

AI literacy in Swedish Teacher Education

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AI literacy for Primary
School Education –
A Co-design project
2023 - 2026



AI literacy for Swedish
Teacher Education -A
Participatory Design
Approach
2022 - 2025



AI literacy and didactics
in Teacher Education – A
development project
2024 - 2025



AI literacy and
Exploration – A Co-
design project
2024

NetX-team



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AI literacy

a set of competencies, which are influenced by context, culture, personal and professional values, and subject-specific elements and include both ethical and sustainable dimensions

(Dignum, 2019; Long & Magerko, 2020; Steinbauer et al., 2021).



DigComp 2.2

The Digital Competence Framework for Citizens

With new examples of knowledge, skills and attitudes

Riina Vuorikari
Stefano Kluzer
Yves Punie

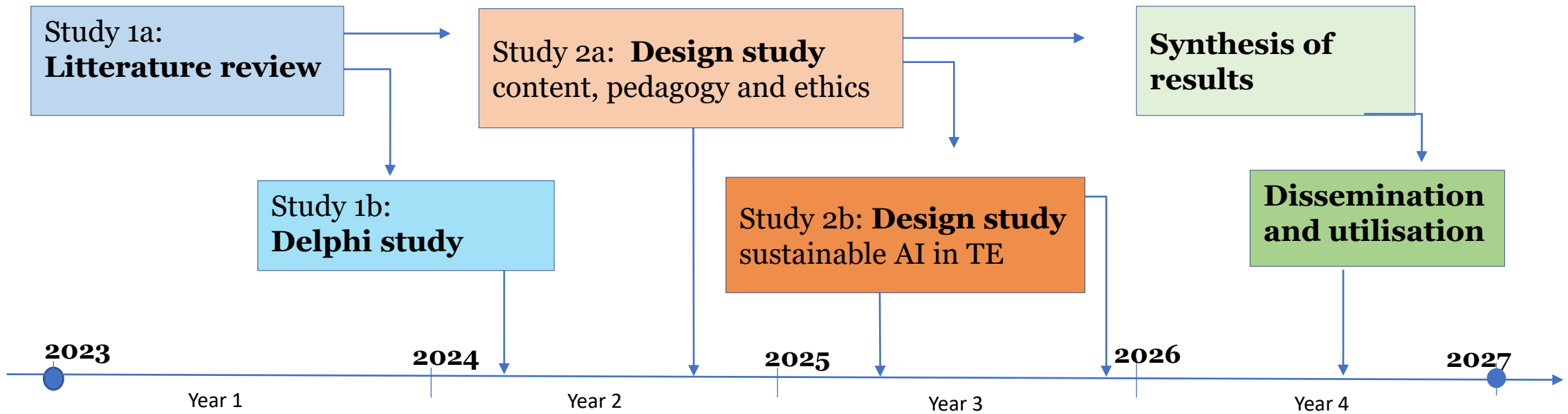
Aim

... to study AI literacy in the context of Swedish TE with a focus on teacher educators' professional development.

This entails establishing *evidence* and *good practice* in TE concerning content, pedagogy, technology and ethics for teaching sustainable AI literacy.



Two main studies



Scoping review

Search terms: ("AI literacy" OR "AI read*") AND (education OR learning) + (AI OR "Artificial intelligence") AND "teacher education"

Peer-reviewed papers between 2000-2023*, English

→ 34 articles



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In search of artificial intelligence (AI) literacy in teacher education: A scoping review

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ABSTRACT

Artificial intelligence (AI) literacy has recently emerged on the educational agenda raising expectations on teachers' and teacher educators' professional knowledge. This scoping review examines how the scientific literature conceptualises AI literacy in relation to teachers' different forms of professional knowledge relevant for Teacher Education (TE). The search strategy included papers and proceedings from 2000 to 2023 related to AI literacy and TE as well as the intersection of AI and teaching. Thirty-four papers were included in the analysis. The Aristotelian concepts *episteme* (theoretical-scientific knowledge), *techne* (practical-productive knowledge), and *phronesis* (professional judgement) were used as a lens to capture implicit and explicit dimensions of teachers' professional knowledge. Results indicate that AI literacy is a globally emerging research topic in education but almost absent in the context of TE. The literature covers many different topics and draws on different methodological approaches. Computer science and exploratory teaching approaches influence the type of epistemic, practical, and ethical knowledge. Currently, teachers' professional knowledge is not broadly addressed or captured in the research. Questions of ethics are predominantly addressed as a matter of understanding technical configurations of data-driven AI technologies. Teachers' practical knowledge tends to translate into the adoption of digital resources for teaching about AI or the integration of AI EdTech into teaching. By identifying several research gaps, particularly concerning teachers' practical and ethical knowledge, this paper adds to a more comprehensive understanding of AI literacy in teaching and can contribute to a more well-informed AI literacy education in TE as well as laying the ground for future research related to teachers' professional knowledge.

Introduction

Member states should invest in the level of literacy on AI with the general public through robust awareness raising, training, and education efforts, including (in particular) in schools. This should not be limited to education on the workings of AI, but also its potential impact – positive and negative – on human rights. (Council of Europe, Commissioner for Human Rights, 2019: 14)

AI literacy has recently emerged in a landscape rich with a variety of literacies [1,2], necessitated by the pervasive presence of AI in contemporary society. As exemplified by the introductory quote from the Council of Europe, AI literacy is driven by a democratic imperative

to enhance the knowledge of what AI is and its societal consequences, as well as by individuals lacking backgrounds in computer science, mathematics, or AI engineering. This imperative has become particularly directed toward compulsory education, putting teachers' professional knowledge at the centre of the AI literacy discourse. In parallel, the integration of AI based educational technologies into classrooms and universities raises pedagogical and ethical concerns, necessitating an understanding of how AI operates in educational contexts, both in theory and practice [3–5].

AI literacy is already being introduced in various national curricula [6–11], but initiatives to incorporate it into Teacher Education (TE) programmes remain scarce [12]. Given the growing presence of AI in the

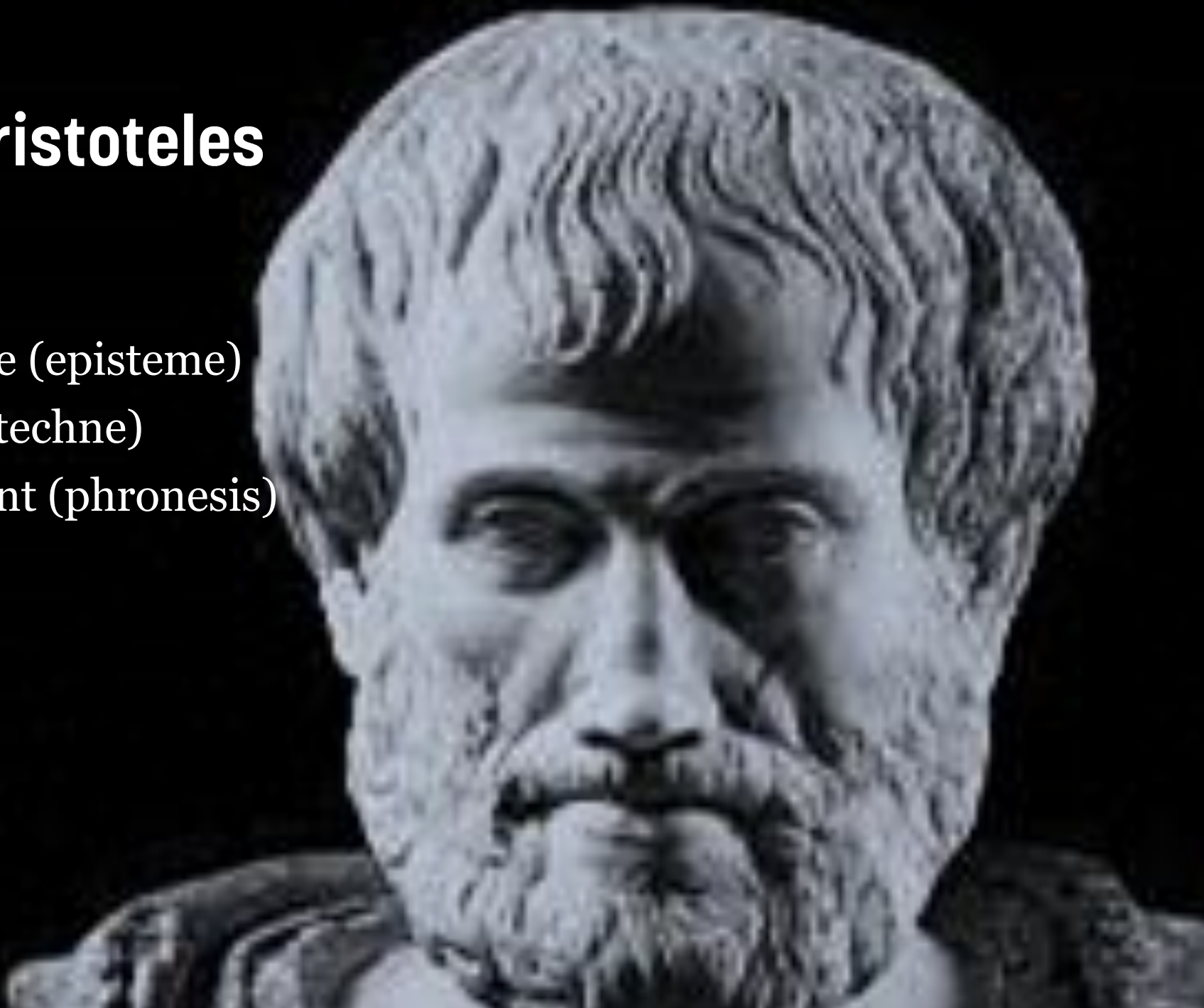
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Analytic lens: Aristoteles

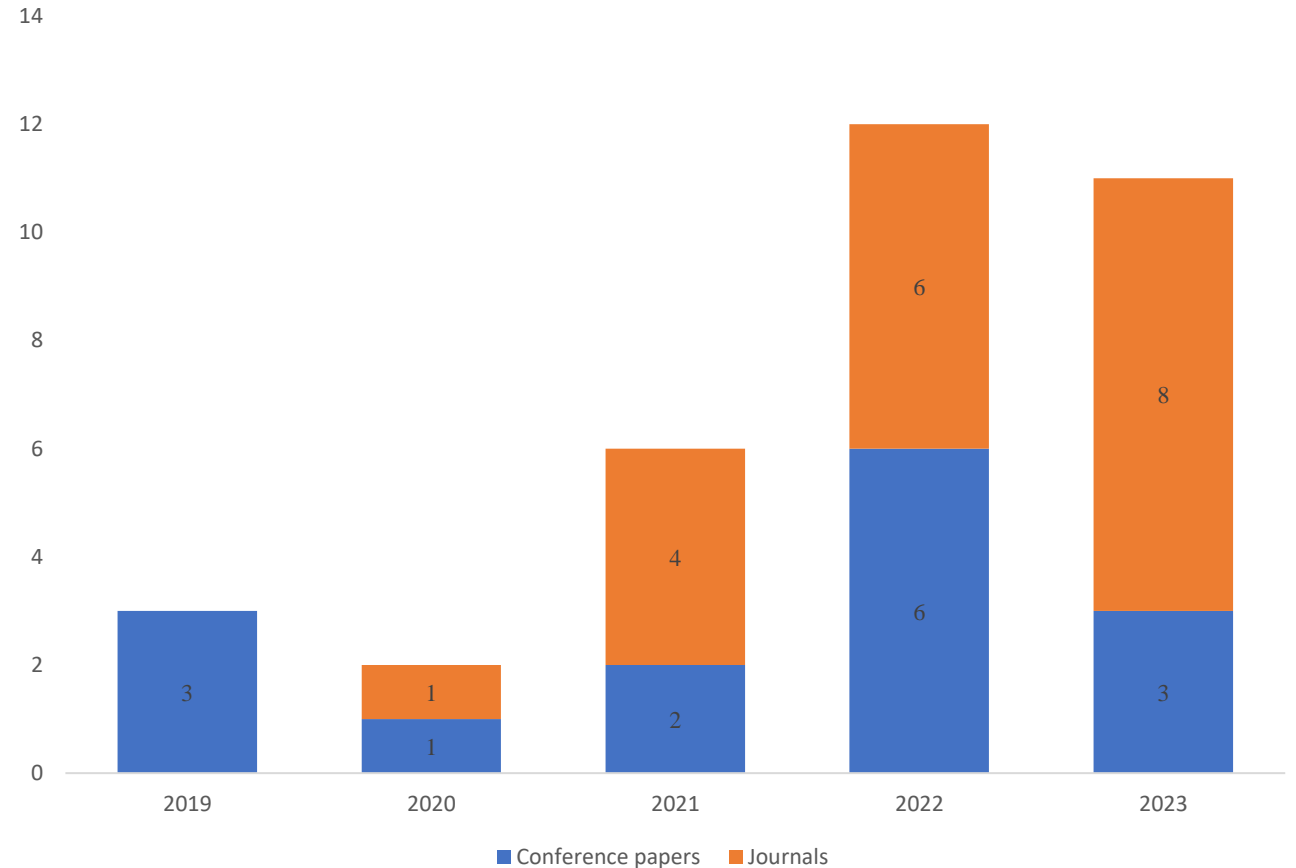
- Theoretical knowledge (episteme)
- Practical knowledge (techne)
- Professional judgement (phronesis)

(Kreber, 2015)

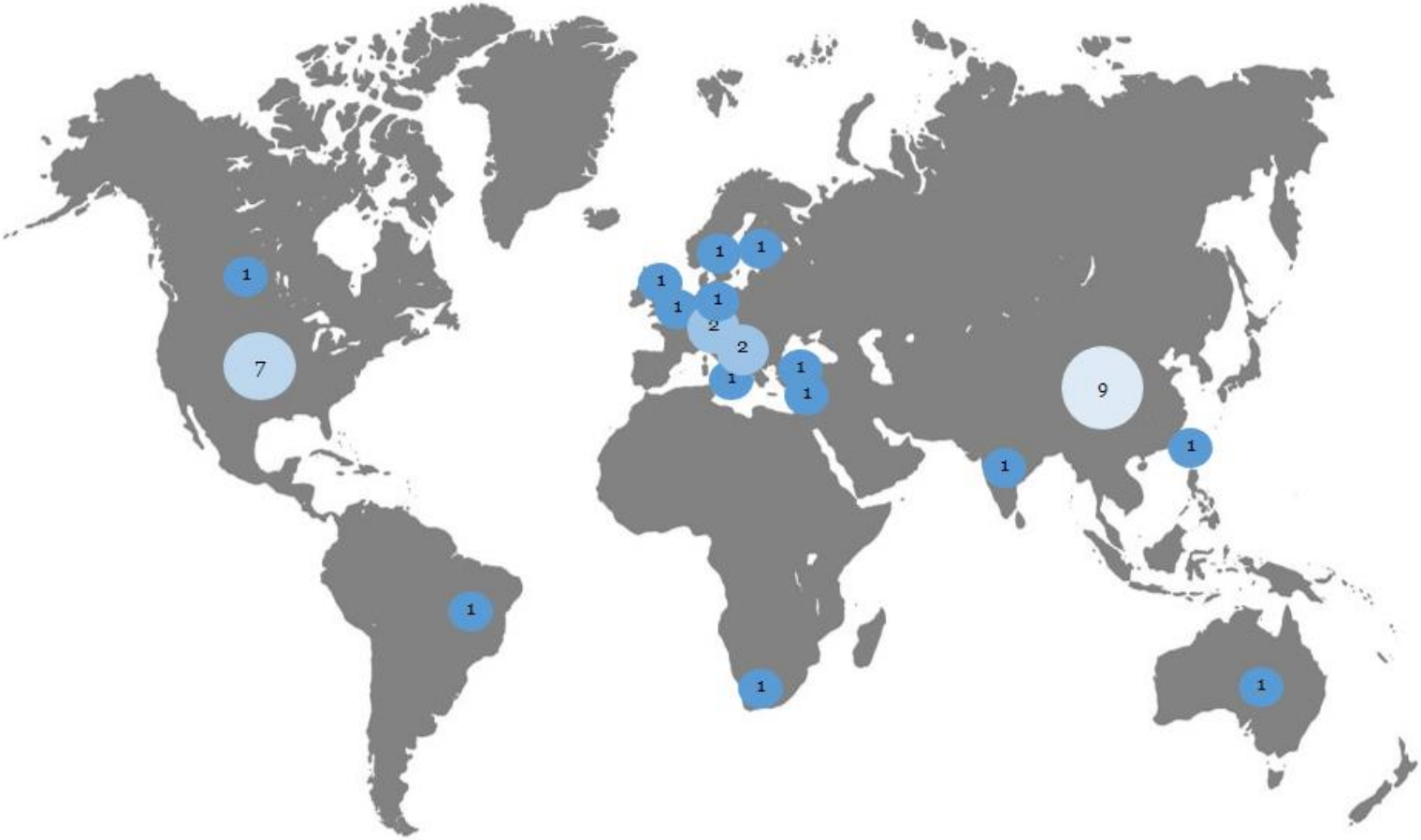


Current scope and nature of the literature

- Emerging field
- Increasingly robust studies
- Even distribution of qualitative, quantitative, and conceptual studies
- AI literacy is emerging as a research in many parts of the world



Geographical distribution





Professional development

Teachers' attitudes and (mis)conceptions

Curriculum development

AI Ethics

Topics

AI EdTech to teach with AI and about AI

AI literacy frameworks

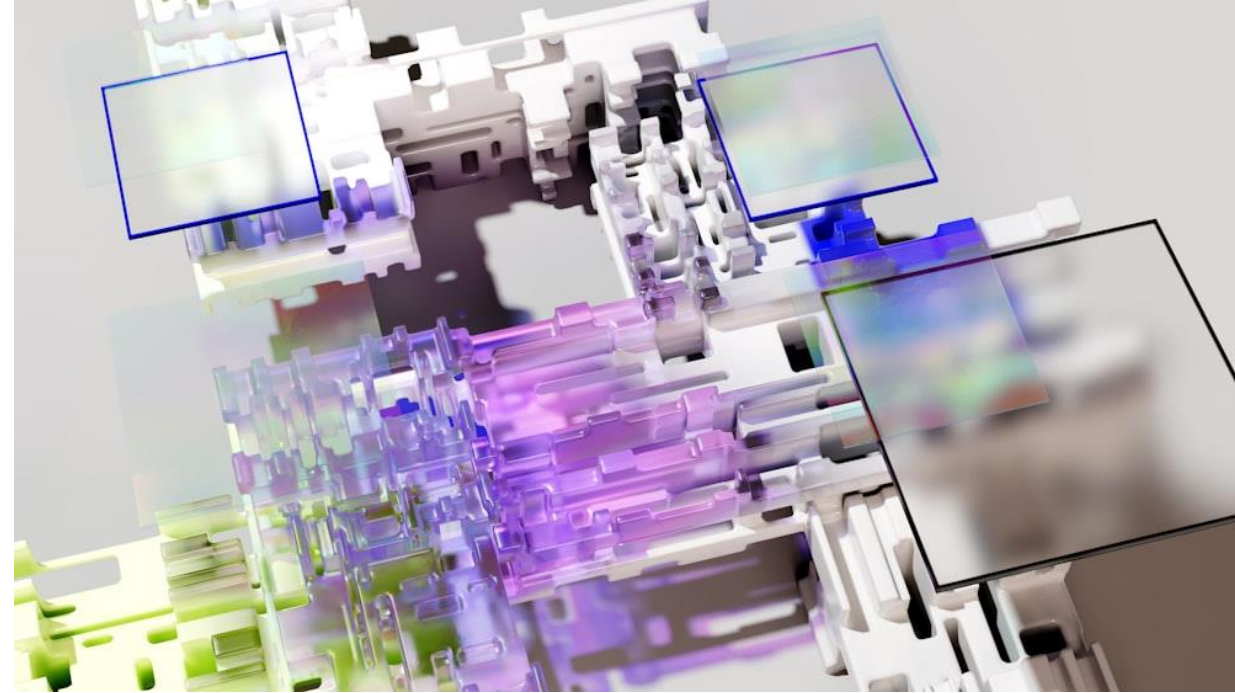
Teachers' professional knowledge

- *Episteme*: knowledge about statistics, machine learning, and data management
- *Techne*: the ability to use certain AI applications and prompt engineering
- *Phronesis* and the *ethics of AI* is the least explored dimension, partly due to a methodological



Some tentative conclusions

- Ethics =theoretical rather than a practical situated knowledge
- TE absent in literature
- Lack of classroom studies
- A literacy not yet rooted in the educational sciences
- Many implicit assumption about teachers' theoretical, practical and ethical knowledge
- Focus on developing digital tools to teach AI and implementing AI EdTech in teaching practice



Rose Pilkington, Visualising AI, Google DeepMind

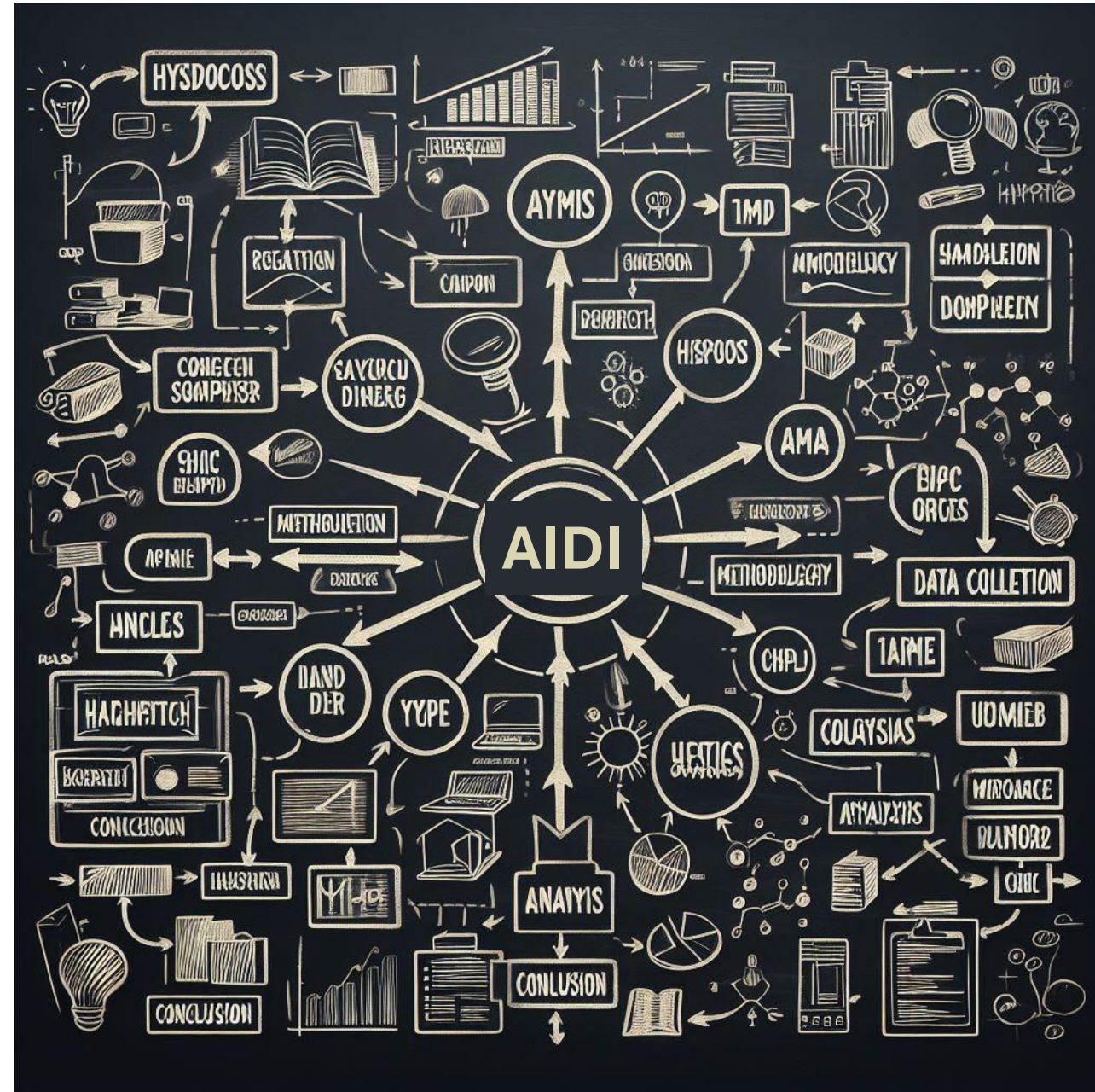


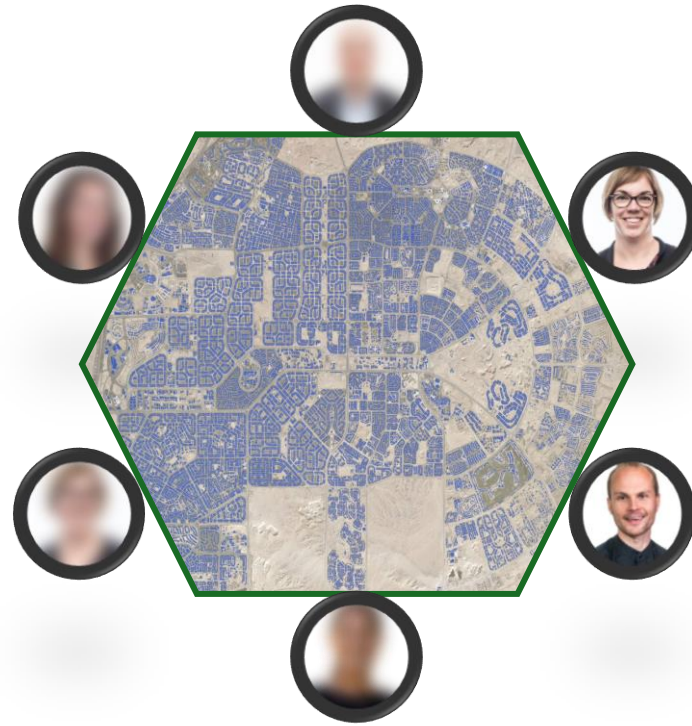
NetX step:

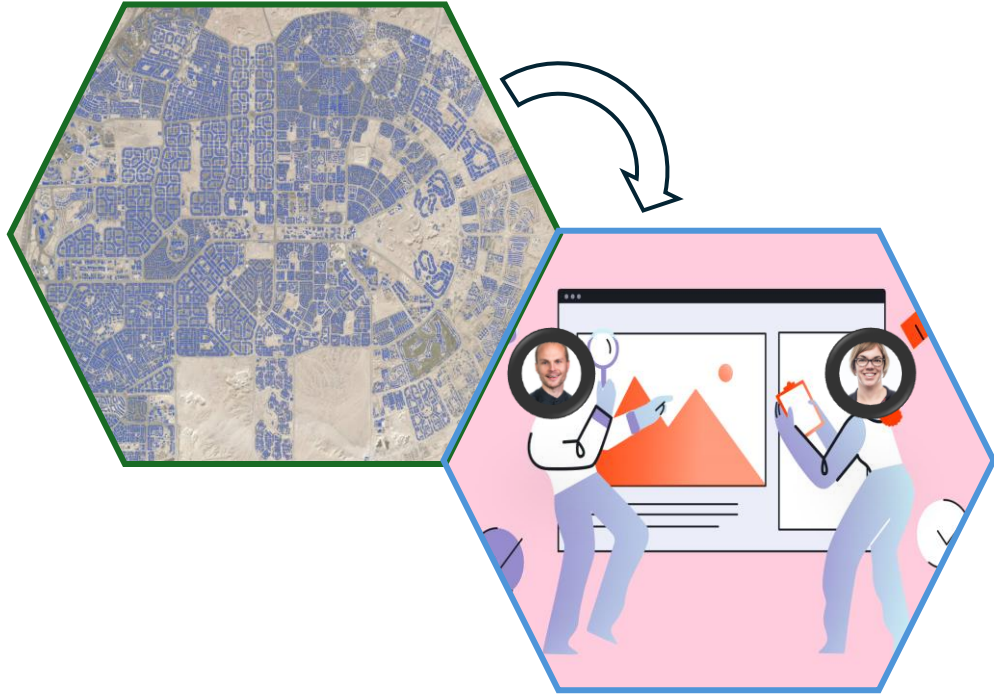
- Delphi study
- Design study



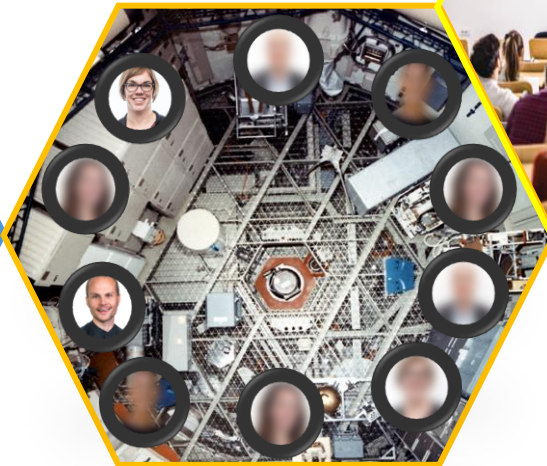
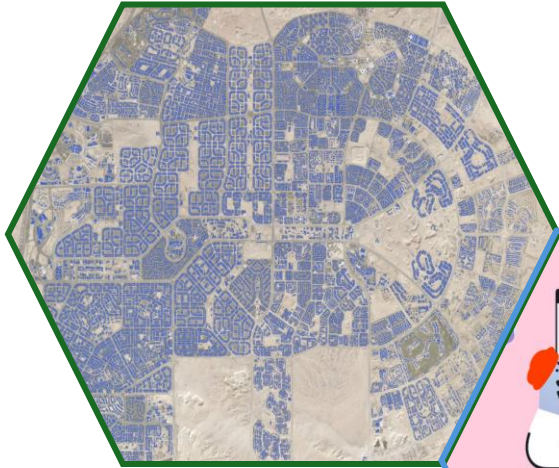
- AI literacy in LiU TE
- Align AI with TE-courses
- Ethical and sustainable AI-didactics

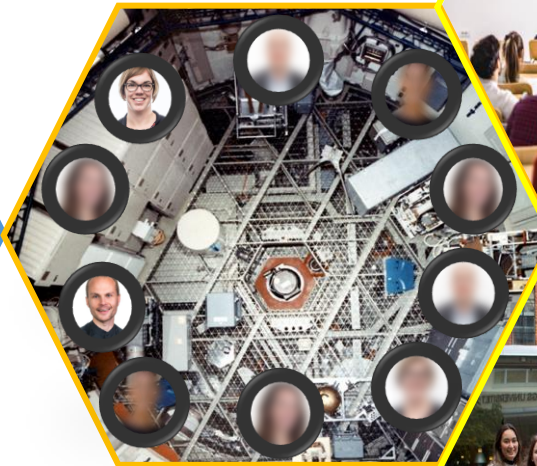


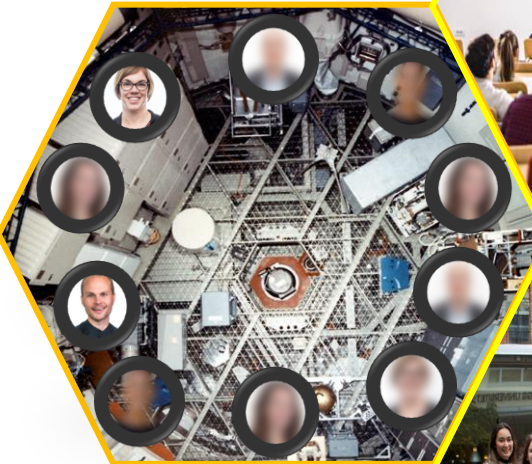
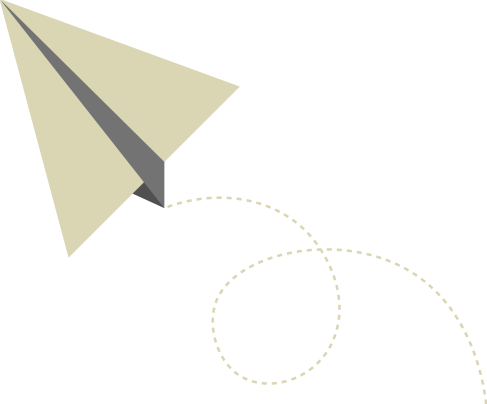












Some challenges

Time

Discussions
with head of
divisions

Support on
all levels

Ownership and agency

Workshops

Decisions

Knowledge

Learning
culture

Resources

Implications for professional programs?

- How is continued professional development in relation to AI discussed within your context?
- Is AI literacy different from other types of digital competences, such as data and information literacy? If so, how?
- What knowledge, skills, professional and ethical judgement do students, educators and employees need to navigate an AI landscape?
- How can continued professional development targeting AI be designed in the organisation?

Referenser

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Tack för uppmärksamheten!