Künstliche Intelligenz (KI)



Figures: [https://en.wikipedia.org/wiki/Machine\\_learning](https://en.wikipedia.org/wiki/Machine_learning)

**The Best or the Worst:  
Wer kontrolliert KI?  
ChatGPT, DALL-E, Galactica  
Immer: Human to Human  
Keine Lehr-/Lern-Innovation,  
nur ein Tool zum Support**



# KI Grundlagen



**Nicht aufzuhalten und zu verbieten**  
**Schwer erkennbar und Würfelprinzip**  
**Black box und Halluzinationen**  
**Leistungen/Prüfungen vor allem betroffen**  
**Plagiatsoftware keine Lösung**  
**Wasserzeichen nicht nachvollziehbar**



# KI Regulierungen



**Europäische Kommission:**

**AI Act (2021) & Ethical Guidelines (2022)**

**Europäisches Parlament:**

**Sitzung des Ausschusses für Bildung (2022)**

**Europäischer Rat:**

**Konferenz (2022) & Expert Group (2023)**



# Meet me @

**13.06.2023: [Lehrwerkstatt](#) @ HTWG Konstanz (online)**

**20.06.2023: [Invited Keynote](#) @ [Twillo Konferenz](#), Hannover**

**03.07.2023: [Workshop](#) @ [AIED Conference](#), Tokyo (hybrid)**

**09.07.2023: [Wissenschaftsfestival](#) @ [Universität Bonn](#)**

**11.09.2023: [Workshop](#) @ [DELFI Conference](#), Aachen**

# Wie können Sie teilnehmen?



**Publizieren & teilen Sie Inhalte!**



**Nutzen Sie existierende Inhalte!**

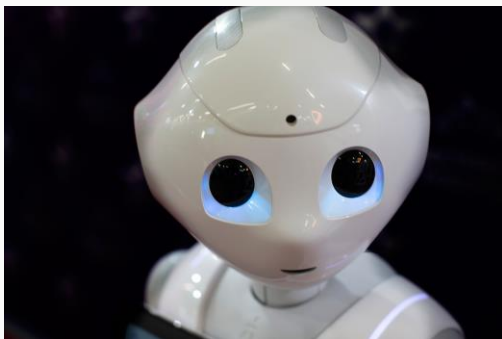


**Vernetzung mit Kolleg\*innen!**

# Unsere Netzwerke



**Virtuelle Lernräume**  
(alle 6-8 Wochen)



**Ethische Nutzung von**  
**Künstlicher Intelligenz**  
(monatlich)

# Key Messages

# Meine zentralen Key Messages



**1. Virtual Collaboration benötigt multi-dimensionale Unterstützung**



**2. Künstliche Intelligenz verändert mehr als COVID-19 und Lockdowns**



**3. Hochschulbildung muss wieder mehr Demokratie, Menschenrechte, Gleichheit & die soziale Gesellschaft fokussieren**

# Virtual Collaboration

Interessiert? Kontaktieren Sie uns!



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and many more, all are openly and freely available at: <http://www.opening-up.education>

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