



2023 GLOBAL ONLINE CONFERENCE | EMPOWERING LEARNERS FOR THE AGE OF AI

Insights from a meta review of AIEd research

A call for increased ethics, collaboration, and rigour

Tuesday 24th October, 9am (UK time), 7pm (South Australia)

Dr. Melissa Bond

University College London, University of Stavanger, National Institute of Teaching



Dr. Hassan Khosravi

The University of Queensland





Acknowledgement of Country

We would like to acknowledge the Traditional Custodians of the land on which this conference is being hosted, Kurna country, and pay our respects to Elders past, present and emerging.



We respectfully acknowledge the Kurna, Boandik and Barngarla First Nations Peoples and their Elders past and present, who are the First Nations' Traditional Owners of the lands that are now home to the University of South Australia's campuses in Adelaide, Mount Gambier and Whyalla. We are honoured to recognise our connection to the Kurna, the Boandik and the Barngarla lands, and their history, culture and spirituality through these locations. We also acknowledge the other First Nations of lands across Australia, their Elders, ancestors, cultures and heritage.



David R Horton (creator), © AIATSIS, 1996.

Panel objectives

- What kind of research is being conducted in AIEd?
- What can it tell us about the affordances and challenges of using AI in various educational contexts?
- What opportunities for future research have been identified?
- What considerations are needed when undertaking robust studies in AIEd?

Review Team



Dr. Melissa Bond



Dr. Nina Bergdahl



Prof. Maarten de Laat
Ms. Phuong Pham
Prof. George Siemens



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Dr. Hassan Khosravi

Dr. Violeta Negrea
Dr. Emily Oxley
Prof. Sin Wang Chong

Presence of AI has increased in teaching & learning and in the public discourse

TECHNOLOGY

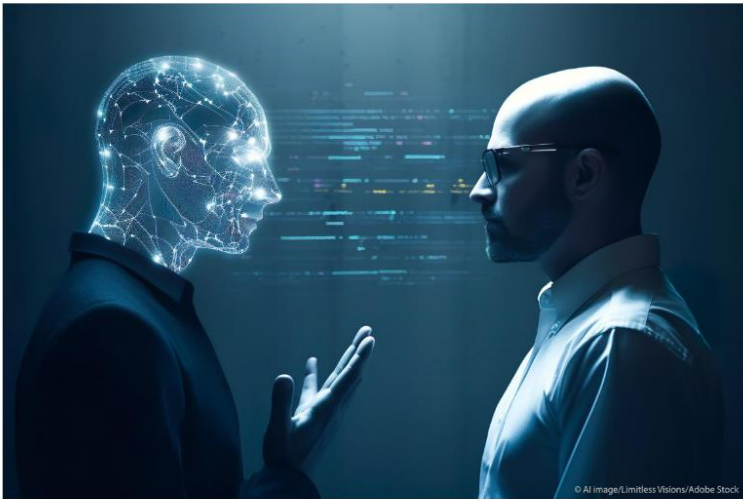
AI 'is clear and present danger to education'

School leaders announce joint response to tech

EU AI Act: first regulation on artificial intelligence

Society Updated: 14-06-2023 - 14:06
Created: 08-06-2023 - 11:40

The use of artificial intelligence in the EU will be regulated by the AI Act, the world's first comprehensive AI law. Find out how it will protect you.



This illustration of artificial intelligence has in fact been generated by AI

[Source: European Parliament](#)

[Source: The Times](#)

U.S. Department of Education Shares Insights and Recommendations for Artificial Intelligence

New policy report, part of Biden-Harris Administration's ongoing work to advance comprehensive approach to AI, summarizes the opportunities and risks for AI in teaching, learning, and assessment

MAY 24, 2023

Contact: Press Office, (202) 401-1576, press@ed.gov

Today, the U.S. Department of Education's Office of Educational Technology (OET) released a new report, "[Artificial Intelligence \(AI\) and the Future of Teaching and Learning: Insights and Recommendations](#)" that summarizes the opportunities and risks for AI in teaching, learning, research, and assessment based on public input. This report is part of the Biden-Harris Administration's ongoing effort to advance a cohesive and comprehensive approach to AI-related opportunities and risks.

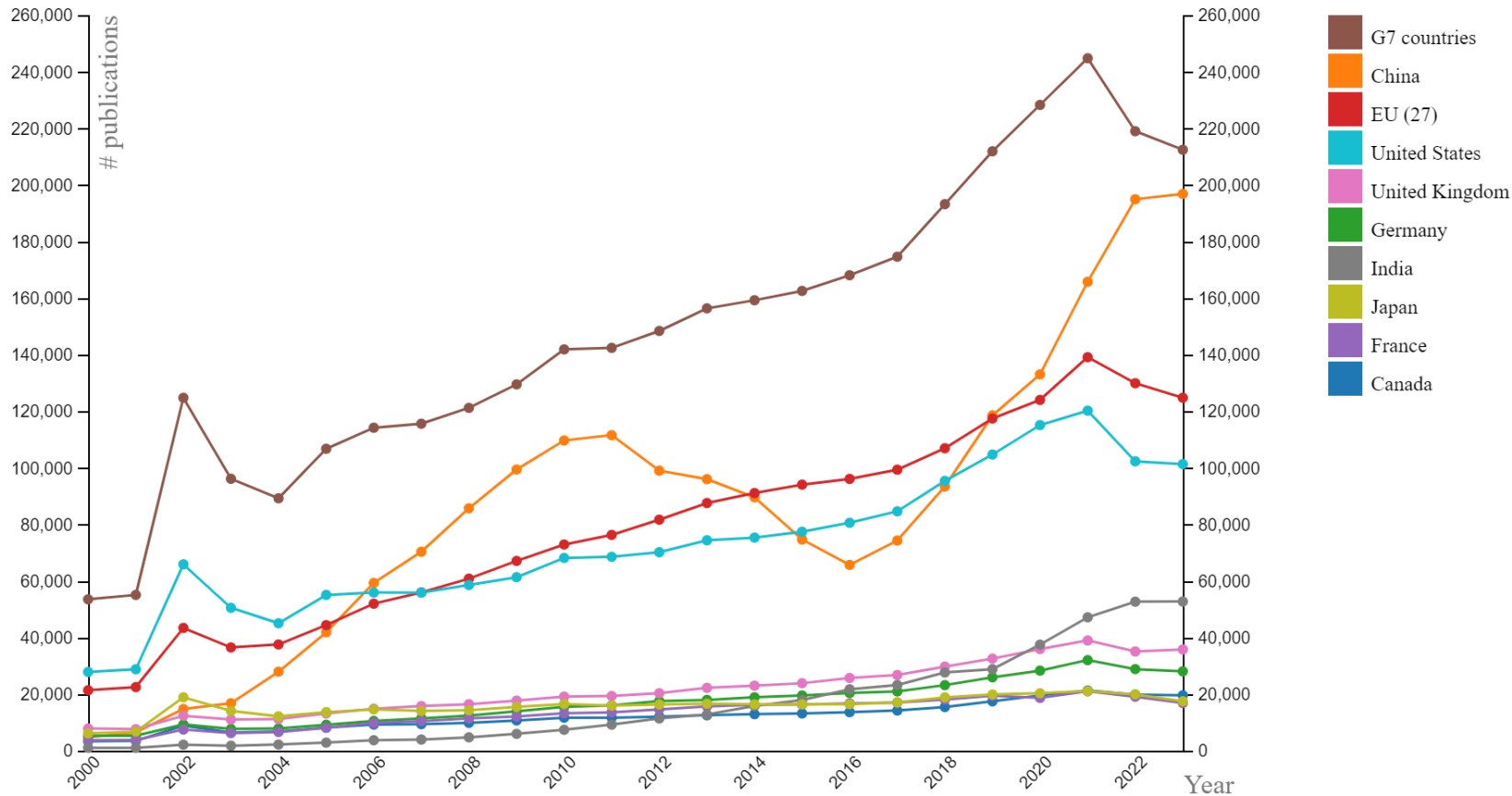
The new report addresses the clear need for sharing knowledge, engaging educators and communities, and refining technology plans and policies for AI use in education. It recognizes AI as a rapidly advancing set of technologies that can enable new forms of interaction between educators and students, help educators address variability in learning, increase feedback loops, and support educators. It also outlines risks associated with AI—including algorithmic bias—and the importance of trust, safety, and appropriate guardrails to protect educators and students. The report recommends that the Department continue working with states, institutions of higher education, school districts and other partners to collaborate on the following steps:

1. Emphasize Humans-in-the-Loop
2. Align AI Models to a Shared Vision for Education
3. Design AI Using Modern Learning Principles
4. Prioritize Strengthening Trust
5. Inform and Involve Educators
6. Focus R&D on Addressing Context and Enhancing Trust and Safety
7. Develop Education-specific Guidelines and Guardrails

[Source: U.S. Department of Education](#)

Interest in AI as a topic of research has also increased exponentially

AI publications by country



- Need for evidence syntheses to inform policy and practice
- Time & resource intensive
- DEST (esp. automation) have helped make stages of the review process more efficient


Source: OECD.AI (2023), visualisations powered by JSI using data from OpenAlex., accessed on 17/9/2023, www.oecd.ai

Priority screening learns from items already coded on title & abstract and presents the most likely includes first

Review home References Reports Search & Classify Collaborate

Screening Distribute Work Create reference groups Create new code Create coding assignment Create comparison Auto Comparison(s)

Close Edit all Settings? NO

[Begin Screening](#) [\(Re\)Generate List](#) 

Review is indexed: **Yes** Screening List is present: **No** Training is running: **No**

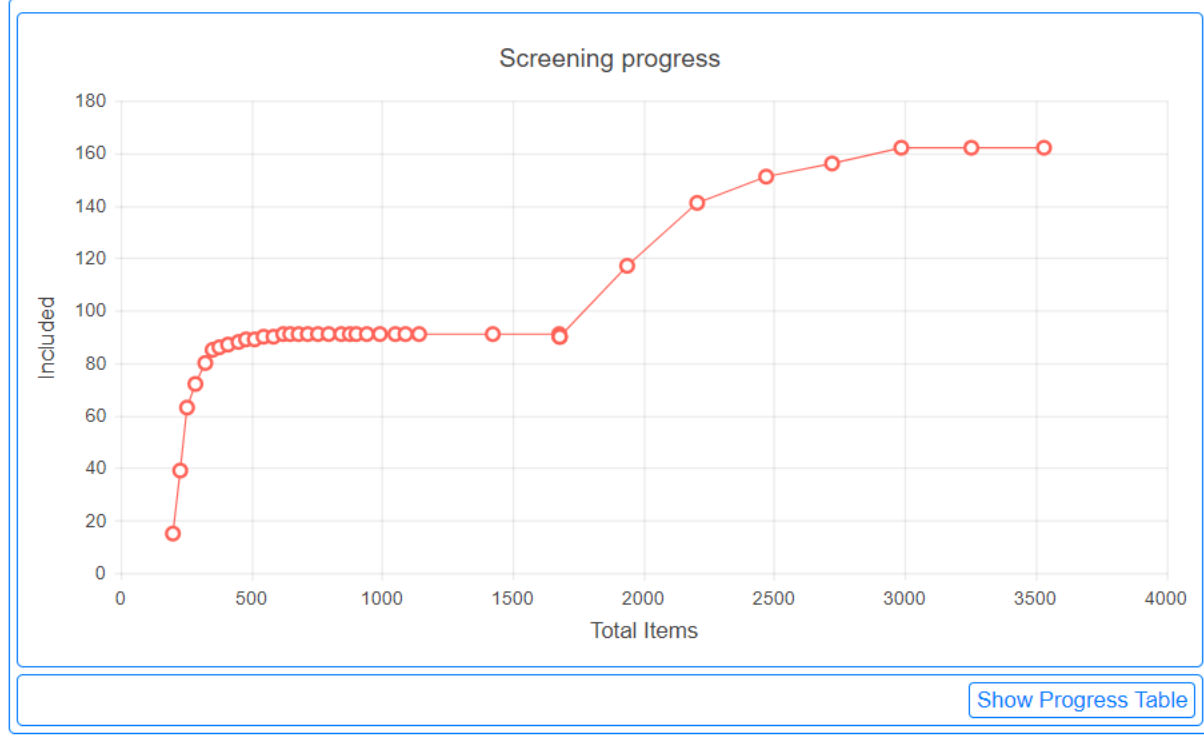
Screening tool: **Screening on T&A** Screening mode: **Priority** Screening all items.

N of people screening each item: **1**

Training codes:

This is the list used by the machine to **learn** from your choices.
As the machine only evaluates titles and abstracts, you should not include codes that rely on data that does not appear in titles and abstract. A typical type of codes that shouldn't appear below is "Exclude on Date".
This list is **already saved** and changes made here are **saved immediately!**

Code name	Include/Exclude
EXCLUDE not secondary research	<input type="button" value="Exclude"/>
EXCLUDE not in English	<input type="button" value="Exclude"/>
EXCLUDE not K-12	<input type="button" value="Exclude"/>
EXCLUDE not a peer reviewed journal article	<input type="button" value="Exclude"/>
EXCLUDE topic not about computational thinking or programming	<input type="button" value="Exclude"/>
EXCLUDE not in a classroom setting	<input type="button" value="Exclude"/>
INCLUDE on title & abstract	<input type="button" value="Include"/>



- Has been shown to reduce screening burden by up to 74%¹

1. Stansfield et al. (2022); Tsou et al. (2020)

- Evidence of reticence and mistrust of using automated tools in research¹
- Not enough mistrust in AI by students (& educators)?²
- Are we producing quality evidence syntheses?
- How can we reduce ‘research waste’?



Midjourney

“ A biochemistry professor at a UK university”

[Generative AI biases: A ‘Midjourney’ generated image, 30 June 2023, M. Compton](#)

1. Jardim et al. (2022); Marshall et al. (2018)
2. Liu (2023); Smolansky et al. (2023)

Research Questions

What is the nature and scope of AIEd evidence synthesis?

- Review and publication types
- Authorship and geographical distribution
- International research collaboration
- Technology used
- Research quality
- General findings
- Benefits and challenges
- Research gaps

Methodology

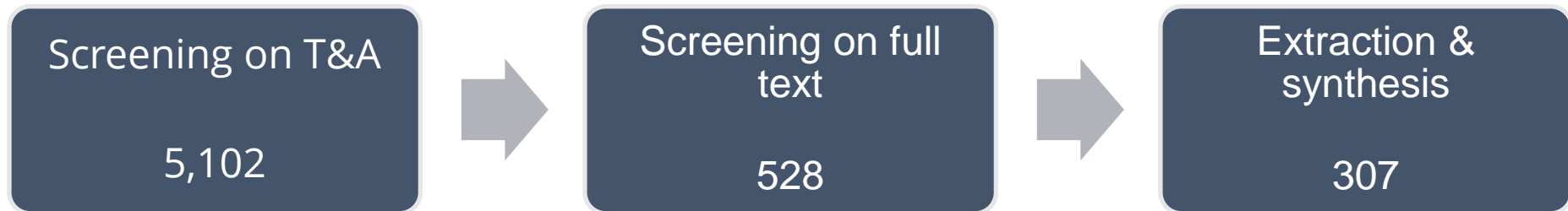
- Tertiary review¹ in order to “map the literature [...] and provide an opportunity to identify key concepts; gaps in the research; and types and sources of evidence to inform practice, policymaking, and research”².

- Web of Science
- Scopus
- ERIC
- EBSCOHost
- IEEE Xplore
- Science Direct
- ACM Digital Library
- Google Scholar
- ResearchGate
- OpenAlex & snowballing.

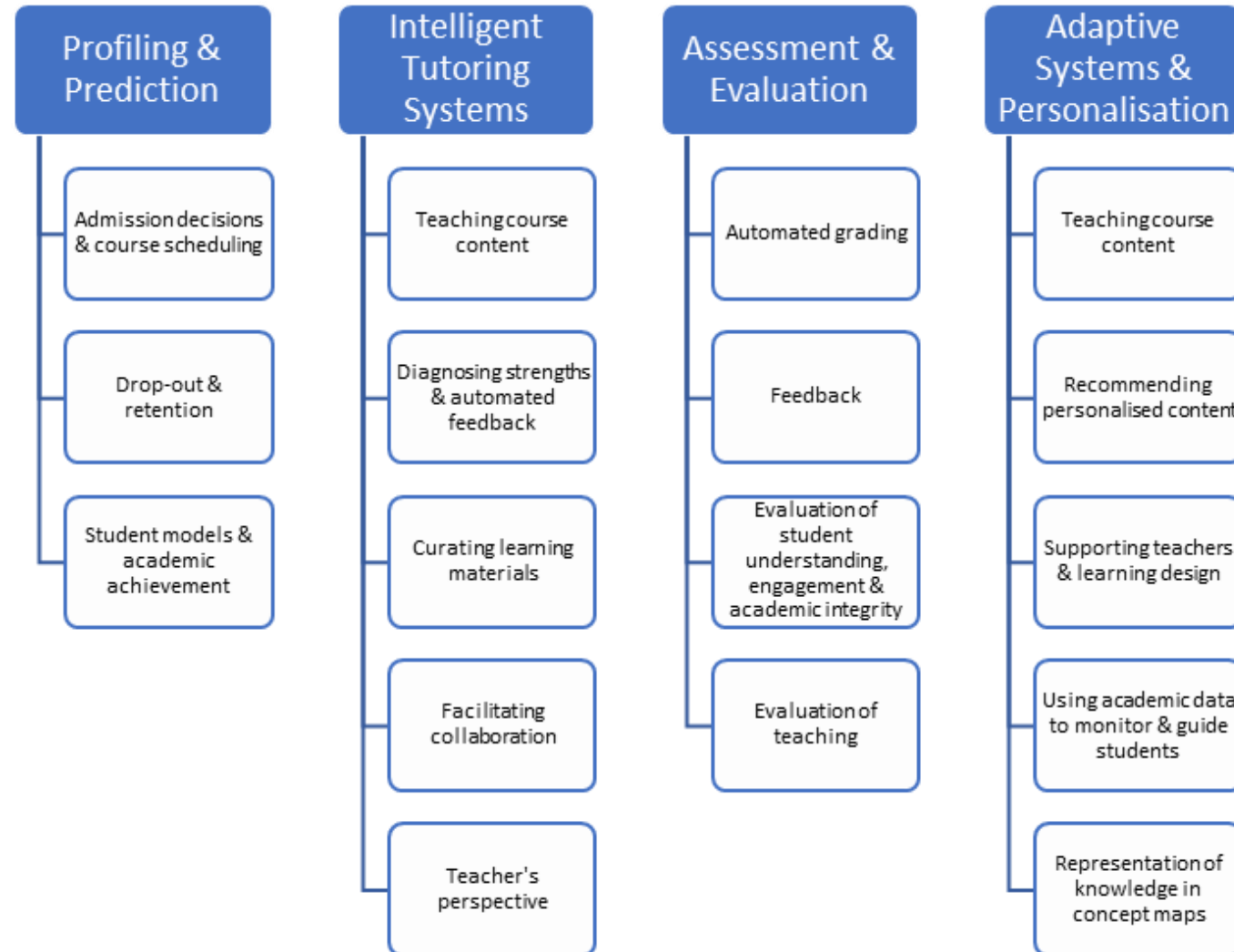
AI	“artificial intelligence” OR “machine intelligence” OR “intelligent support” OR “intelligent virtual reality” OR “chat bot*” OR “machine learning” OR “automated tutor” OR “personal tutor*” OR “intelligent agent*” OR “expert system” OR “neural network” OR “natural language processing” OR “intelligent tutor*” OR “adaptive learning system*” OR “adaptive educational system*” OR “adaptive testing” OR “decision trees” OR “clustering” OR “logistic regression” OR “adaptive system*”
AND	
Education sector	“higher education” OR college* OR undergrad* OR graduate OR postgrad* OR “K-12” OR kindergarten* OR “corporate training*” OR “professional training*” OR “primary school*” OR “middle school*” OR “high school*” OR “elementary school*” OR “vocational education” OR “adult education” OR “workplace learning” OR “corporate academy”
AND	
evidence synthesis	“systematic review” OR “scoping review” OR “narrative review” OR “meta-analysis” OR “evidence synthesis” OR “meta-review” OR “evidence map” OR “rapid review” OR “umbrella review” OR “qualitative synthesis” OR “configurative review” OR “aggregative review” OR “thematic synthesis” OR “framework synthesis” OR “mapping review” OR “meta-synthesis” OR “qualitative evidence synthesis” OR “critical review” OR “integrative review” OR “integrative synthesis” OR “narrative summary” OR “state of the art review” OR “rapid evidence assessment” OR “qualitative research synthesis” OR “qualitative meta-summary” OR “meta-ethnography” OR “meta-narrative review” OR “mixed methods synthesis” OR “scoping study” OR “systematic map”

1. Kitchenham et al. (2009); Lai & Bower (2020)
 2. Daudt et al. (2013, p. 8)

Inclusion	Exclusion
Jan 2018 – July 2023	Published before 2018
Applications of AI in education	Not about AI
Formal teaching & learning	Informal learning
Journal article or conference paper	Chapters, editorials, theses
Secondary research	Primary research
English language	No method section



Data extraction



Zawacki-Richter et al. (2019)

Quality assessment

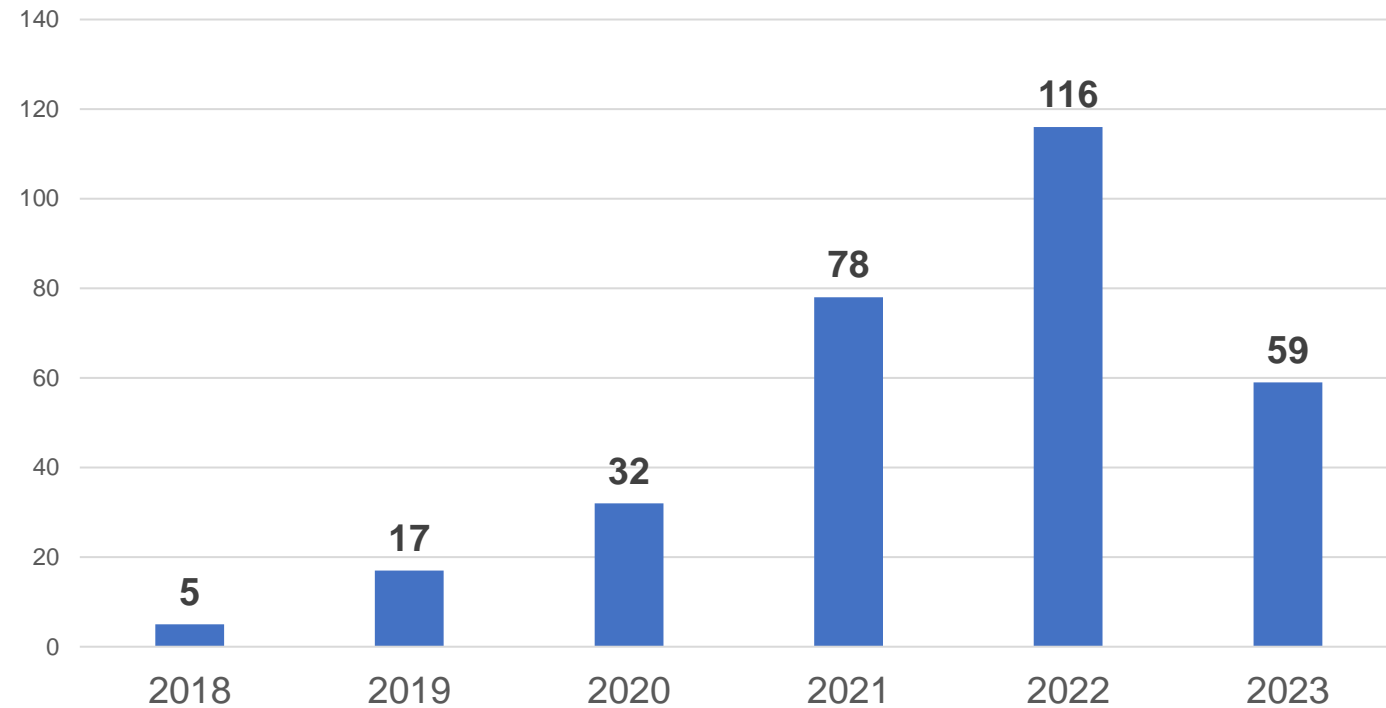
AMSTAR 2¹ / DARE²

1. Are there any research questions, aims or objectives?
2. Were inclusion/exclusion criteria reported in the review and are they appropriate?
3. Are the publication years included defined?
4. Was the search adequately conducted and likely to have covered all relevant studies?
5. Was the search string provided in full?
6. Do they report inter-rater reliability?
7. Was the data extraction coding scheme provided?
8. Was a quality assessment undertaken?
9. Are sufficient details provided about the individual included studies?
10. Is there a reflection on review limitations?

1. Shea et al. (2017)
2. Centre for Reviews and Dissemination, 1995

Key Findings

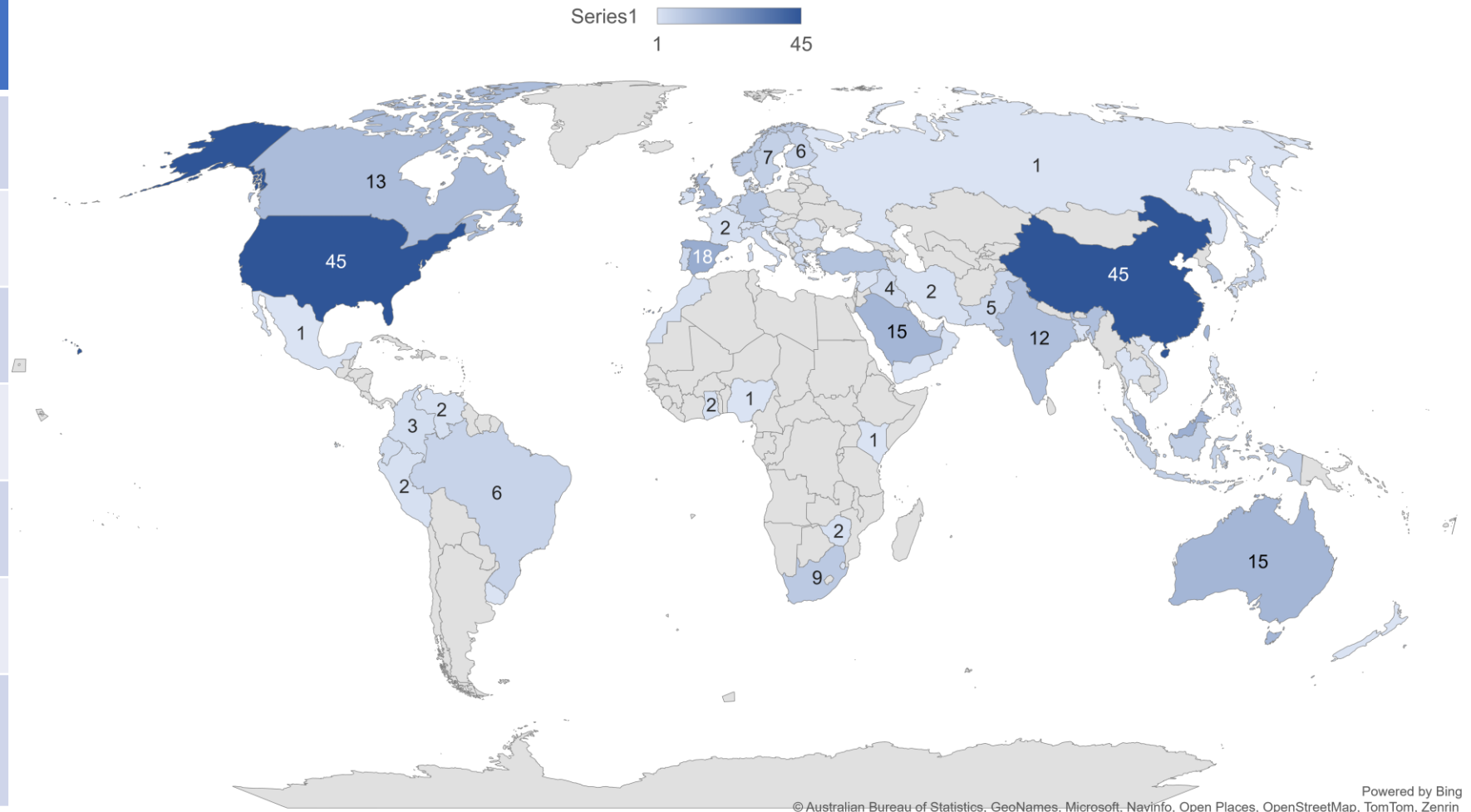
- 84% Journal articles
 - *Computers and Education: AI*
 - *IEEE Frontiers in Education conference*
- 61% open access
- 66% systematic reviews
- 32.9% Education, 31.6% Computer Science & IT



- 9.1% STEM
- 6.5% online/BL/distance learning
- 5.2% Health & Welfare
- 4.2% Foreign language learning

Geographical distribution

Continent	%
Asia	47.6
Europe	26.7
North America	17.6
Middle East	9.8
Africa	5.2
Oceania	5.2
South & Central America	5.2

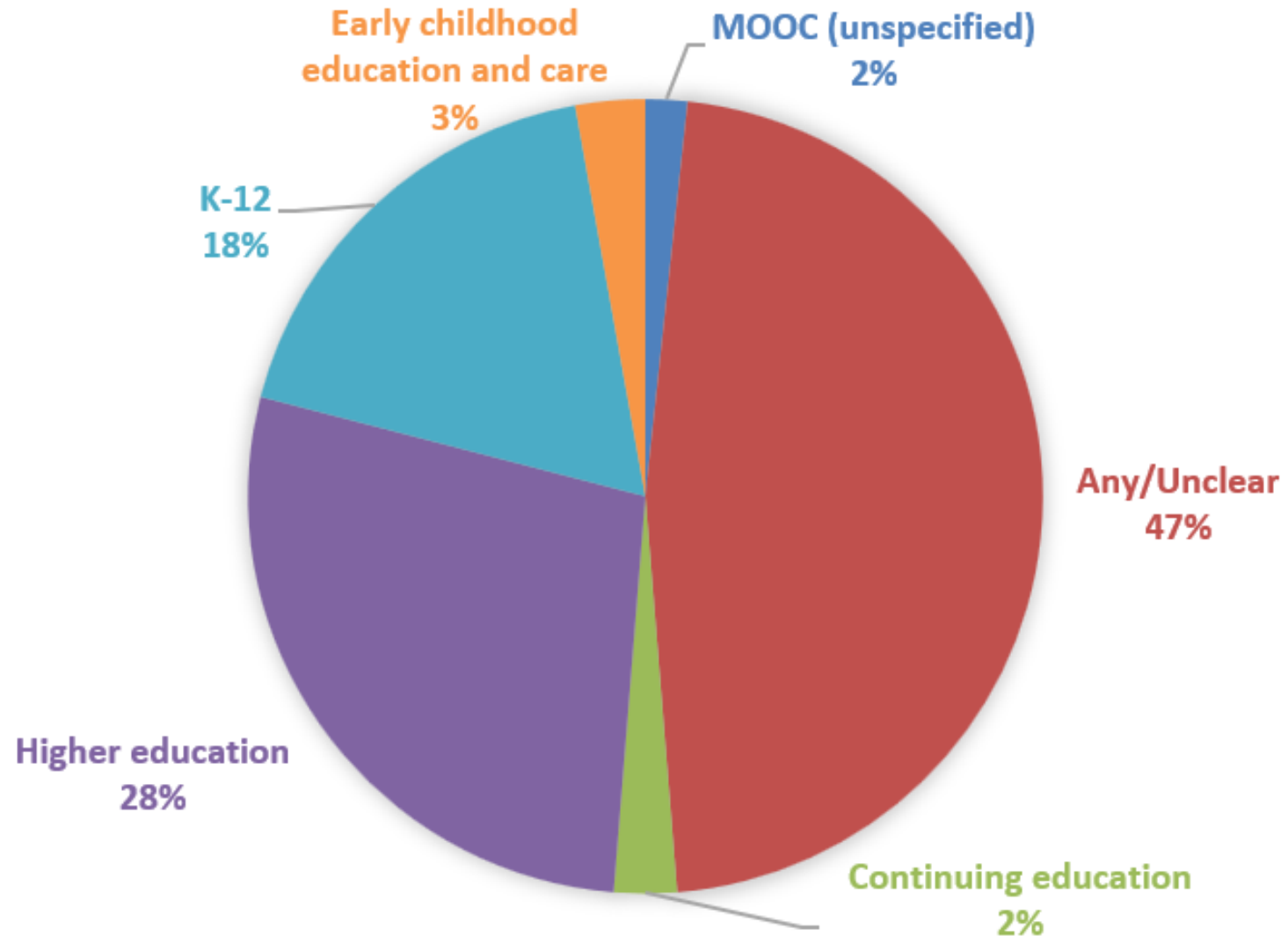


Authorship

- 92.2% collaborative, mostly teams of 2, 3 or 4 authors
- Africa and Middle East – more solo authorship
- 66.8% domestic-only collaborations
- Middle East, Oceania and S & C America – highest rates of international collaboration

Type of collaboration	Africa	Asia	Europe	Oceania	N.America	S. America	Middle E
	16	146	82	16	54	16	30
No collaboration	19%	8%	4%	0%	7%	0%	10%
Domestic collaboration only	50%	66%	55%	50%	57%	50%	30%
Total IRC	31%	27%	41%	50%	35%	50%	60%
International collaboration only	19%	2%	9%	0%	4%	13%	3%
Both domestic and international collaboration	13%	25%	33%	50%	31%	38%	57%

Education levels



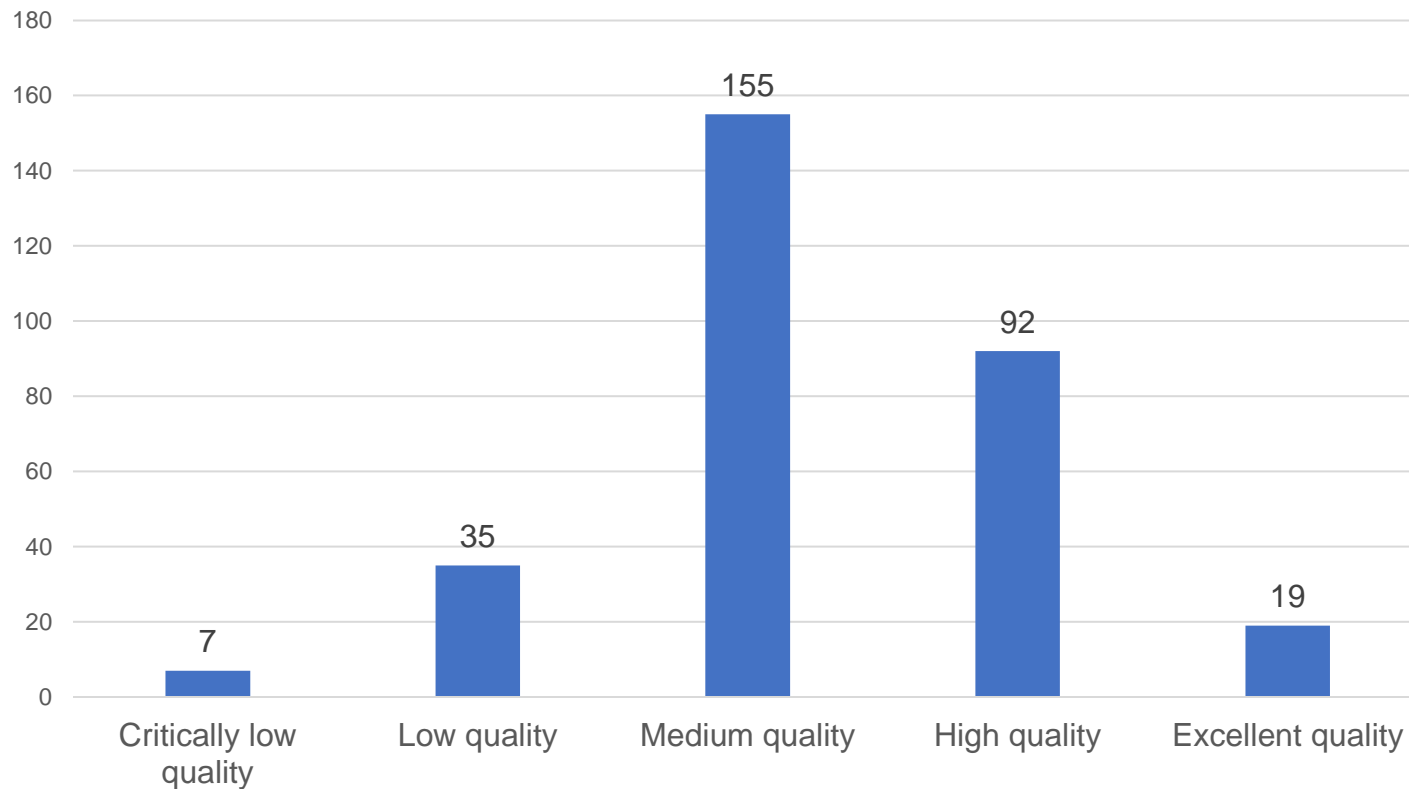
K-12 only = 9.4%

HE only = 21.5%

Types of evidence synthesis

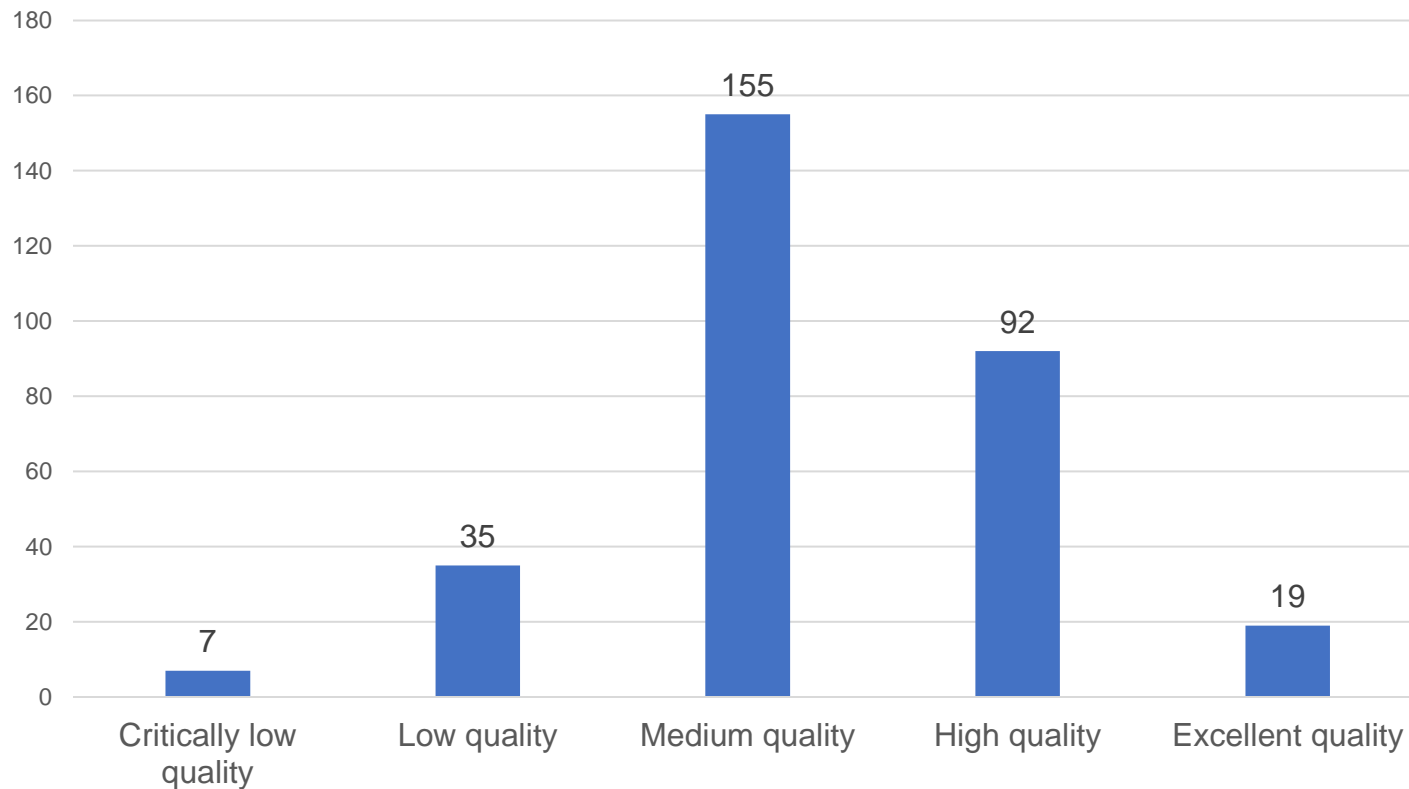
<i>Review type</i>	<i>n</i>	<i>%</i>
Systematic review	202	65.8%
Bibliometric review	44	14.3%
Literature review	23	7.5%
Meta-analysis	21	6.8%
Scoping review	16	5.2%
Mapping review	12	3.9%

Evidence synthesis quality



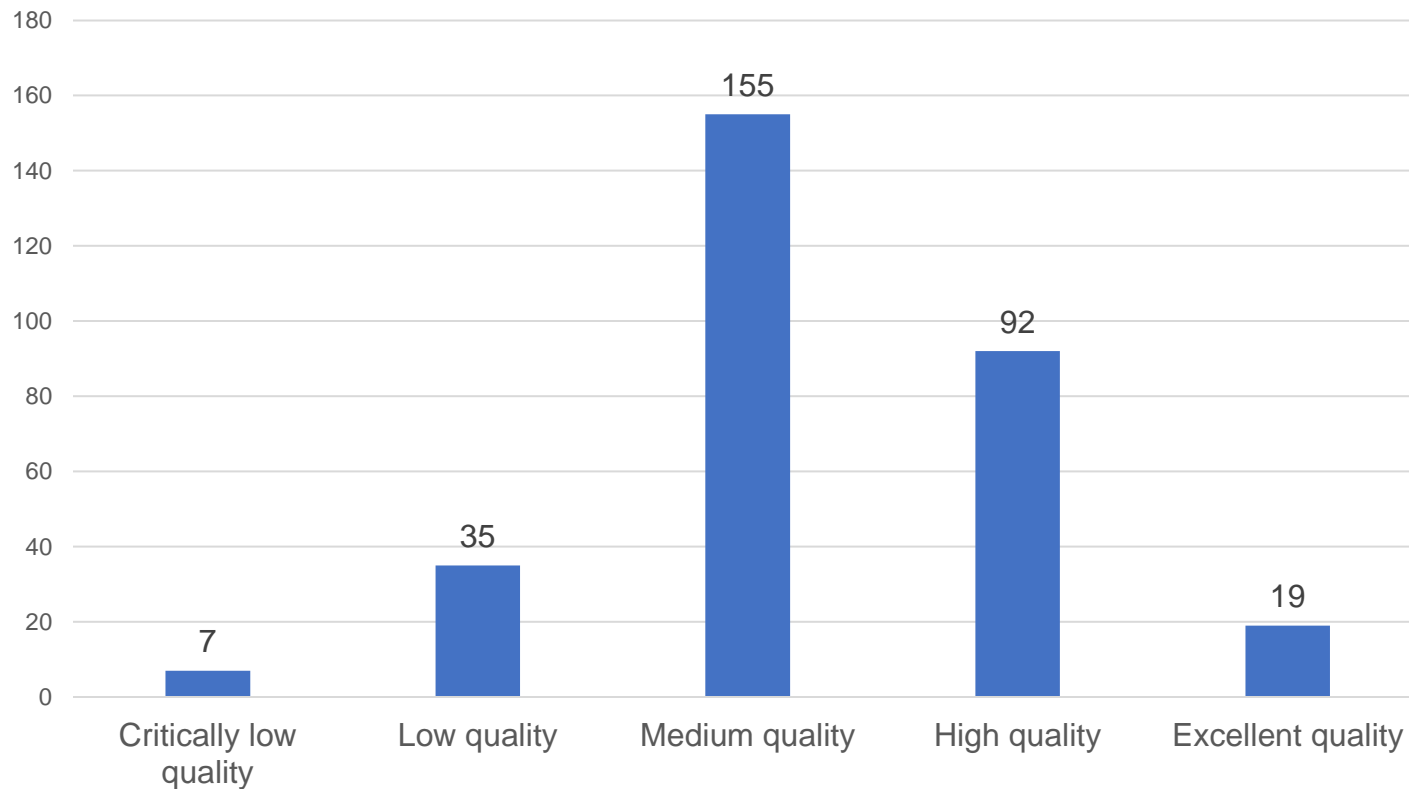
Quality Indicator	Yes
Research questions?	93.2%
Inclusion/exclusion criteria	78.2%
Publication years	81.4%
Search scope	43.0%
Search string	68.7%
Inter-rater reliability	22.5%
Data extraction coding	32.6%
Quality assessment (SRs)	12.7%
Sufficient details	35.8%
Review limitations	42.3%

Evidence synthesis quality



Quality Indicator	Yes
Research questions?	93.2%
Inclusion/exclusion criteria	78.2%
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Evidence synthesis quality



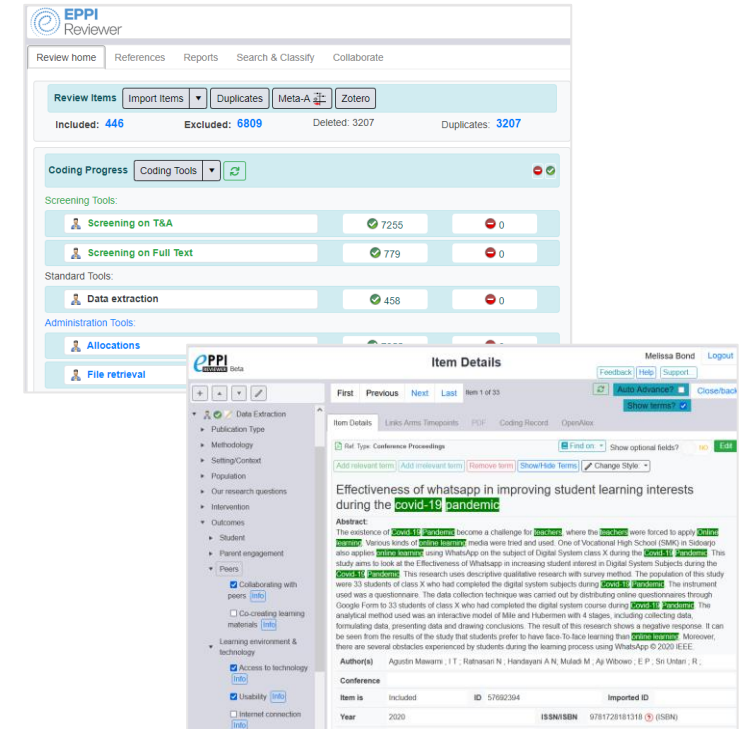
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Prevalence of DEST use

54.1% did not report using a tool

➤ 5.2% used evidence synthesis software

- Rayyan¹ ($n = 7$)
- EPPI Reviewer² ($n = 3$)
- Covidence³ ($n = 3$)
- ASReview⁴ ($n = 2$)
- DistillerSR⁵ ($n = 1$)



1. <https://www.rayyan.ai/>
2. <https://eppi.ioe.ac.uk/cms/Default.aspx?alias=eppi.ioe.ac.uk/cms/er4&>
3. <https://www.covidence.org/>
4. <https://asreview.nl/>
5. <https://www.distillersr.com/products/distillersr-systematic-review-software>

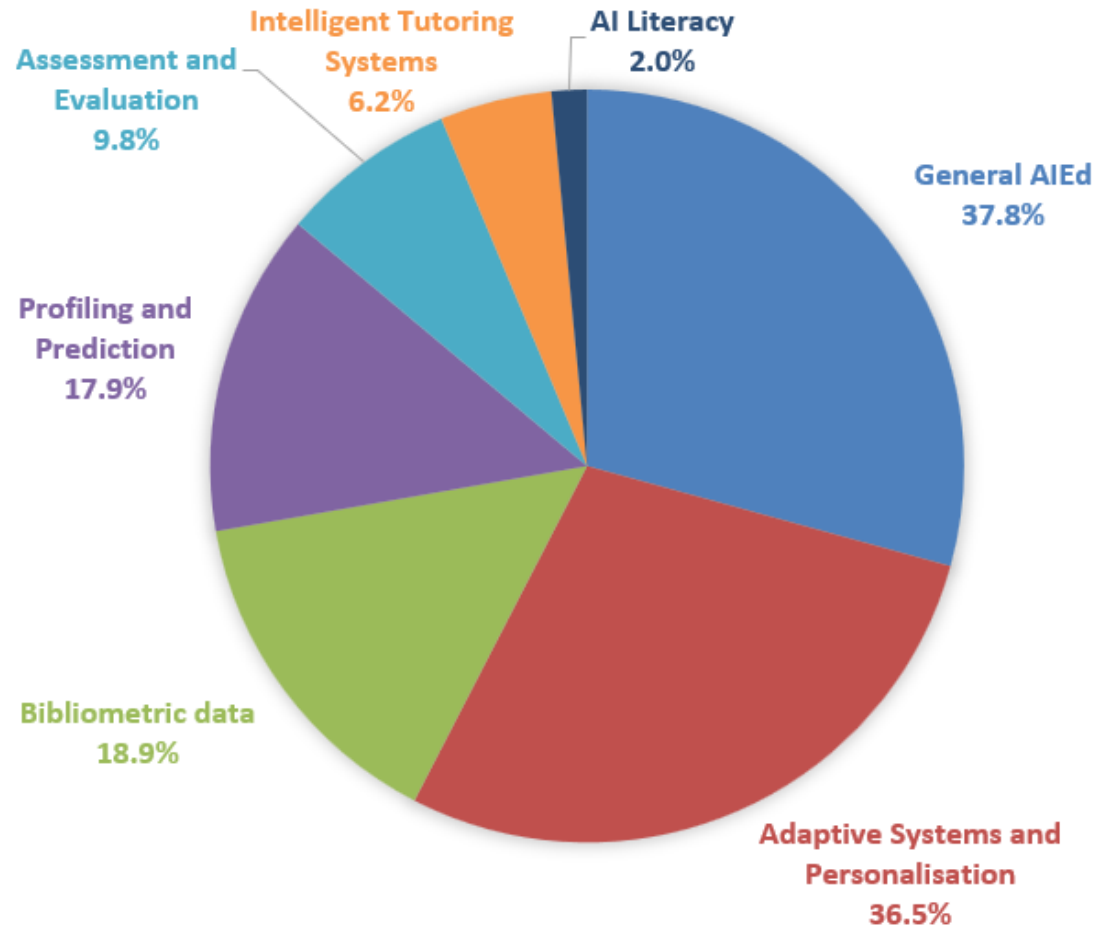
Prevalence of DEST use

Most used tools	
Spreadsheet (Excel)	15.0%
Reference management software	12.1%
VOSViewer	6.5%
R	5.2%
Python	2.9%
CiteSpace	2.6%
Rayyan	2.3%
Comprehensive Meta Analysis	1.6%
Word	1.6%
Gephi	1.3%
STATA	1.3%

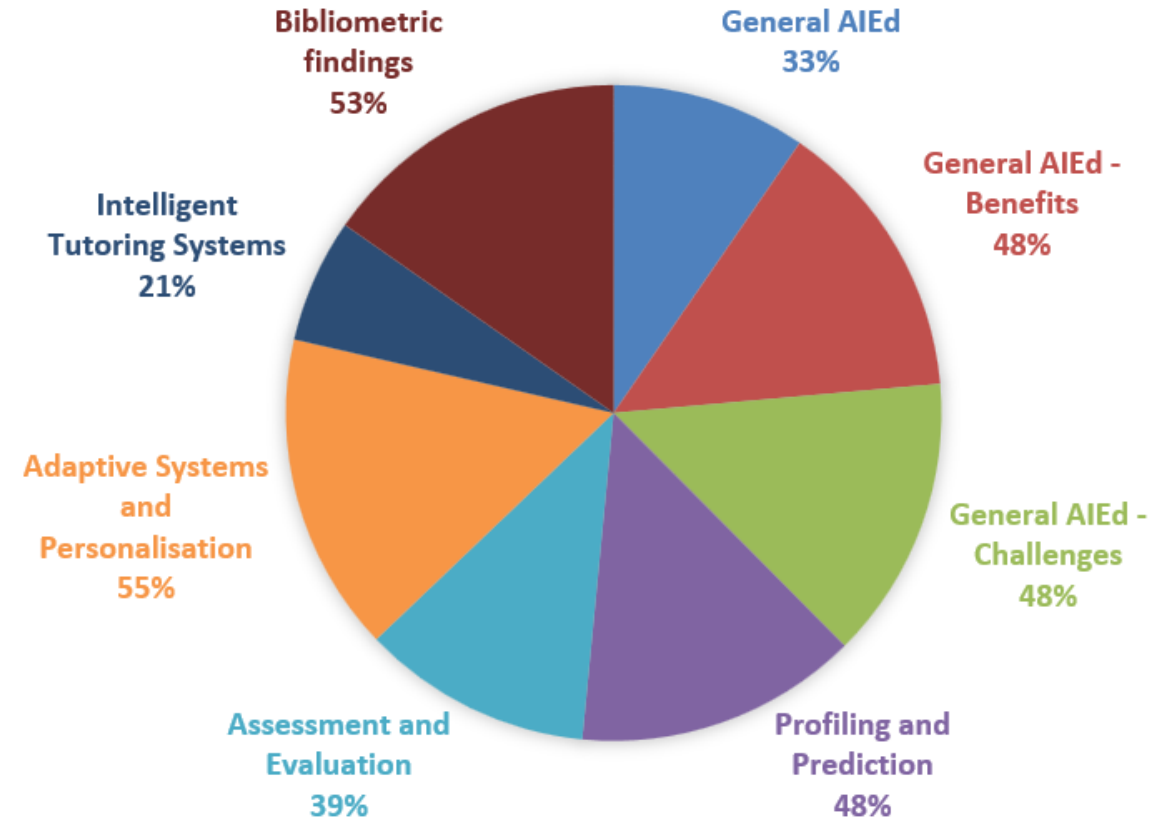
Most used tool by review type	
Systematic review	Spreadsheet
Bibliometric analysis	VOSViewer
Meta-analysis	CMA
Literature review	RMS, Word
Mapping review	Spreadsheet
Scoping review	RMS

RMS = Reference Management Software

AIEd as a topic



AI applications in HE



AIHEd Benefits & Challenges n = 31 General AIHEd reviews

Top five benefits		
Personalised learning	12	38.7%
Positive influence on learning	10	32.3%
Reduced planning & admin	10	32.3%
Greater insight into student understanding	10	32.3%
Precise assessment / Greater equity	7	22.6%

Top five challenges		
Lack of ethical consideration	9	29.0%
Curriculum development	7	22.6%
Infrastructure	7	22.6%
Lack of teacher technical knowledge	7	22.6%
Shifting authority	7	22.6%

AIHEd Research Gaps (*n* = 66)

Top ten research gaps		
Ethical implications	27	40.9%
More methodological approaches	24	36.4%
More research needed (specific topics in Education)	22	33.3%
More research with a wider range of stakeholders	14	21.2%
Interdisciplinary approaches required	11	16.7%
Research limited to specific discipline areas	11	16.7%
More research in a wider range of countries	10	15.2%
Greater emphasis on theoretical foundations	9	13.6%
Longitudinal studies recommended	8	12.1%
Research limited to a few topics	8	12.1%

Implications

Call for ethics

- Data privacy and security
- Data bias
- Ethical AI in the curriculum

Call for collaboration

- AI development
- Curriculum development
- Researching AIEd

Call for rigour

- Rigorous primary & secondary research
- Need for updated evidence synthesis guidance for Educational research

AIHEd pre-print

A Meta Systematic Review of Artificial Intelligence in Higher Education: A call for increased ethics, collaboration, and rigour

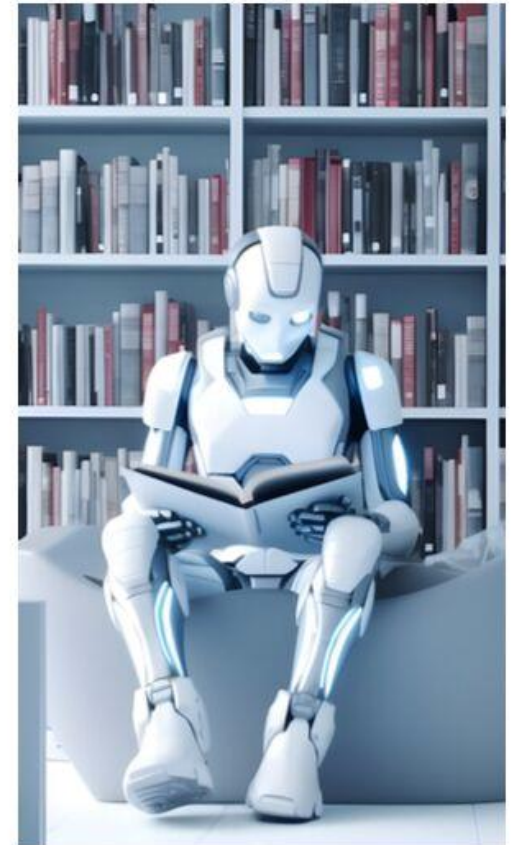
Melissa Bond, Hassan Khosravi, Maarten De Laat, Nina Bergdahl, Violeta Negrea,
Emily Oxley, Phuong Pham, Sin Wang Chong, and George Siemens


Available to read now:

<http://dx.doi.org/10.13140/RG.2.2.31921.56162/1>

Abstract.

Although the field of Artificial Intelligence in Education (AIEd) has a substantial history as a research domain, never before has the rapid evolution of AI applications in education sparked such prominent public discourse. Given the growing AIEd literature base in higher education, it is important to ensure that the field has a solid research and conceptual grounding as AI adoption increases. This review of reviews is the first comprehensive meta review to explore the scope and nature of AIEd in higher education (AIHEd) research, by synthesising secondary research (e.g., systematic reviews) 66 publications were included for data extraction and synthesis in EPPI Reviewer, which were predominantly systematic reviews (66.7%), published by authors from North America (27.3%), conducted in teams (89.4%) in mostly domestic-only collaborations (71.2%). Findings show that these reviews mostly focused on AIHEd generally (47.0%) or Profiling and Prediction (28.8%) as thematic foci, however key findings indicated a predominance of the use of Adaptive Systems and Personalisation in higher education. Research gaps identified suggest a need for greater ethical, methodological, and contextual considerations within future research, alongside interdisciplinary approaches to AIHEd application. Suggestions are provided to guide future primary and secondary research.




☰
🔍 Search records...
Title and Abstract ▾
Home
All records
Logout

List records Frequencies

- ▼ Data extraction
 - ▶ Publication Details
 - ▶ Available open access?
 - ▶ Author information
 - ▶ Self-identified review type
 - ▶ Geographical focus of the review
 - ▶ Focus of AI review
 - ▶ Educational Context searched for
 - ▶ Specific participant focus/setting
 - ▶ Methodological questions
 - ▶ Quality Assessment
 - ▶ Overall Quality Assessment
 - ▶ AI Topics and Key Findings
 - ▶ Research Gaps Identified

Digital Evidence Synthesis Tools in AIEd secondary research

Introduction View more ▾

This meta review is part of an international multi-year project, exploring AI adoption and planning approaches in K-12, higher education, and corporate learning.

This database represents a subsample of the first work package from 'Artificial Intelligence in Education: A meta review' from the past five years (2018-July 2023) exploring applications of AIEd.

The review sought to answer the following research question and sub-questions:

What is the nature and scope of AIEd secondary research?

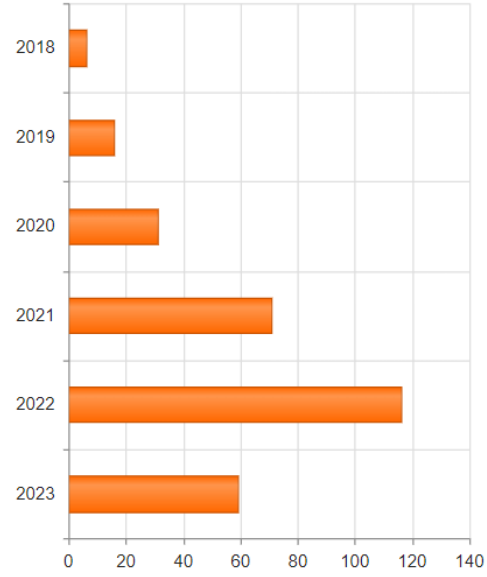
1. What kinds of evidence syntheses are being conducted?
2. In which conference proceedings and journals are AIEd evidence syntheses published?

Evidence and Gap Maps -


DEST use by review focus + Details View map

Publications by year -

Bar
Table
Save



Year	Number of Publications
2018	~10
2019	~20
2020	~35
2021	~75
2022	~120
2023	~65

EPPI-Vis is developed and maintained by the EPPI-Centre. The data shown is retrieved in real time from the EPPI-Reviewer database.
 

[HE reviews - https://eppi.ioe.ac.uk/eppi-vis/login/open?webdbid=322](https://eppi.ioe.ac.uk/eppi-vis/login/open?webdbid=322)

Generative AI in Education

The Case of Provisioning Immediate Feedback



Unpacking the Excitement Around Generative AI

Artificial Narrow Intelligence (ANI) : Designed to perform a narrowly defined set of structured task. ANI has been successfully implemented in numerous fields.

IBM's Deep Blue beat world chess champion Garry Kasparov in the 1997 match



DeepMind's AlphaGo beat world Go Champion Lee Sedol in the 2022 match



Unpacking the Excitement Around Generative AI

Artificial General Intelligence (AGI) : Designed to perform across intellectual tasks similar to humans. Generative AI models represent our most significant progress towards achieving AGI.



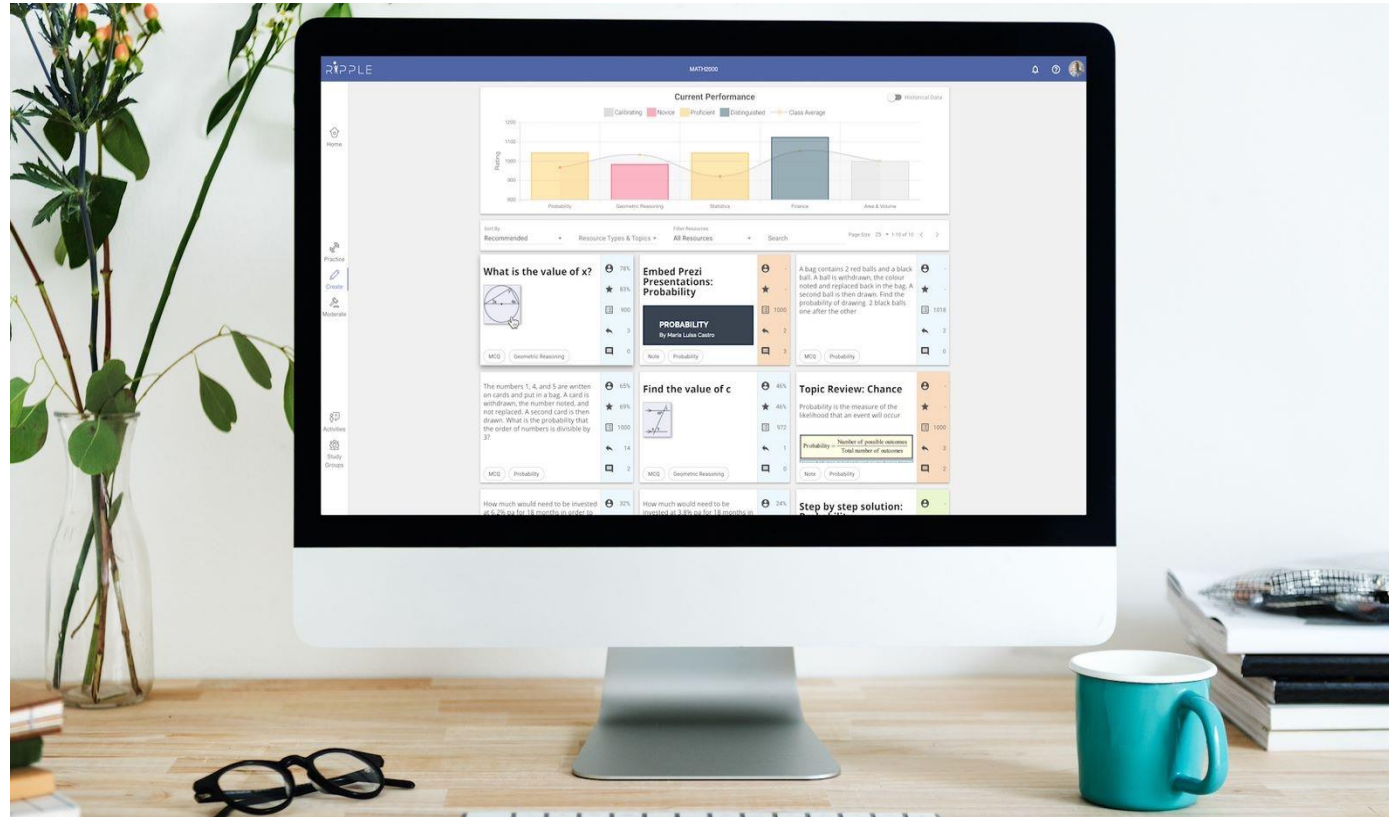
Generative AI in Education

- Develop AI-powered tools that empower teachers to cater to diverse student needs, enhance learning experiences while reducing their workload
- Minimise the associated concerns with incorporating AI in education.
- Prepare students for an uncertain, turbulent, and networked world.



A Case Study from The University of Queensland

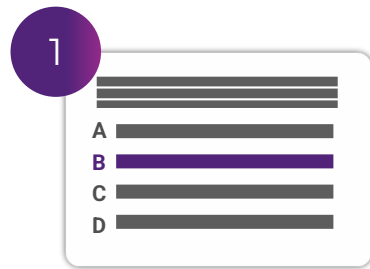
RiPPLE is an award-winning, UQ-developed learning tool that employs ethical and practical applications of AI to help teachers meet the learning needs of students while reducing their overall workload.



For more info see <http://itali.uq.edu.au/ripple>

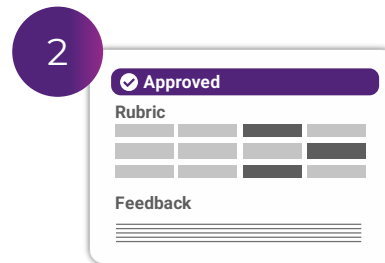
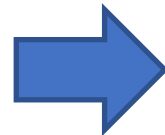
How RiPPLE Works

RiPPLE leverages the science of learning to enhance student learning and experiences with three interconnected activities:



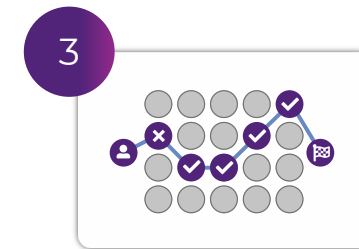
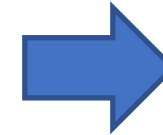
Creation

Empower students to craft study resources with AI assistance, nurturing their creativity and critical thinking skills



Moderation

Facilitate peer evaluation of study resources with the support of AI, nurturing their metacognition and mentorship skills



Personalised practice

Help your students thrive as AI generates a unique study plan for each student based on their learning need

Why Use RiPPLE



Enhance learning

By engaging students in content creation, peer feedback and differentiated learning



Empower learners

to become knowledge creators and critical evaluators



Students as Partners

Recognises students as partners in learning.



Metacognitive & Employability skills

Promotes evaluative judgment collaboration and communication.



Real-time feedback

by employing state-of-the-art generative AI systems



Reduce workload

by leveraging AI assistance and partnering with students



Create in RiPPLE



Creation

Empower students to craft study resources with AI assistance, nurturing their metacognition and critical thinking skills



MCQ



Multiple Answer



Hotspot



Short Answer



Long Answer



Worked Example



Flash Card



Slides



Project Report



Research Report



Reflection



Note

Multiple Choice Question Creation

1. Select details

Topic/s Difficulty Level of learning 

2. Write question

Write question...

3. Add options

A.

Write response here...

Write explanation here...

B.

Write response here...

[← RETURN](#)[BOOKMARK](#)

AI Feedback

AI feedback is in Beta. The feedback provided below is a guide only and may be inaccurate. Please use your domain knowledge to assess whether the feedback is correct.

Summary

The aim of this resource is to test the student's understanding of SQL. It can contribute to student learning by testing their knowledge of CROSS JOIN and WHERE clauses in SQL.

Positives

- The question is clear and concise
- The correct answer is informative and well-explained
- The incorrect options provide subtle but common errors that students may make

Suggestions for improvement

- Option 1 and Explanation 1 can be improved. Instead of just saying "Incorrect" and "Try again," explain why the option is incorrect and provide a hint for the student to help them understand the concept better.
- Option 2 and Explanation 2 can be improved. Instead of just saying "Incorrect" and "Try again," explain why the option is incorrect and provide a hint for the student to help them understand the concept better.
- Option 4 and Explanation 4 should be removed as they do not provide any useful information and can be confusing for the student.

How helpful was this feedback?



Home



Admin



Inspect



Create



Moderate



Practice



Activities

0 6 Medium

What does the following query do:

INSERT INTO Inventory

SELECT id, itemID, stats

FROM Items

CROSS JOIN Player

WHERE id = 002 AND damage > 10

× A.

Gives the player with id "002" all items in the game

Explanation

Incorrect

HINT: there is a when condition stating damage > 10

try again

× B.

Gives all players the item with id "002"

Explanation

Incorrect

id references Player and not Items

Try again

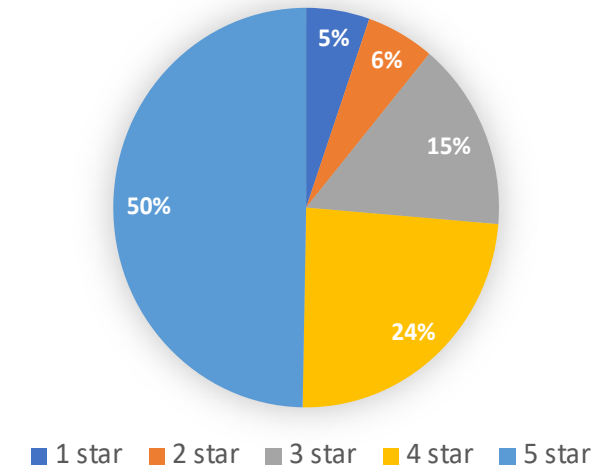
Student Perception of AI-Feedback on Create

Key highlights

- AI-feedback on create received 1,163 ratings with a 4.3 average.
- 74% of students assigned a 4 or 5-star rating, revealing its substantial utility among the majority.
- 15% of users expressed neutrality with a 3-star rating.
- 11% found it less beneficial, assigning a 1- or 2-star rating.

Helpfulness of AI-Feedback on Create

Results based on 1160 ratings



Representative comments:

- **Positive feedback:** “The suggestions are very reasonable and feasible, and the explanations are very specific, which helps me to improve the problems raised”.
- **Neutral feedback:** “Feedback points 2 and 3 were useful and immediately corrected in the resource but feedback point 1 defeats the point of the question as the relationship degree consisting of three entities is the question being asked”.
- **Negative feedback:** “Positives and suggestions contradict each other; suggestions make it less concise”.

Moderate in RiPPLE

I don't want to moderate this resource

Resource Feedback

Please evaluate the resource based on the following criteria:

Correctness and precision:	Poor	Needs Improvement	Satisfactory	Great	Outstanding
Quality of Question:	⊙ Poor	Needs Improvement	Satisfactory	Great	Outstanding
Quality of Options:	⊙ Poor	Needs Improvement	Satisfactory	Great	Outstanding
Quality of Explanation:	⊙ Poor	Needs Improvement	Satisfactory	Great	Outstanding

What is good about this resource?

Please list each aspect as a separate dot point and align feedback to the rubric. Be specific & detailed. Use constructive language. Leave blank if not applicable.

- It is a comprehensive resource with a code sample and output covers an important topic
- + Add feedback...

How can this resource be improved?

Please list each aspect as a separate dot point and align feedback to the rubric. Be specific & detailed. Use constructive language. Leave blank if not applicable.

- It is already a pretty good resource
- + Add suggestion...

Further comments

keep up the good work



Decision

Please rate the overall quality of this resource based on the criteria above.

The overall quality of this resource is:	Poor	Needs Improvement	Satisfactory	Great	Outstanding
Rate your confidence in assessing this resource:	Very low	Low	Medium	High	Very High

AI Feedback

The feedback provided below is a guide only and may be inaccurate. Please use your domain knowledge to assess whether the feedback is correct.

Hi there! I am The RiPPLE AI assistant, and I am here to help you with providing effective feedback.

Suggestions for improvement

- Instead of saying "I like how you explained your point," you can be more specific about what you liked. For example, you can say "I appreciate how you provided real-life examples to support your argument."
- When mentioning areas of improvement, try to phrase it in a constructive and positive manner. Instead of saying "Your writing is confusing," you can say "Your writing can be clearer if you organize your ideas in a more logical manner."
- Consider providing specific suggestions for improvement. For instance, instead of saying "Your conclusion could be better," you can say "To improve your conclusion, you can summarize your main points and provide a thought-provoking ending."

How helpful was this feedback?



SUBMIT

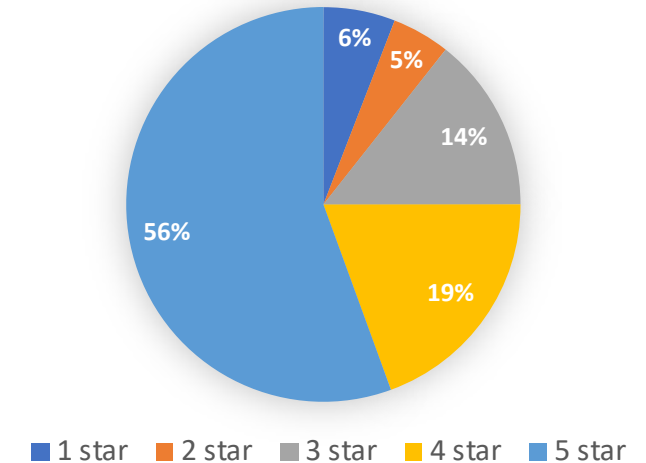
Student Perception of AI-Feedback on Review

Key highlights

- AI-feedback on create received 4,553 ratings with a 4.4 average.
- 75% of students assigned a 4 or 5-star rating, revealing its substantial utility among the majority.
- 14% of users expressed neutrality with a 3-star rating.
- 11% found it less beneficial, assigning a 1- or 2-star rating.

Helpfulness of AI-Feedback on Review

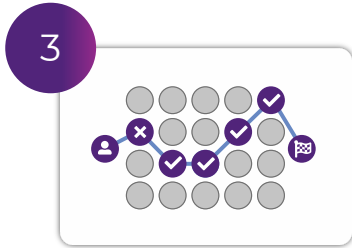
Results based on 4553 ratings



Representative comments:

- **Positive feedback:** “This feedback was very helpful as it gave me the answer I was looking for but didn’t know how to put into words”.
- **Neutral feedback:** “Dot point 2 would be good to improve my feedback and make it more specific. I think the AI did not quite understand dot points 1 and 3, as I feel that I clarified these in my feedback”.
- **Negative feedback:** “The suggestions for improvement was the same wording as my response with no explanation for why this needs improvement”.

Adaptive Practice

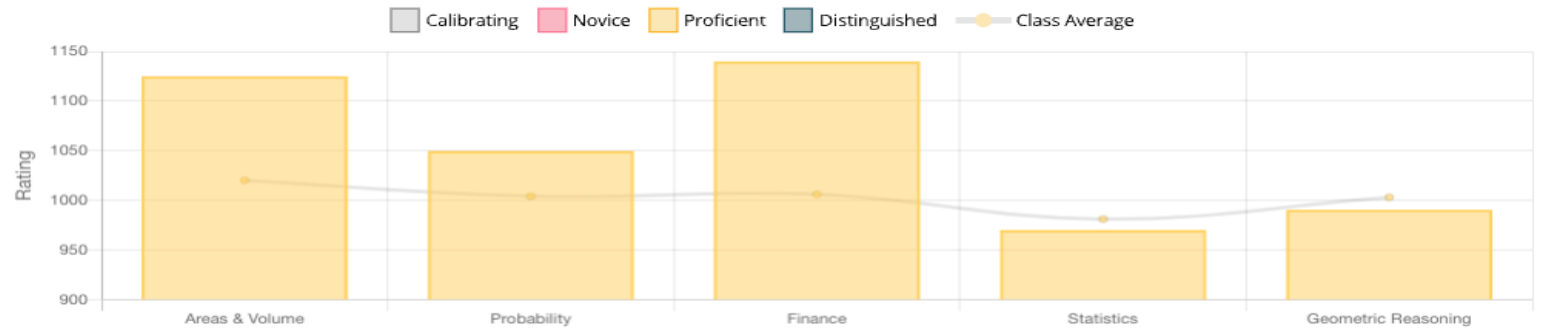


Personalised practice

Help your students thrive as AI generates a unique study plan for each student based on their learning need

How am I performing on each topic?

This semester



Suggested actions:

Daily Quest: Answer 10 new resources on any topic correctly on your first attempt.

PRACTICE NOW

Weekly Quest: Rate the effectiveness of 25 resources on any topic.

PRACTICE NOW

Sort By: Recommended | Filter Resources: Unseen Resources | Resource Types | Topics | Details | Search | 1-25 of 28 results

11 likes, 15 views | Note | Arcgis Multi-Scale Maps: Population Growth | Use the map below to answer the questions found at [this link](#) | Geometric Reasoning | Carol Melia | 3 years ago

10 likes, 15 views | Worked Example | Step by step solution: Probability | Determine the probability of the total when two dice are thrown is less than 7 or even | Probability | Albie Turnbull | 3 years ago

10 likes, 15 views | Note | Additional Resources for the curious | How to count to 1000 on two hands | Areas & Volume | Statistics | Geometric Reasoning | Carol Melia | 3 years ago

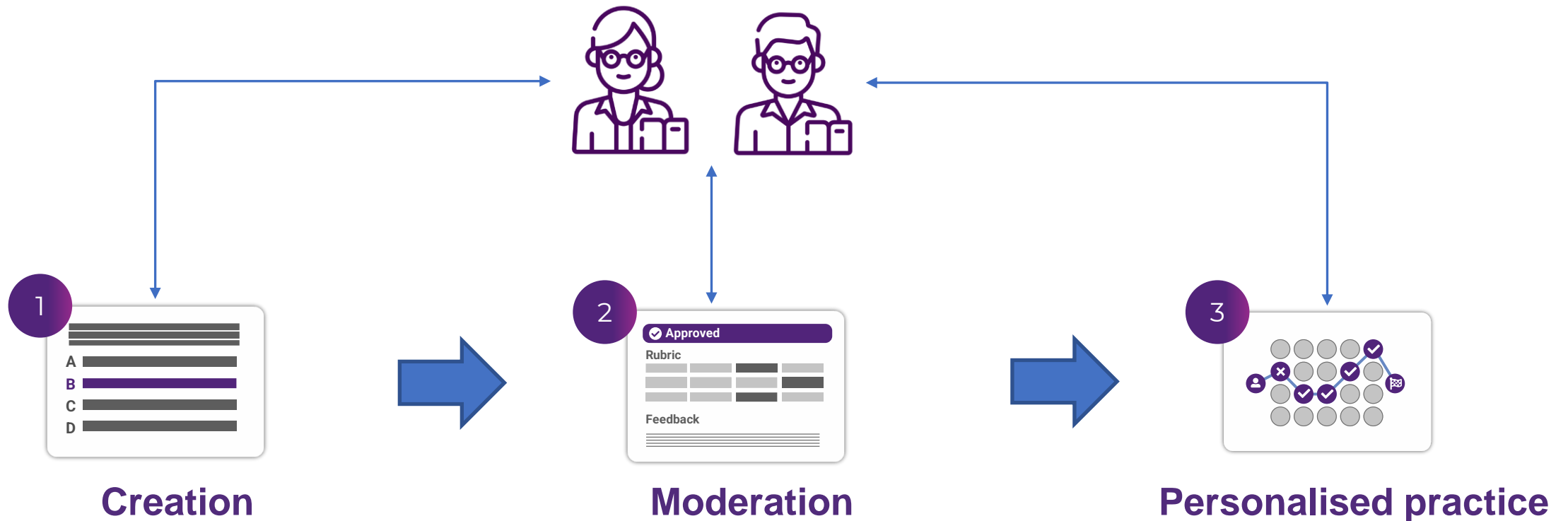
8 likes, 14 views | Note | Graphing with DESMOS: Linear Regression | Explore Linear Regression with the app below! | Geometric Reasoning | Laura Bailey | 3 years ago

11 likes, 15 views | Note | Google Chart: Compound Interest vs Simple Interest | Notice the increasing difference between interest gained via compounding compared to simple interest. | Finance | Lucy Lee | 3 years ago

10 likes, 15 views | Medium | Multiple Choice | Calculate the volume of the following composite solid: | Areas & Volume | Harry Benton | 3 years ago

Educator Oversight

RiPPLE leverages AI to empowers educators to effectively oversee student learning across creation, moderation and personalised practice activities



Inspect in RiPPLE



Inspect

The inspect page empowers instructors to effectively use their time by leveraging out AI algorithms to find and examine resources where incorrect decisions may have been made or peer reviews are of poor quality

Inspect resources

Inspect student resources to verify their correctness, helpfulness and quality.

Inspect moderations

Identify & manage the quality of student moderations.

Inspect students

View the user profile of your students

Resource inspection history

View a log of your resource inspections

Moderation inspection history

View a log of your moderation inspections

Adoption and Recognition



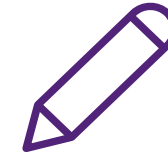
+200

Course offerings



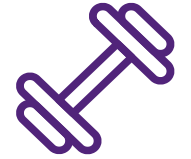
+50,000

Users



+120,000

Study resources created



+3,000,000

Resources studied

RiPPLE is increasingly being recognised as an exemplar tool for using AI in education.



25 best paper nomination



Academics from **over 50**
Universities have created
RiPPLE accounts



Provisional **patent**
submitted



Featured as an exemplar
educational technology by
EDUCAUSE

Effects on Student Learning and Experience



Enhance learning

Students who use RiPPLE gain a 10% improvement in grades.



Positive user feedback

A survey of 500 students showed enjoyment, learning benefits, and a desire to use RiPPLE in other courses.



AI Assistance

RiPPLE's AI assistance improves student authorship, feedback literacy and personal practice



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