

Ethical AI and Education: The need for international regulation to foster human rights, democracy and equity

**Tuesday, 22nd of July 2025
in Palermo, Italy**

<https://doi.org/10.5281/zenodo.16679899>

Workshop at AIED 2025 in Palermo, Italy
<https://aied2025.learning-innovations.eu>



Introductory speech

**of the Third AIED Workshop on
“Ethical AI and Education”**

**at 26th International AIED Conference 2025
hold by Dr. Christian M. Stracke**

**The program including this presentation and
all results of the workshop are published on:**

<http://aied2025.learning-innovations.eu>

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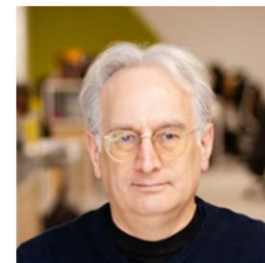
Meet the Organizers



Christian M. Stracke
University of Bonn,
Germany



Beth Havinga
European EdTech
Alliance, Germany



Wayne Holmes
University College
London, UK



Ron Salaj
University of Turin,
Italy



Introductory speech by

Ahmet Murat KILIÇ

Head of the Digital Transformation Unit, Education
Department, Council of Europe

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Workshop sessions: Overview

Sessions	Agenda Item	Duration (minutes)
1. Start	Welcome to the workshop	20'
	Introduction to the CoE work on AIED	10'
	Discussion of two questions (Q1 and Q4)	30'
	Summarising participants' input and wrap up	30'
2. World Café	Introduction to the World Café	5'
	First round of group discussions	25'
	Second round of group discussions	25'
	Third round of group discussions	25'
3. Plenary	Results from the group tables	30'
4. Closing	Collecting participants' input for future CoE work	15'
	Envisioning future steps and directions	10'

90 min.

80 min.

30 min.

25 min.

<http://aied2025.learning-innovations.eu>

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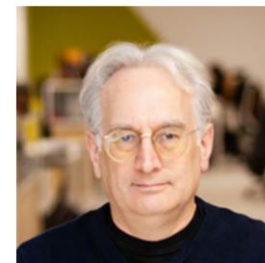
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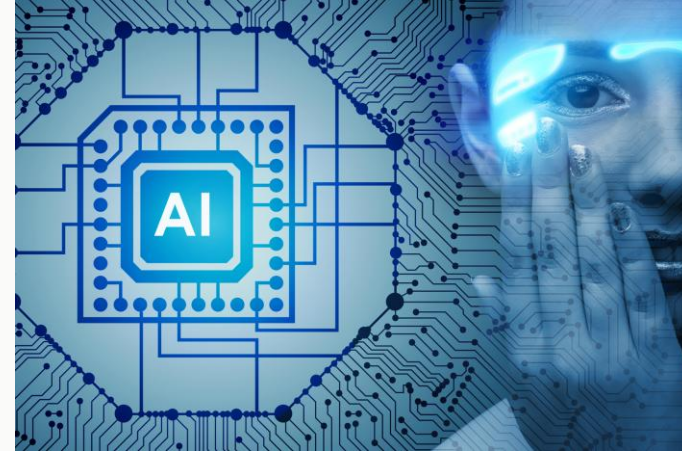
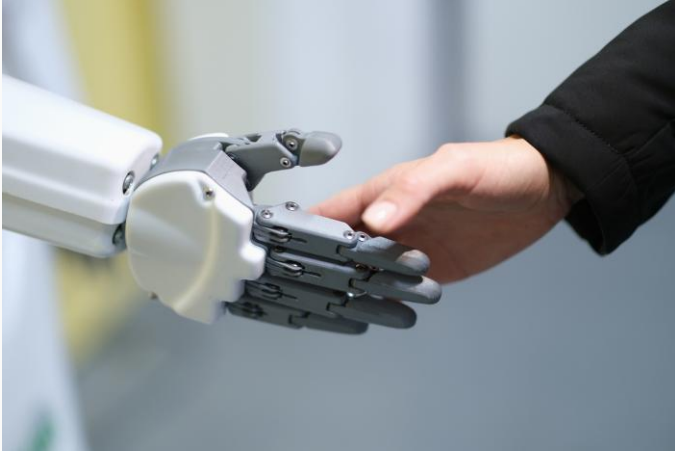
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What is AI?

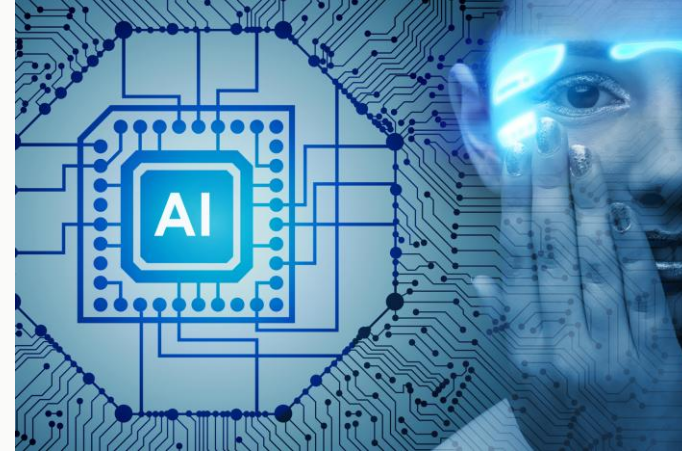
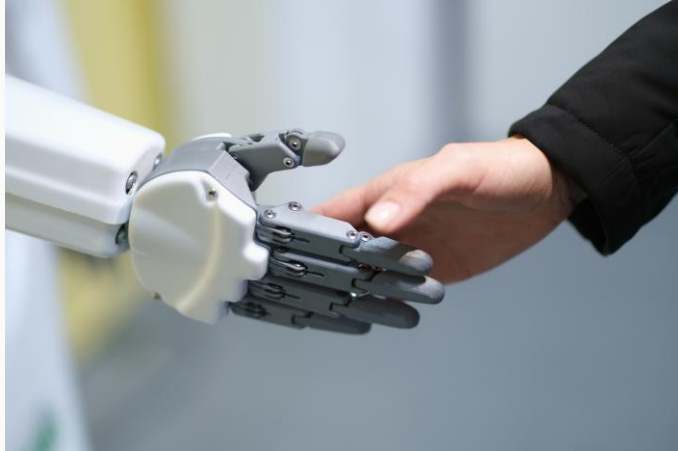


Definition of Human Intelligence

Definition of Artificial Intelligence (AI)

How do you define AI?

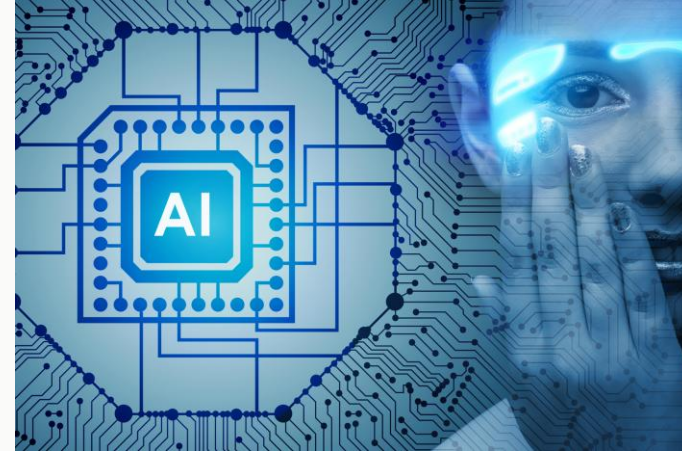
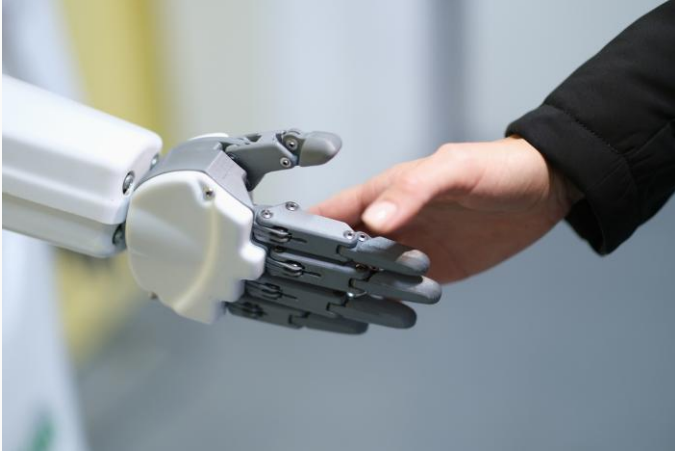
What is AI?



AI is a unique digital tool

**AI is always a human-to-human relationship
(in the responsibility)**

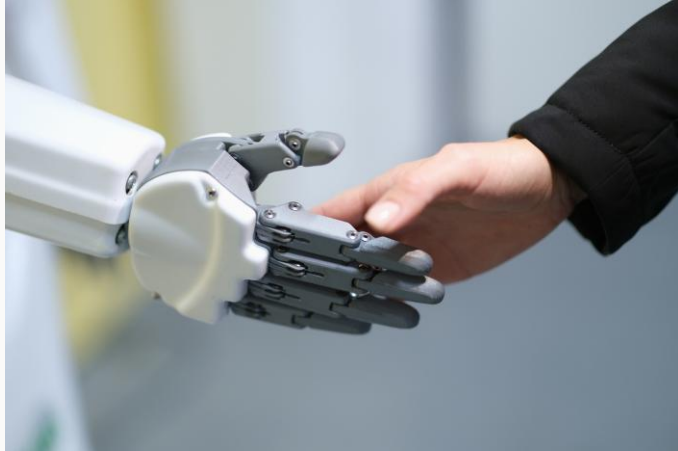
History of AI



AI concept by McCarthy and research since 1950ies
weak AI vs. strong AI vs. super-intelligence
knowledge-based AI vs. data-driven AI
hybrid systems & trainings (GenAI / GPAI)

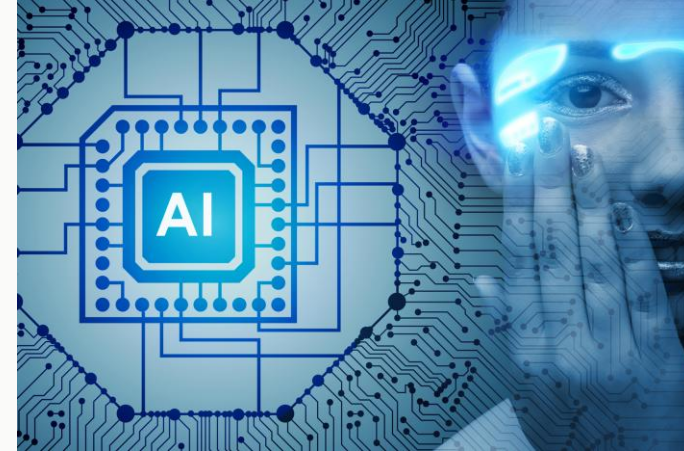
Stracke, C. M. et al. (2024). https://doi.org/10.1007/978-3-031-64315-6_21 (pre-print: <https://doi.org/10.5281/zenodo.11518072>)

Different Types of AI



Weak AI:

**Programming
Automatisation
Training**



Strong AI:

**Self-development
"Intelligence"
Self-decisions**

The Special Case of Education



Education as human right

SDG 4: "Quality Education for All"

Equity, inclusion & mandatory school visit

Learning cannot be forced

<https://opening-up.education/publications>

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

Time pressure

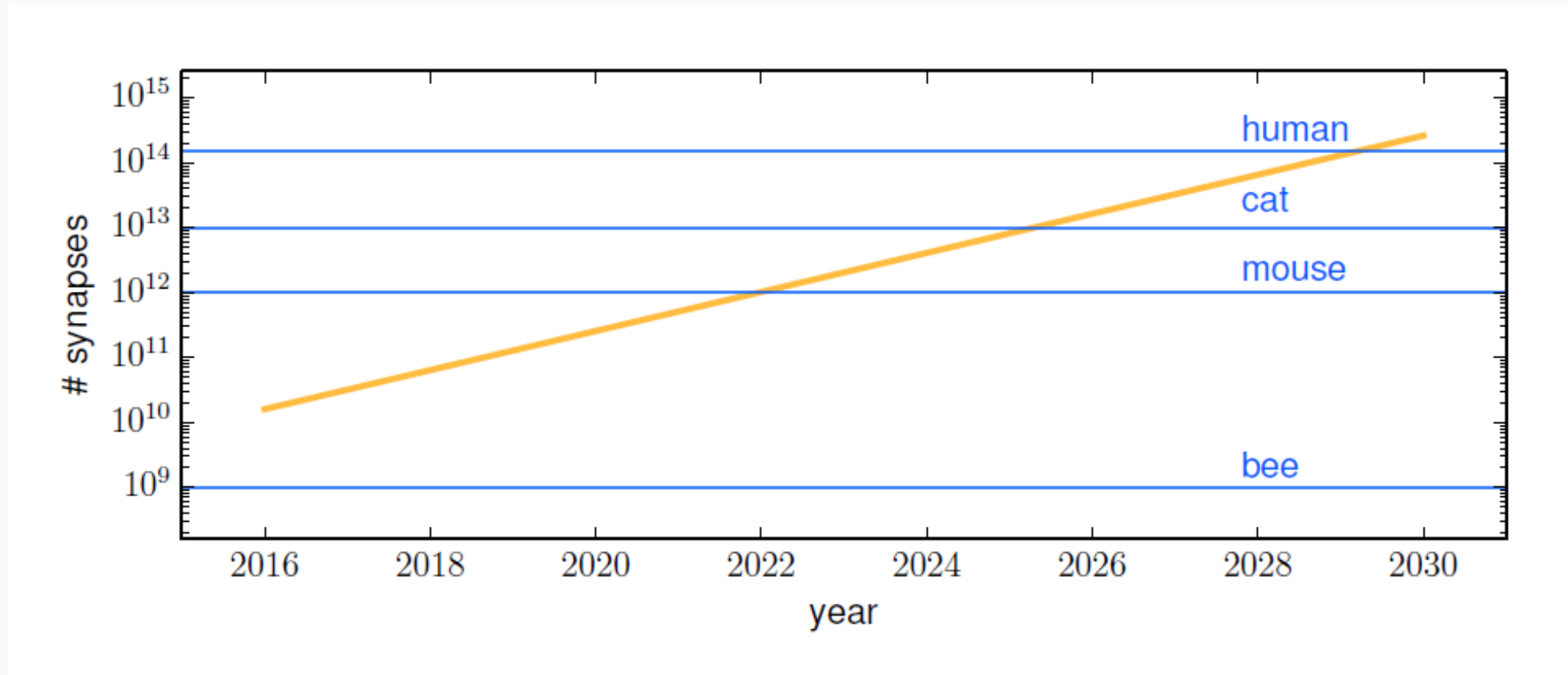


Figure: Christian Bauckhage (University of Bonn)

International crises



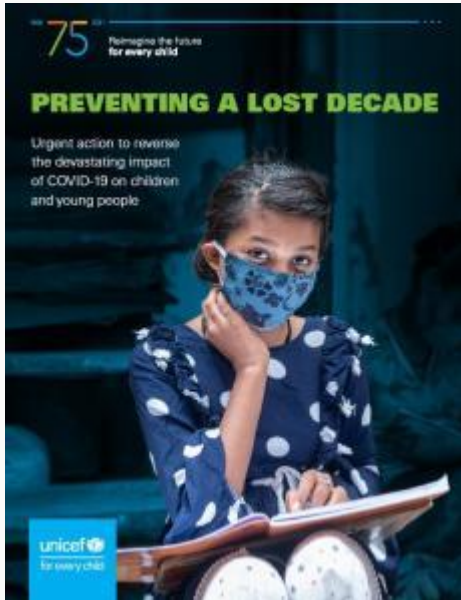
Crisis? What Crisis?

https://en.wikipedia.org/wiki/File:Supertramp_-_Crisis.jpg

Economic crisis (Hayes, profit only)
Education crisis (innovations, quality)
Media crisis (literacy, fake news)
Societal crisis (ethics, egoism)

We need regulation to foster quality
Open Education for all as human right

Current challenges



New Normal?

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

COVID-19 pandemic & lockdowns

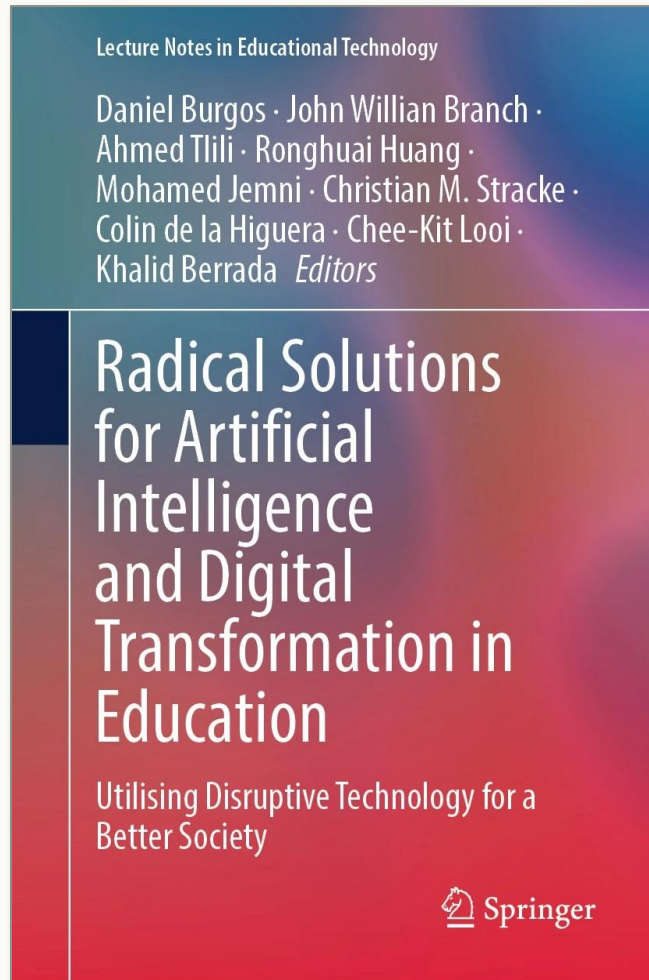
War in Ukraine & many countries

Climate change, poverty, hunger

**And now, Artificial Intelligence (AI)
is appearing and changing mindsets**

Ethics of AI

Ethical AI&ED & Human Rights



**AI&ED for strengthening the society:
"Artificial Intelligence and Education:
Ethical Questions and Guidelines for
Their Relations Based on Human
Rights, Democracy and the Rule of
Law" (Dezember 2024)**

https://doi.org/10.1007/978-981-97-8638-1_7

Networks "Ethical Use of AI"



German Network since March 2023:

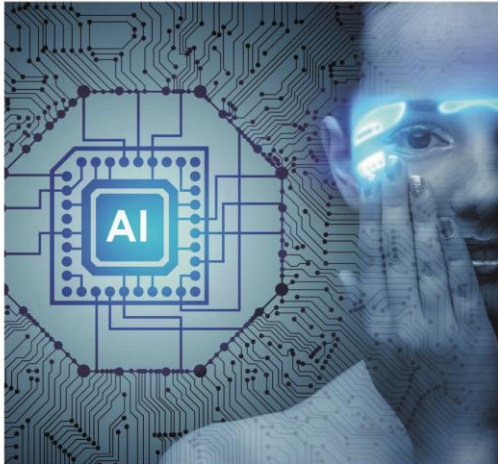
<https://ethischeki.ecompetence.eu>

European Network since AIED 2023:

<https://ethicalai.ecompetence.eu>

**Monthly meetings for collaboration:
Everybody is most welcome!**

Network "Ethical Use of AI"



Ethical Use of Artificial Intelligence (AI)
in Higher Education – a Handout

Developed and approved on 7th of March 2024 by the
Netzwerk „Ethische Nutzung von KI“
<https://ethischeki.competence.eu>
Revised Version 1.1 from 18th of July 2024:
<https://doi.org/10.5281/zenodo.10995669>

**"Ethical Use of AI in Higher Education
– a Handout" for university teachers
(Version 1.1 from 18th of July 2024)**

- **10 statements (1 page) and
FAQ list with answers (4 pages),
both revised and updated**

<https://doi.org/10.5281/zenodo.10995669>

Ethical AI&ED: SLR Protocol

Systematic Literature Review (SLR): Standardised PRISMA-based protocol for SLR on AI and Education by Stracke, C.M.; Chounta, I.-A.; Holmes, W.; Tlili, A. & Bozkurt, A. (2023).

<https://doi.org/10.37074/jalt.2023.6.2.38>



SLR on Ethical AI&ED

SLR on Ethical AI and Education: "Global trends in scientific debates on trustworthy and ethical Artificial Intelligence and Education"

by Stracke, C.M.; Chounta, I.-A. & Holmes, W.
(2024) – presented at AIED 2024 in Recife

<https://doi.org/10.5281/zenodo.11518072>

Global trends in scientific debates on trustworthy and ethical Artificial Intelligence and Education

Christian M. Stracke ¹ORCID:0000-0001-9636-6298 | Irene-Angelica Chounta ²ORCID:0000-0001-9159-6669, and Wayne Holmes ³ORCID:0000-0001-4352-1996

¹University of Bonn, Germany; ²University of Duisburg-Essen, Germany; ³University College London, UK
stracke@uni-bonn.de, irene-angelica.chounta@uni-due.de, wayne.holmes@ucl.ac.uk

Abstract. This paper presents a systematic review of the scientific literature on trustworthy and ethical Artificial Intelligence (AI) and Education (AI&ED), including both AI *applied* in education to support teaching and learning (AI&ED), as well as education *about* AI (AI literacy). Key interest is the identification of global trends with a special focus on unbalanced disparities. Strictly following the standardised protocol and the underlying PRISMA approach, 324 records were identified and selected according to the pre-defined protocol for the systematic review. Finally, 62 articles were included in the quantitative and qualitative analysis in response to four research questions. Which (i) journals, (ii) disciplines, and (iii) regions are leading scientific debates and sustainable developments in education and trustworthy/ethical AI, and (iv) what are the past trends? The articles revealed an unbalanced distribution across the various dimensions, together with an exponential growth over recent years. Building upon our analysis, we argue for an increase in interdisciplinary research that shifts the focus from the currently dominant technological focus towards a more human-centered (educational and societal) focus. Only through such a development AI can contribute effectively to the UN Sustainable Development Goal no. 4 of a world with equitable and universal access to quality education. The results of our systematic review provide the basis to address and facilitate regions in the future AI&ED progress across regions worldwide.

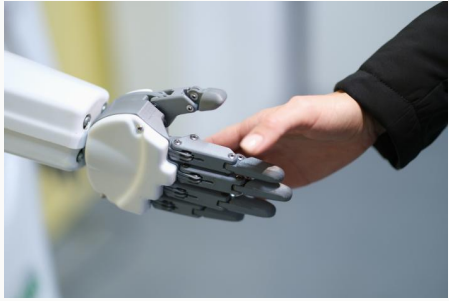
Keywords: Trustworthy and ethical AI, AI&ED, Web of Science articles, Systematic literature review, Informatics and information technologies, Education and Learning sciences, Sustainable digital transformations.

1 Introduction

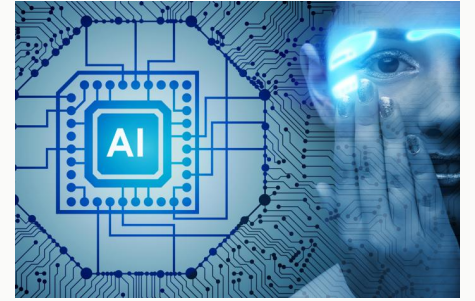
The concept of Artificial Intelligence (AI) has been controversial since the term was first coined [4, 14, 18]. Nonetheless, AI has been introduced in many disciplines, including – for around fifty years – in education [2, 13, 15, 20, 23]. However, it remains the case that AI in education was mostly researched by computer scientists rather than educators in the beginning [33].

Pre-print of the camera-ready version, recommended citation:
Stracke, C. M., Chounta, I.-A., & Holmes, W. (2024). Global trends in scientific debates on trustworthy and ethical Artificial Intelligence and education. In *Artificial Intelligence in Education, AIED 2024. Communications in Computer and Information Science*. Springer. (accepted, pre-print) <https://doi.org/10.5281/zenodo.11518072>
[Final official publication: https://doi.org/10.1007/978-3-031-64315-6_21]

Legal regulation of AI



AI Regulations



**European Commission:
Ethical Guidelines (2022) & AI Act (2024)**

**European Parliament:
Hearing of Committee for Education (2022)**

**Council of Europe:
Framework Convention on AI - "Treaty" (2024)**



AI Act

EU AI Act (into force: 1st August 2024)

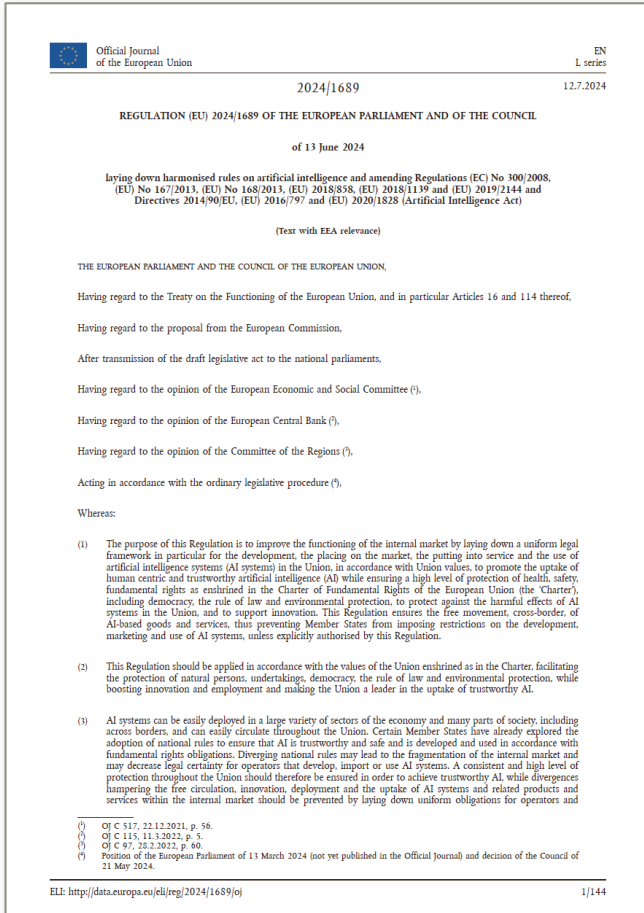
Unacceptable risk - prohibited

High-risk - regulated

Limited risk - transparency and awareness obligations

Minimal risk - unregulated

General-purpose AI - added later



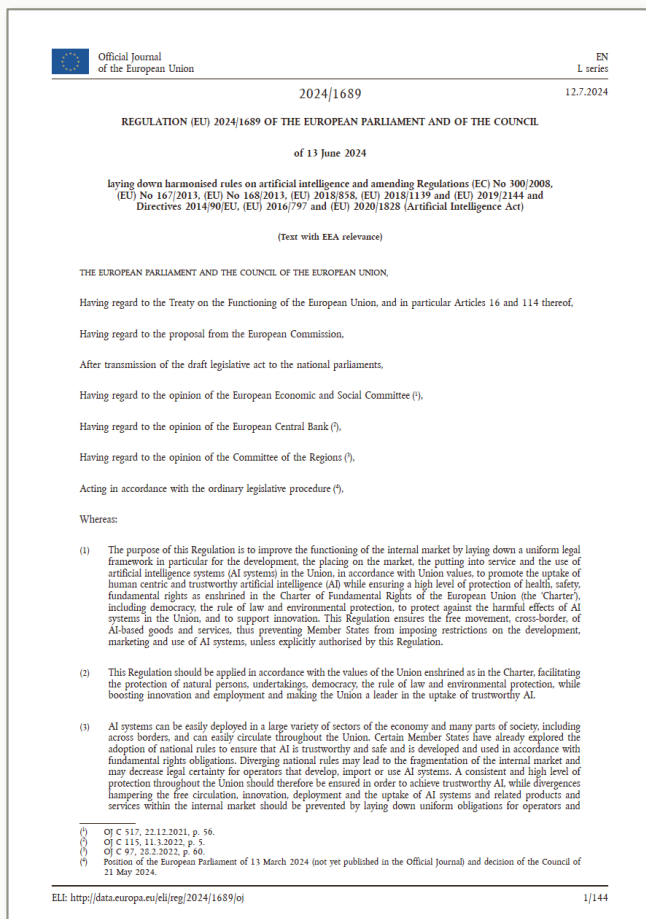
<http://data.europa.eu/eli/reg/2024/1689/oj>



AI Act

Education in AI Act:

- Recitals 4, 48, 44, 56 & 96
- Articles 4 (AI literacy), 5 (Prohibited) & 9 (High-risk)
- Annex III (High-risk)



<http://data.europa.eu/eli/reg/2024/1689/oj>



Framework Convention

CoE Treaty no. 225 (5th September 2024)

- Human dignity & individual autonomy
- Transparency and oversight
- Accountability and responsibility
- Equality and non-discrimination
- Privacy and personal data protection
- Reliability
- Safe innovation



Council of Europe Treaty Series - No. 225

Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law

Vilnius, 5 IX 2024

Preamble

The member States of the Council of Europe and the other signatories hereto,

Considering that the aim of the Council of Europe is to achieve greater unity between its members, based in particular on the respect for human rights, democracy and the rule of law;

Recognising the value of fostering co-operation between the Parties to this Convention and of extending such co-operation to other States that share the same values;

Conscious of the accelerating developments in science and technology and the profound changes brought about through activities within the lifecycle of artificial intelligence systems, which have the potential to promote human prosperity as well as individual and societal well-being, sustainable development, gender equality and the empowerment of all women and girls, as well as other important goals and interests, by enhancing progress and innovation;

Recognising that activities within the lifecycle of artificial intelligence systems may offer unprecedented opportunities to protect and promote human rights, democracy and the rule of law;

Concerned that certain activities within the lifecycle of artificial intelligence systems may undermine human dignity and individual autonomy, human rights, democracy and the rule of law;

Concerned about the risks of discrimination in digital contexts, particularly those involving artificial intelligence systems, and their potential effect of creating or aggravating inequalities, including those experienced by women and individuals in vulnerable situations, regarding the enjoyment of their human rights and their full, equal and effective participation in economic, social, cultural and political affairs;

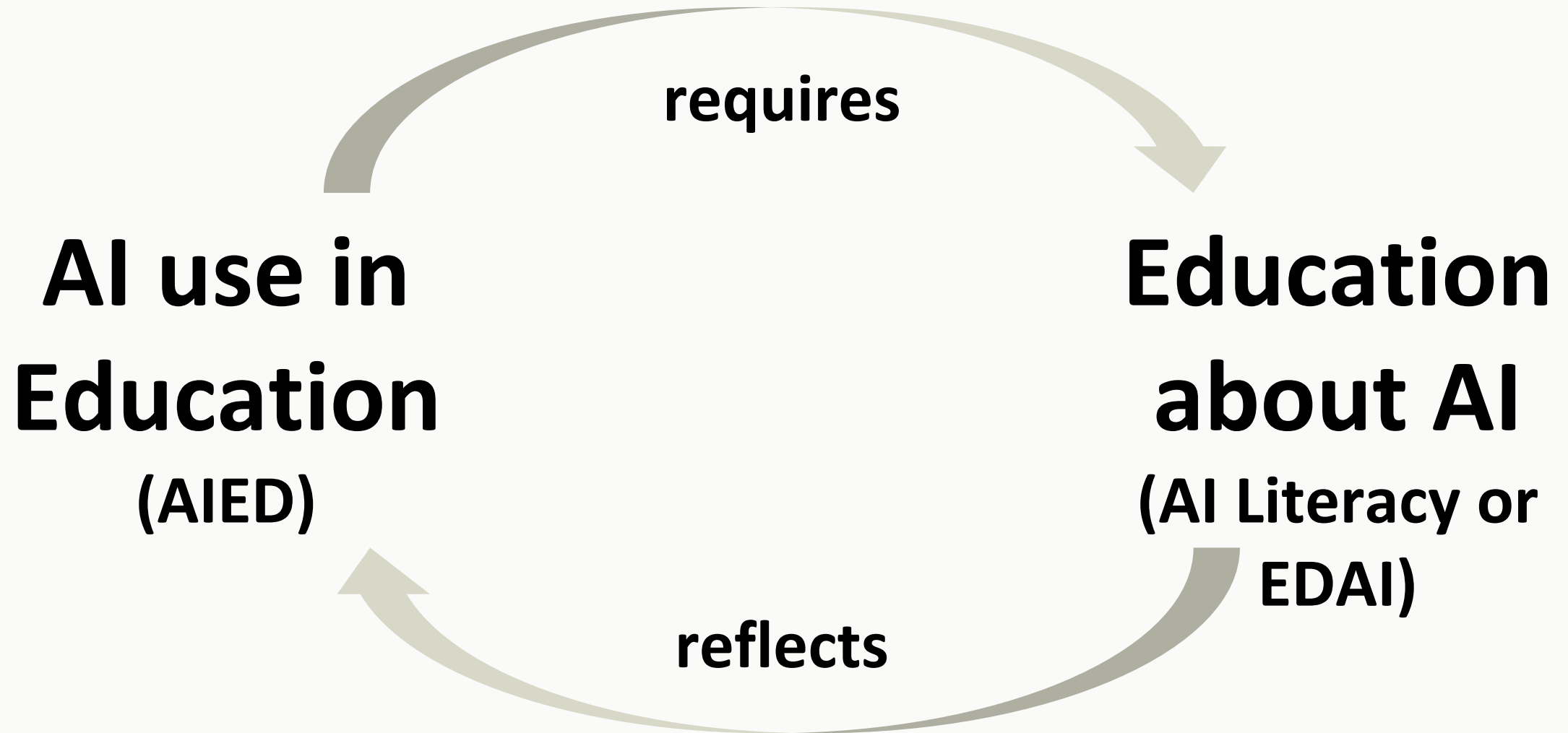
Concerned by the misuse of artificial intelligence systems and opposing the use of such systems for repressive purposes in violation of international human rights law, including through arbitrary or unlawful surveillance and censorship practices that erode privacy and individual autonomy;

Conscious of the fact that human rights, democracy and the rule of law are inherently interwoven;

<https://rm.coe.int/1680afae3c>

AI and Education (AI&ED)

AI&ED = AIED + AI Literacy



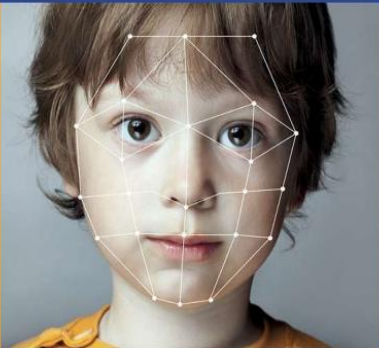
AI&ED Expert Group by CoE



<https://opening-up.education/artificial-intelligence-and-education>

ARTIFICIAL INTELLIGENCE AND EDUCATION

A critical view through the lens of human
rights, democracy and the rule of law



Artificial Intelligence and Education. A critical view through the lens of human rights, democracy and the rule of law.

Available at:

<https://tinyurl.com/CoE-AI-ED-1>



26th session of the Council of Europe Standing Conference of Ministers of Education held on September 28 and 29, 2023, in Strasbourg, France

Draft Resolution 3 on harnessing the potential of digital transformation in and through education

We, Ministers responsible for Education, meeting in Strasbourg, France, for the 26th Session of the Council of Europe Standing Conference on 28-29 September 2023:

8. **WELCOME** the development of (i) a legally-binding instrument* on the use of Artificial Intelligence systems in education to protect and promote human rights, democracy and the rule of law;
9. **Also WELCOME** the development of (ii) a recommendation to ensure that teaching and learning about AI incorporates the impact of AI on human rights, democracy and the rule of law and prioritises the active participation and agency of teachers and learners;

Protection of Individuals with regard to Automatic Processing of Personal Data (ETS No. 108), other relevant international and European conventions;

- c. the Recommendation CM/Rec(2019)10 of the Committee of Ministers to member States on developing and promoting digital citizenship education, Recommendation

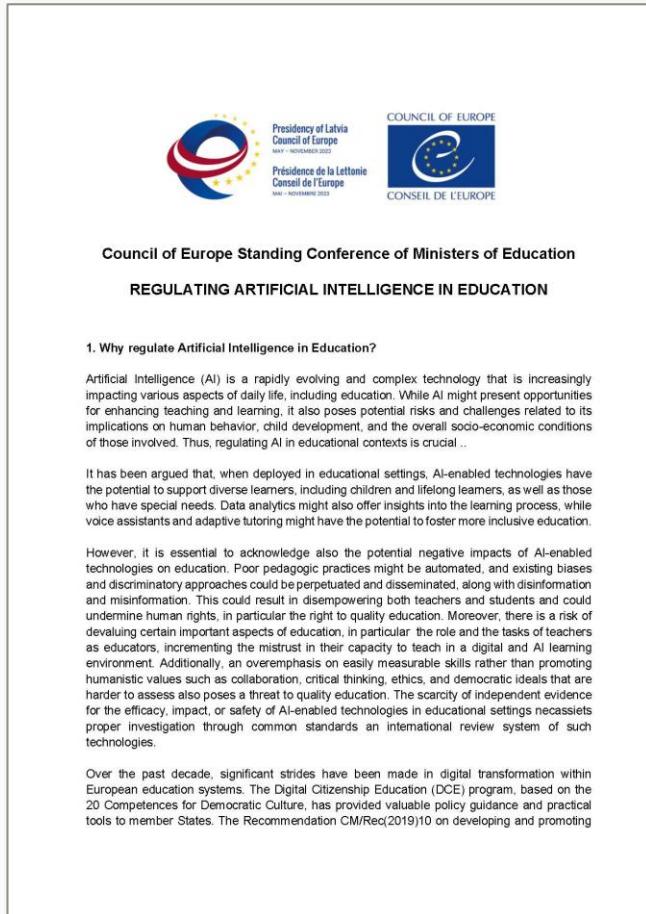
AI&ED Expert Group by CoE

Mandate by Ministries of Education:

1. International legal instrument as European law for AIED

2. Recommendation for AI Literacy

<https://opening-up.education/artificial-intelligence-and-education>





Artificial Intelligence and Education

A view through the lens of human rights, democracy and the rule of law. Legal and organizational requirements.

An AIED 2023 workshop

Irene-Angelica Chounta, Vania Dimitrova, Christian M. Stracke, Beth Havinga

TUT-03 "Ethical AI and Education" Artificial Intelligence & Education: International Regulation for the Human Rights

Meet the Organizers



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University of Bonn,
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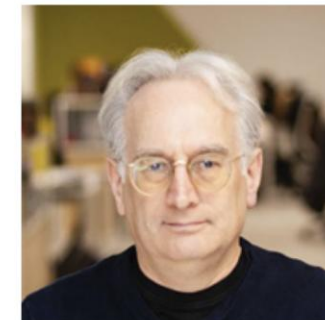
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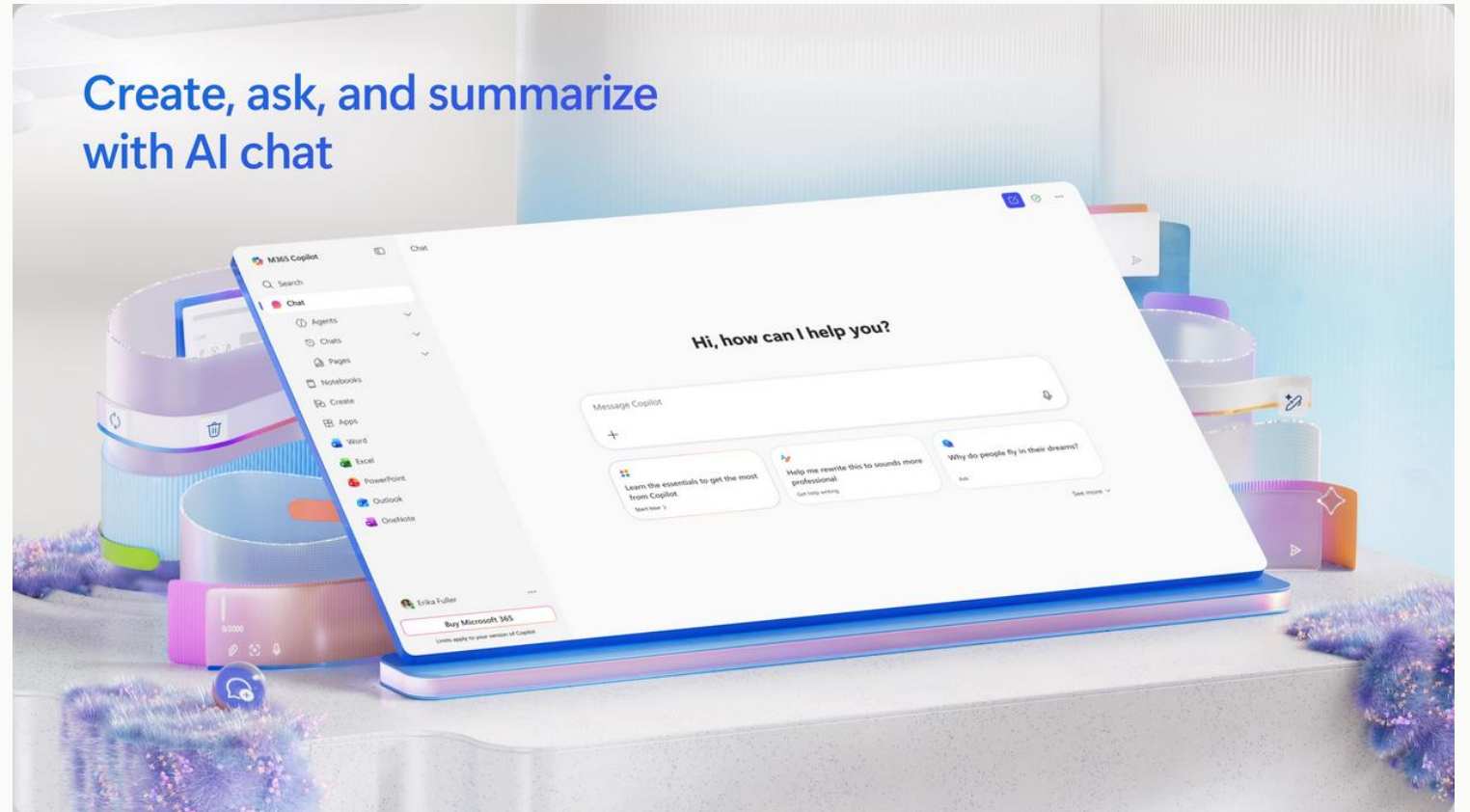
Wayne Holmes
University College
London, UK

<https://doi.org/10.5281/zenodo.12744447>

Workshop at AIED 2024 in Recife, Brazil

<http://aied2024.learning-innovations.eu>

And the AI Future?



<https://tenor.com/de/view/ai-bot-chatgpt-artificial-chat-gpt-gif-282704938762721238> - <https://apps.microsoft.com/detail/9wzdncrd29v9?hl=en-US&gl=US>

Central Hypotheses



1. Artificial Intelligence changes more than COVID-19 and any other digital tools



2. Artificial Intelligence has to be globally regulated: in particular in education



3. AI and Education have to focus stronger ethics, democracy and our whole society

<https://opening-up.education/artificial-intelligence-and-education>



Open Education

Workshop Overview

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90 min.

80 min.

30 min.

25 min.

<http://aied2025.learning-innovations.eu>

Session 1: Intro & Scene Setting

Q1. Which regulations of AI and education do you know?

Q2. Which guidelines for AI and education have you to follow?

Session 2: World Café

Procedure at the tables:

- 1. Reading** the open question and clarifying it
- 2. Collecting** contributions (= answers) on the question as post-it at a flipchart or on a notebook
- 3. Sorting** of all collected contributions in open discussion and clustering them

Document your results & send them to stracke@uni-bonn.de

Session 3: Plenary

Presenting the sorted and clustered contributions

Discussing and **reflecting** them

Session 4: Closing

Collecting & documenting participants' input for the future work of the Council of Europe and its AI&ED Expert Group

Envisioning & defining next steps, directions and activities

Concluding with a wrap up

AI and Education

Interested? Contact me!



Dr. Christian M. Stracke
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stracke@uni-bonn.de

www.hrz.uni-bonn.de
www.opening-up.education





References

- Stracke, C. M., Griffiths, D., Pappa, D., Bećirović, S., Polz, E., Perla, L., ... , & Hollins, P. (2025). Analysis of Artificial Intelligence Policies for Higher Education in Europe. *International Journal of Interactive Multimedia and Artificial Intelligence*, 9(2), 124-137.
<https://doi.org/10.9781/ijimai.2025.02.011> [Open Access]
- Xiao, J., Bozkurt, A., Nichols, M., Pazurek, A., Stracke, C. M., Bai, J. Y. H., ..., & Themeli, C. (2025). Venturing into the Unknown: Critical Insights into Grey Areas and Pioneering Future Directions in Educational Generative AI Research. *TechTrends* (2025).
<https://doi.org/10.1007/s11528-025-01060-6> [Open Access]
- Bozkurt, A., Xiao, J., Farrow, R., Bai, J.Y.H., Nerantzi, C., Moore, S., Dron, J., Stracke, C.M., ... , & Asino, T.I. (2024). The Manifesto for Teaching and Learning in a Time of Generative AI: A Critical Collective Stance to Better Navigate the Future. *Open Praxis*, 16(4), 487–513.
<https://openpraxis.org/articles/10.55982/openpraxis.16.4.777> [ESCI, Open Access]



References

Stracke, C. M. (2024). Artificial Intelligence and Education: Ethical questions and guidelines for their relations based on human rights, democracy and the rule of law. In D. Burgos et al. (Eds.), *Radical Solutions for Artificial Intelligence and Digital Transformation in Education* (pp. 97-107).

https://doi.org/10.1007/978-981-97-8638-1_7 [Open Access]

Burgos, D., Branch, J. W., Tlili, A., Stracke, C. M., & de la Higuera, C. (2024). Artificial Intelligence, Digital Transformation, and Education as a Combined Contribution to Society. In D. Burgos et al. (Eds.), *Radical Solutions for Artificial Intelligence and Digital Transformation in Education* (pp. 3-13).

https://doi.org/10.1007/978-981-97-8638-1_1 [Open Access]

Burgos, D., Branch, J. W., Tlili, A., Huang, R., Jemni, M., Stracke, C. M., ... , & Berrada, K. (2024) (Eds.), *Radical Solutions for Artificial Intelligence and Digital Transformation in Education. Utilising Disruptive Technology for a Better Society*.

<https://doi.org/10.1007/978-981-97-8638-1> [Open Access]



References

- Stracke, C. M., Chounta, I.-A., & Holmes, W. (2024). Global trends in scientific debates on trustworthy and ethical Artificial Intelligence and education. In *Artificial Intelligence in Education. AIED 2024. Communications in Computer and Information Science*. <https://doi.org/10.5281/zenodo.11518072>
- Stracke, C. M. et al. (2024): *What is Artificial Intelligence (AI)? How can I use AI ethically at university?* Edited by the German Network "Ethische Nutzung von KI". <https://doi.org/10.5281/zenodo.10995669>
- Stracke, C. M., Chounta, I.-A., Holmes, W., Tlili, A., & Bozkurt, A. (2023). A standardised PRISMA-based protocol for systematic reviews of the scientific literature on Artificial Intelligence and education (AI&ED). *Journal of Applied Learning and Teaching*, 6(2), 64-70. <https://doi.org/10.37074/jalt.2023.6.2.38>
- Huang, R., Tlili, A., Xu, L., Chen, Y., Zheng, L., Saleh Metwally, A. H., Da, T., Chang, T., Wang, H., Mason, J., Stracke, C. M., Sampson, D., & Bonk, C. J. (2023). Educational futures of intelligent synergies between humans, digital twins, avatars, and robots - the iSTAR framework. *Journal of Applied Learning & Teaching*, 6(2), 28-43. <https://doi.org/10.37074/jalt.2023.6.2.33>



References

Bozkurt, A., Xiao, J., Lambert, S., Pazurek, A., Crompton, H., Koseoglu, S., Farrow, R., Bond, M., Nerantzi, C., Honeychurch, S., Bali, M., Dron, J., Mir, K., Stewart, B., Costello, E., Mason, J., Stracke, C. M., ..., & Jandrić, P. (2023). Speculative Futures on ChatGPT and Generative Artificial Intelligence (AI): A Collective Reflection from the Educational Landscape. *Asian Journal of Distance Education*, 18(1), 53-130.

<https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/709/394>

Stracke, C. M., Bozkurt, A., McGreal, R., & Zawacki-Richter, O. (2022). Open Educational Resources and their global needs, benefits and practices: The call for a future research agenda. *IEEE Bulletin of the Technical Committee on Learning Technology*. <https://tc.computer.org/tclt/10-1109-proofread-2022-03007> [ESCI]

Tlili, A., Burgos, D., Stracke, C. M., Mason, J., Denden, M., Altinay, F., & Nascimbeni, F. (2022). Impact of personality on educator attitudes towards open educational resources. *Knowledge Management & E-Learning*, 14(4), 444–465. <https://doi.org/10.34105/j.kmel.2022.14.023> [SSCI, Open Access]



References

Stracke, C. M., Burgos, D., Santos-Hermosa, G., Bozkurt, A., Sharma, R. C., Swiatek, C., Inamorato dos Santos, A., Mason, J., Ossiannilsson, E., Shon, J. G., Wan, M., Agbu, J.-F., Farrow, R., Karakaya, Ö., Nerantzi, C., Ramírez Montoya, M. S., Conole, G., Cox, G., & Truong, V. (2022).

Responding to the initial challenge of COVID-19 pandemic: Analysis of international responses and impact in school and higher education.

Sustainability, 14(3), 1876. <https://doi.org/10.3390/su14031876> [SSCI, Open Access]

Awarded by the National Institute for Digital Learning (Ireland) as [Global Top 10 COVID-19 research in 2022!](#)

Stracke, C. M., Sharma, R. C., Bozkurt, A., Burgos, D., Swiatek, C., Inamorato dos Santos, A., Mason, J., Ossiannilsson, E., Santos-Hermosa, G., Shon, J. G., Wan, M., Agbu, J.-F., Farrow, R., Karakaya, Ö., Nerantzi, C., Ramírez Montoya, M. S., Conole, G., Cox, G., & Truong, V. (2022).

Impact of COVID-19 on formal education: An international review on practices and potentials of Open Education at a distance.

The International Review of Research in Open and Distributed Learning, 23(4), 1-18.

<https://doi.org/10.19173/irrodl.v23i4.6120> [SSCI, Open Access]



References

- Stracke, C. M., Sharma, R. C., Swiatek, C., Burgos, D., Bozkurt, A., Karakaya, Ö., Ossiannilsson, E., Mason, J., Nerantzi, C., Agbu, J.-F., Ramírez Montoya, M. S., Shon, J. G., Inamorato dos Santos, A., Farrow, R., Wan, M., Santos-Hermosa, G., & Conole, G. (2021). How COVID-19 has an impact on formal education: A collective international evaluation of open education in distance learning. *Proceedings of the 14th Annual International Conference of Education, Research and Innovation (ICERI)* (pp. 4270-4275). <https://doi.org/10.5281/zenodo.5764585>
- Truong, V., Denison, T., & Stracke, C. M. (2021). Developing institutional Open Educational Resource repositories in Vietnam: Opportunities and challenges. *The International Review of Research in Open and Distributed Learning*, 22(4), 109-124. <https://doi.org/10.19173/irrodl.v23i1.5582> [SSCI, Open Access]
- Stracke, C. M., & Skuballa, I. (2021). Using, analysing and evaluating eye-tracking at different educational levels: Towards an evaluation framework for impact assessment. *TEM JOURNAL - Technology, Education, Management, Informatics*, 10(2), 483-487. <https://doi.org/10.18421/TEM102-01> [ESCI, Open Access]



References

- Stracke, C. M., & Trisolini, G. (2021). A Systematic Literature Review on the Quality of MOOCs. *Sustainability*, 13(11), 5817. <https://doi.org/10.3390/su13115817> [SSCI, Open Access]
- Holubinka, K., Stracke, C. M., Forsman, P., & Juutinen, S. (2021). Virtual Internationalization in Higher Education: Design Reflections and Lessons Learned. *Zeitschrift für Hochschulentwicklung (ZfHE)*, 16(2), 43-56. <https://doi.org/10.3217/zfhe-16-02/03> [Open Access]
- Stracke, C. M., van Dijk, G., Fasen, J., Lisdat, F., & Simoens, W. (2020). A Holistic Pedagogical Model for STEM learning and education inside and outside the classroom. In P. Zaphiris & A. Ioannou (Eds.): *Learning and Collaboration Technologies. Designing, Developing and Deploying Learning Experiences. LCT 2020, Part I, HCII 2020, LNCS 12205* (pp. 568–581). https://doi.org/10.1007/978-3-030-50513-4_41



References

Stracke, C. M. (2020). Open Science and Radical Solutions for Diversity, Equity and Quality in Research: A Literature Review of Different Research Schools, Philosophies and Frameworks and Their Potential Impact on Science and Education. In D. Burgos (Ed.), *Radical Solutions and Open Science. An Open Approach to Boost Higher Education. Lecture Notes in Educational Technology* (pp. 17-37). Springer: Singapore. https://doi.org/10.1007/978-981-15-4276-3_2 [Open Access]

Stracke, C. M., Downes, S., Conole, G., Burgos, D., & Nascimbeni, F. (2019). Are MOOCs Open Educational Resources? A literature review on history, definitions and typologies of OER and MOOCs. *Open Praxis*, 11(4), 331-341. <https://doi.org/10.5944/openpraxis.11.4.1010> [ESCI, Open Access]

Stracke, C. M. (2019). Quality Frameworks and Learning Design for Open Education. *The International Review of Research in Open and Distributed Learning*, 20(2), 180-203. <https://doi.org/10.19173/irrodl.v20i2.4213> [SSCI, Open Access]

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