

Exploring the use of generative AI in education: Broadening the scope

Irfan Jahic, Martin Ebner, Sandra Schön, Sarah Edelsbrunner (TU Graz)

HCII Conference, July 1, 2024

Full paper available in proceedings:

Jahić, I., Ebner, M., Schön, S., Edelsbrunner, S. (2024). Exploring the Use of Generative AI in Education: Broadening the Scope. In: Zaphiris, P., Ioannou, A. (eds) Learning and Collaboration Technologies. HCII 2024. Lecture Notes in Computer Science, vol 14724. Springer, Cham.
https://doi.org/10.1007/978-3-031-61691-4_19

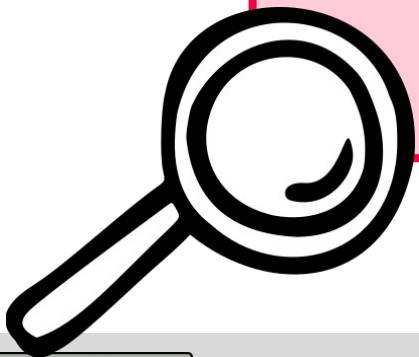
The content of these slides is licensed under [CC BY 4.0 International](#) TU
Graz Educational Technology
Drawings CC0 by cocomaterial.com

Generative AI in education

= Artificial intelligence creating original content based on prompts

How does generative AI affect teaching and learning in schools and higher education in individual subjects?

How does the community perceive the usage of generative AI in education?



Scope

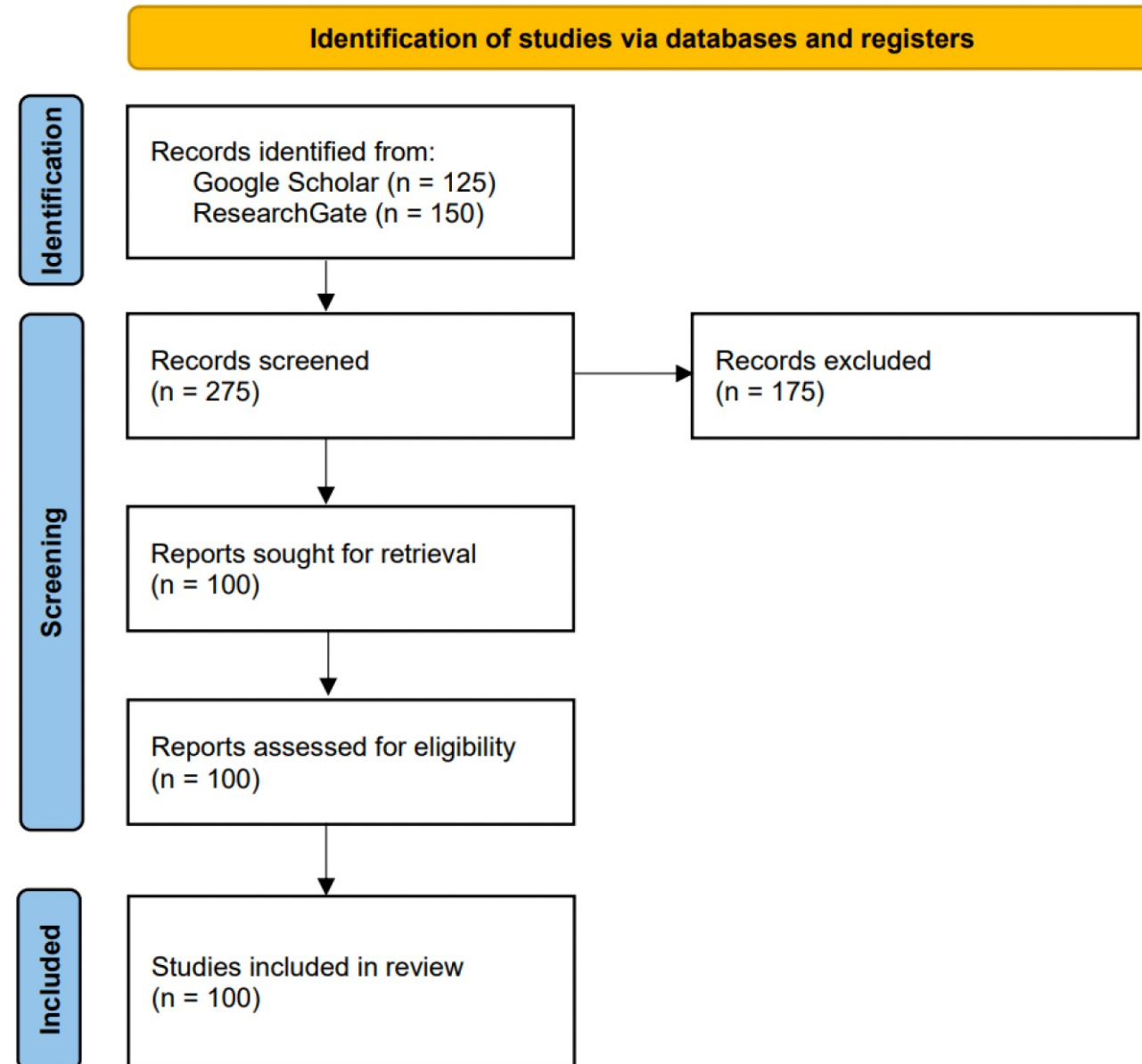
- What is AI used for
- Subjects where AI is used
- Educational level where AI is used
- Type of research
- Perceived impact of AI

Focus on new (April 2023 and later) work, building on previous work (Jahic, Ebner, Schön 2023)

Literature Review: Search criteria

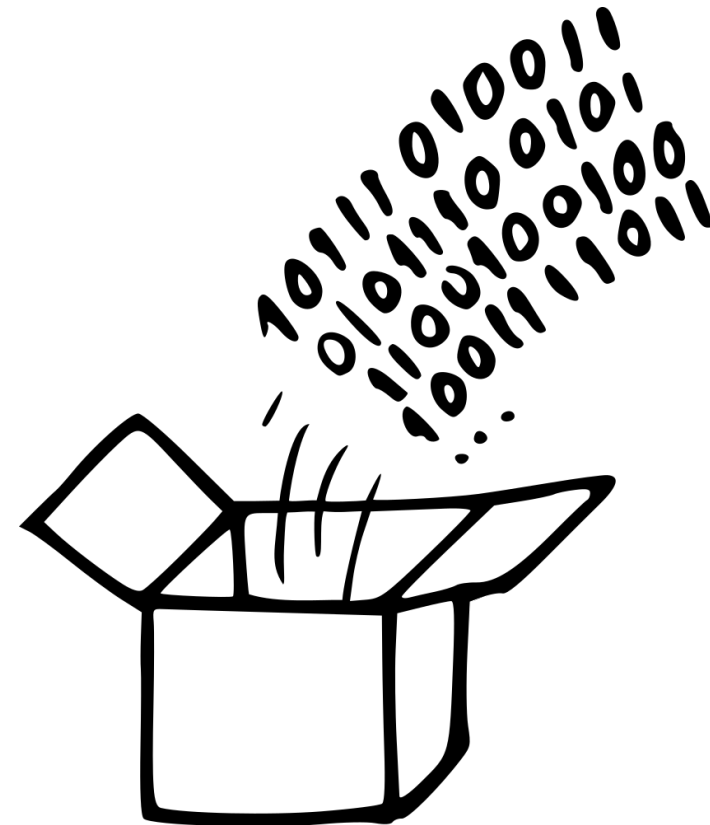
- Databases: Google Scholar, Researchgate
- Keywords: Generative AI in (subject) or (field of science)
- Period: April 2023 onwards
→ some older papers included for relevance
- Language: English

Literature Review



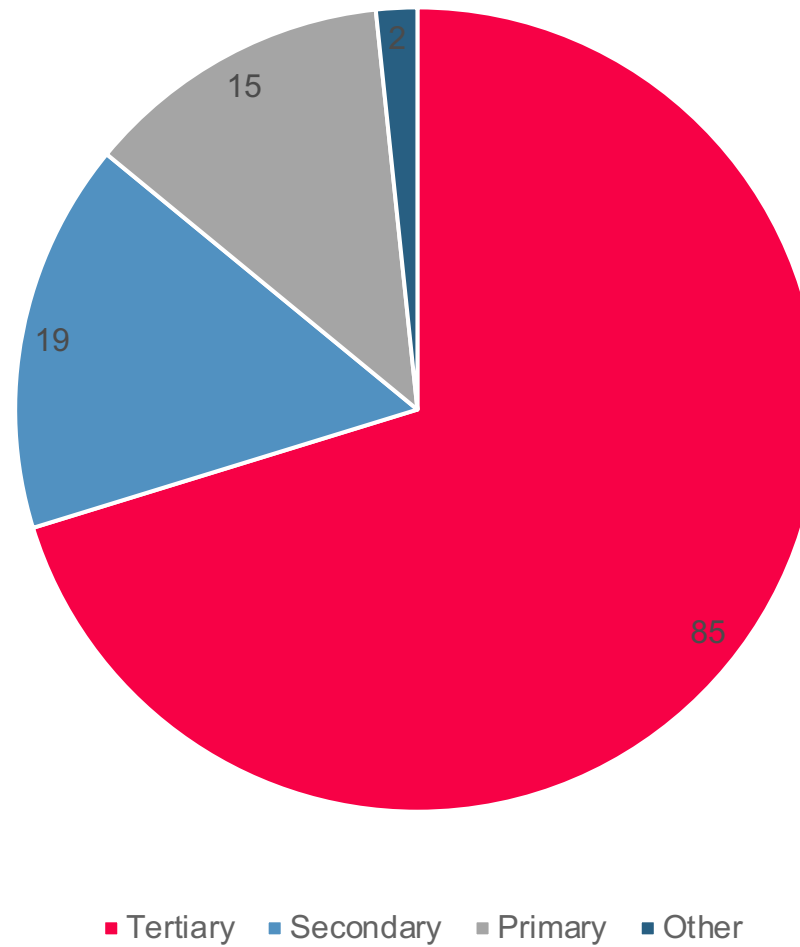
Data extraction and analysis

- Separate document for keeping track
 - Duplicates discarded
- Summary, categories:
 - educational level
 - perceived impact
 - Subject
 - type of study



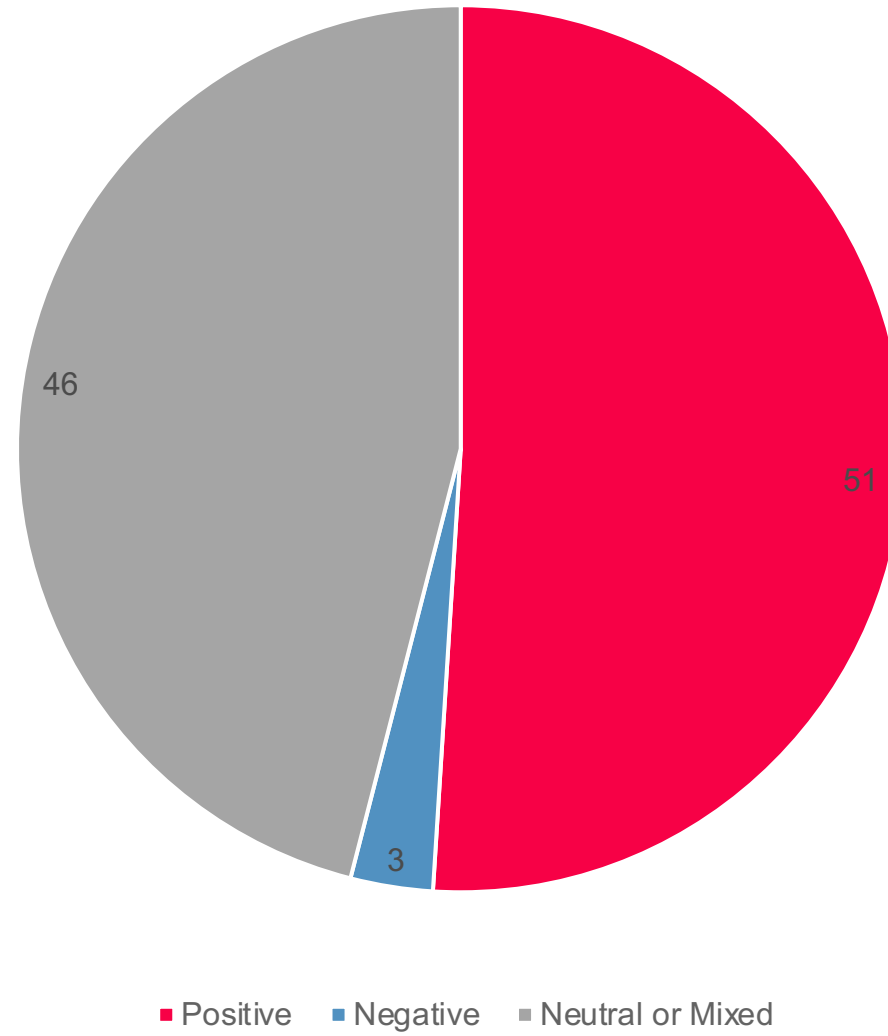
Results

Level of Education



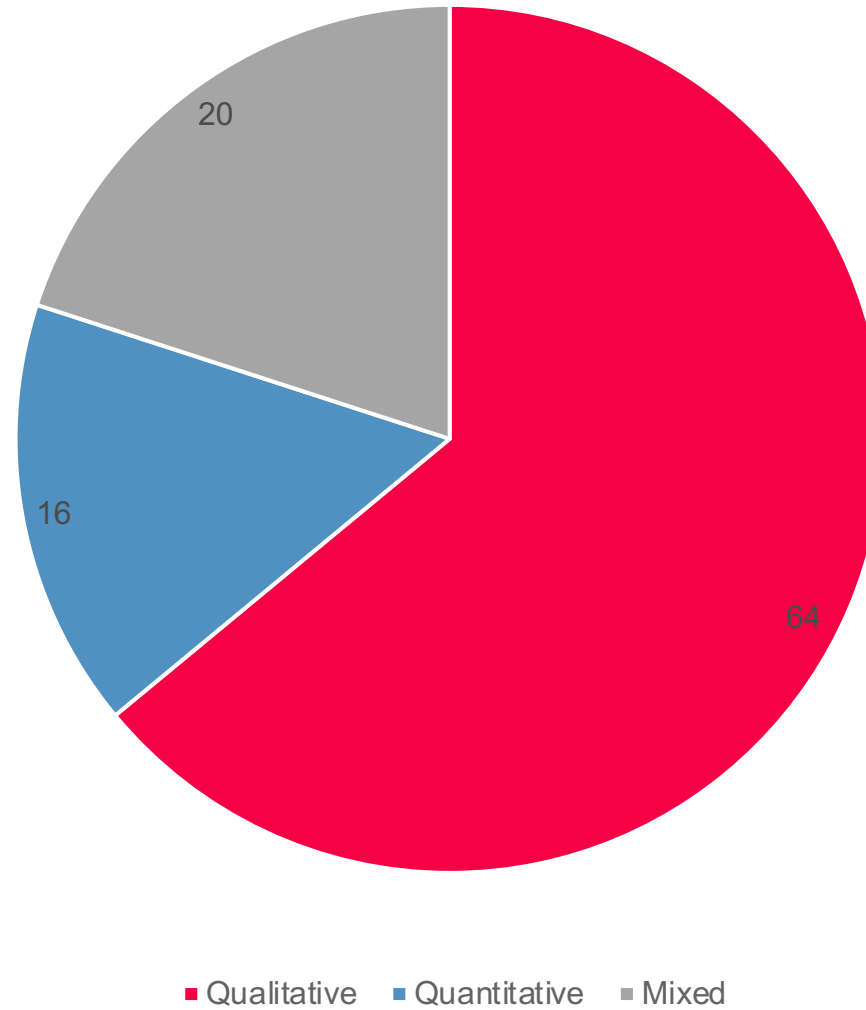
Results II

Perceived Impact



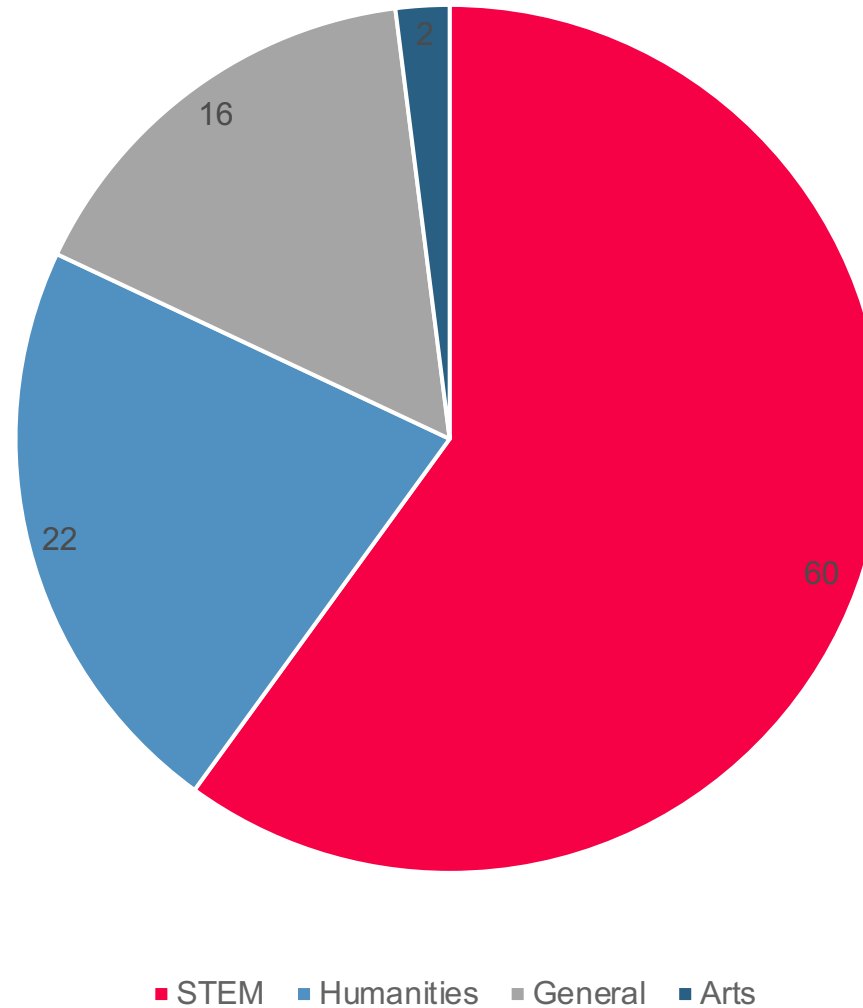
Results III

Type of Study



Results IV

Main Subject / Field of Science



Uses of Generative AI

Teaching:

- Lesson / curriculum planning
- Assessments
- Feedback
- Content creation
- Research assistance
- Administration

Learning:

- Tutoring
- Homework assistance – writing, grammar checks, research
- Specialised learning

Impacts of Generative AI

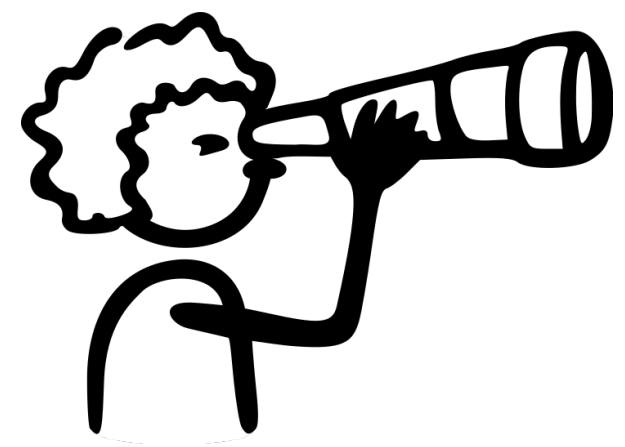
Positive:

- Easy content creation
- 24/7 availability of support
- More accessible (translates languages and levels)
- Customised responses

Negative:

- Over-standardisation
- Diminished student-teacher interaction
- Educational / digital divide
- Ethical concerns

Limitations and outlook

- Rapidly evolving field
 - Earlier papers excluded
- 
-
- Generative AI in Arts, Humanities and Social Sciences
 - Changes to traditional teaching paradigms?
 - Practical experiments to determine opportunities and limitations



Thank you!

HCII 2024, July 1, 2024

Presenter: Sarah Edelsbrunner

Contact: sarah.edelsbrunner@tugraz.at