

Where have we been and where are we going?

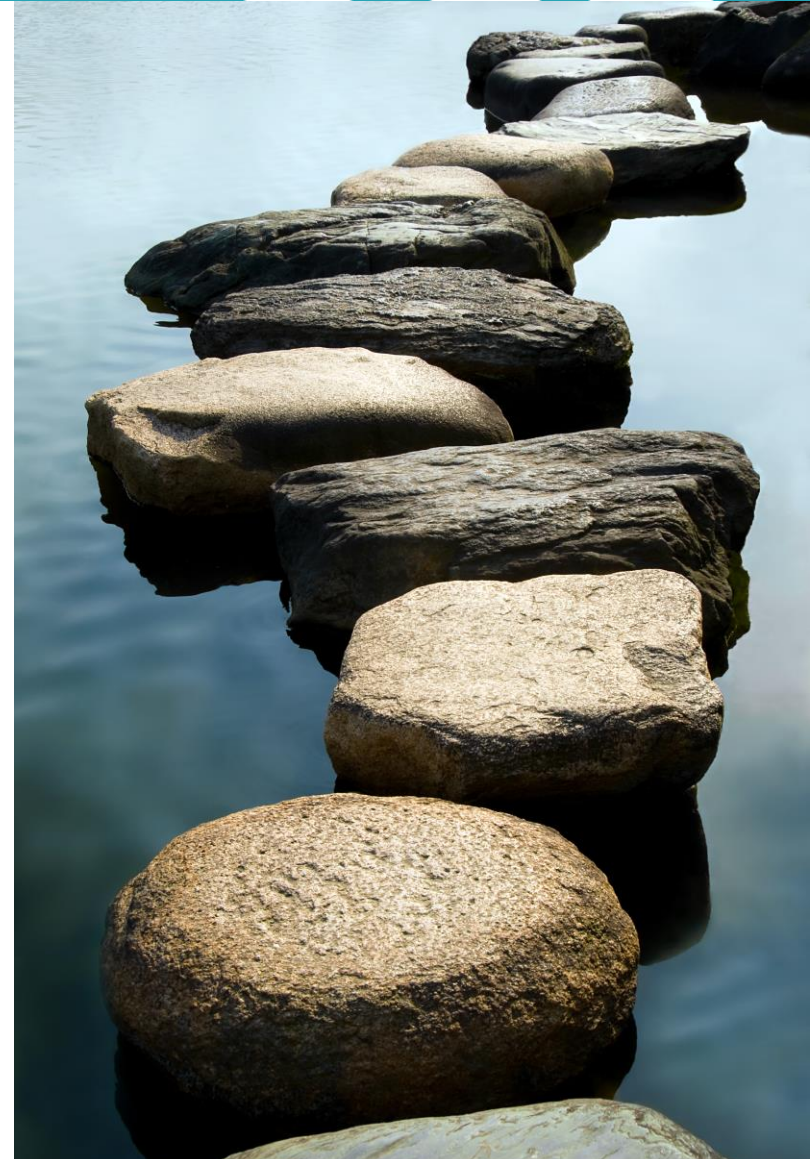
Lessons from EdTech evidence synthesis

EDEN Conference, Dublin
20 June 2023

Dr Melissa Bond

melissa.bond@ucl.ac.uk

 [@misc_nerd](https://twitter.com/misc_nerd)





Acknowledgement of Country

I would like to acknowledge the Traditional Custodians of the land on which I grew up and worked, and pay my respects to Elders past, present and emerging.

I respectfully acknowledge the Ngadjuri and Kaurna First Nations Peoples and their Elders past and present, who are the First Nations' Traditional Owners of the lands on which I grew up and where I studied and worked. I am honoured to recognise my connection to the Ngadjuri and Kaurna lands, and their history, culture and spirituality through these locations. I also acknowledge the other First Nations of lands across Australia, their Elders, ancestors, cultures and heritage.



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



My background

- Born and raised in South Australia
- High school teacher (10 years)
 - > German, Humanities, IT, English, Drama, Music...



My background

- Research Associate
 - > CvO Universität Oldenburg, 2017-2020
 - > ActiveLearn project
 - > PhD, 2020 – *Facilitating student engagement through educational technology: Current research, practices and perspectives*



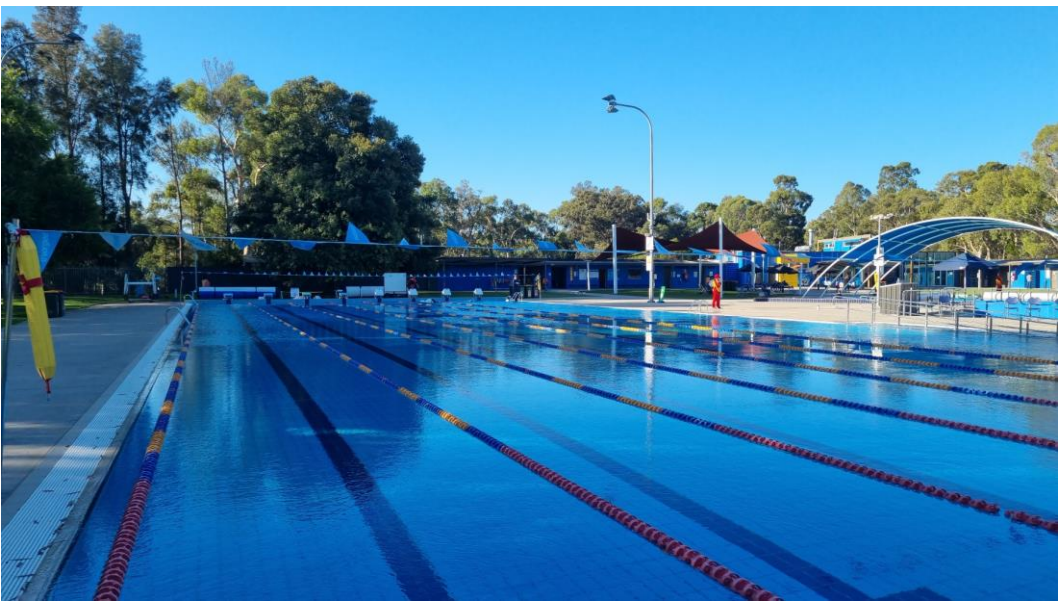
My background

- EPPI-Reviewer Support Officer
 - > University College London
 - > Feb 2020 – Feb 2022
- Systematic & mapping reviews
 - > T&L during COVID-19
 - > Methodological support



My background

- Lecturer (Digital Technology Education), 2022 - 2023
 - > University of South Australia
 - > Undergraduate & Postgraduate
 - > Research focus: engagement, AI, evidence synthesis, IRC



Source: <https://southaustralia.com/>

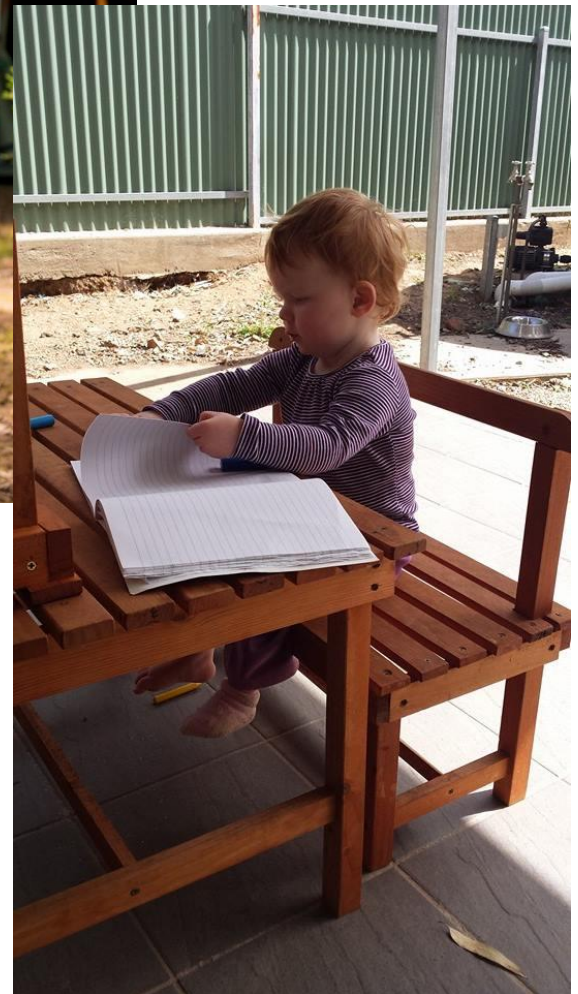
Current positions

- Research Fellow, EPPI Centre (UCL, UK)
- Adjunct Associate Professor (University of Stavanger, Norway)
- Research Fellow (National Institute of Teaching, UK)



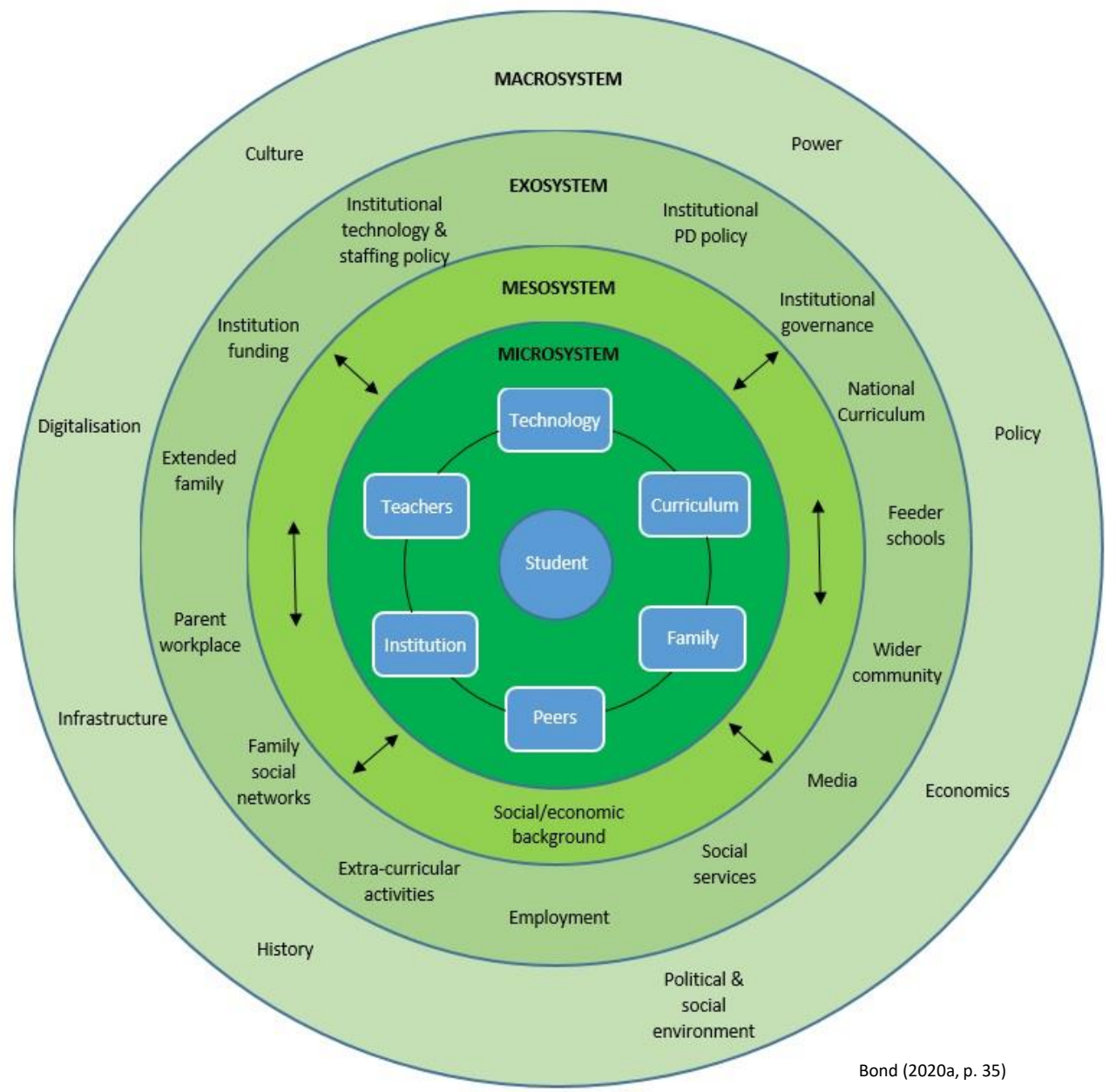
My background

- Country (although not remote)
- Lower socio-economic background
- First generation university student
- Chronic illness
 - Endometriosis
 - Chronic Fatigue Syndrome
 - Fibromyalgia
- Single parent



My background

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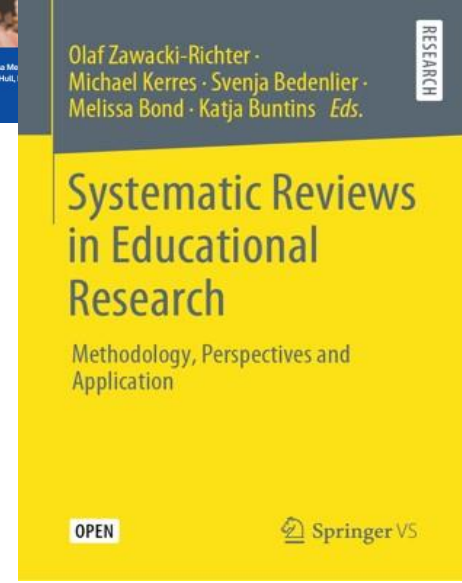
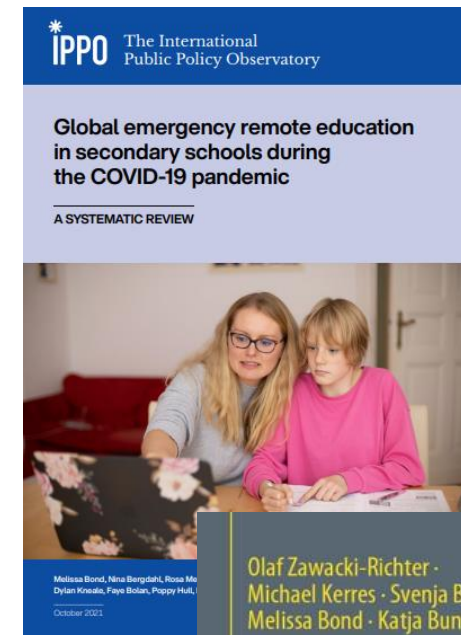


Evidence synthesis

- [Student engagement and educational technology in higher education](#)
- [Student engagement and the flipped learning approach \(K-12\)](#)
- [Artificial Intelligence in Higher Education](#)
- [Systematic Reviews in Educational Research \(co editor\)](#)
- [COVID-19 studies on teaching and learning in K-12 \(rapid review\)](#)
- [COVID-19 studies on teaching and learning in higher education](#)
- [Teaching and learning in secondary schools during COVID-19](#)

Current reviews include...

- Artificial intelligence in education – scoping review of reviews
- Language bias & methodological approaches to evidence synthesis – meta review
- Mothers undertaking doctoral studies – systematic review
- Disabled pre-service teachers – scoping review
- Programming and computational thinking in K-12 – meta review

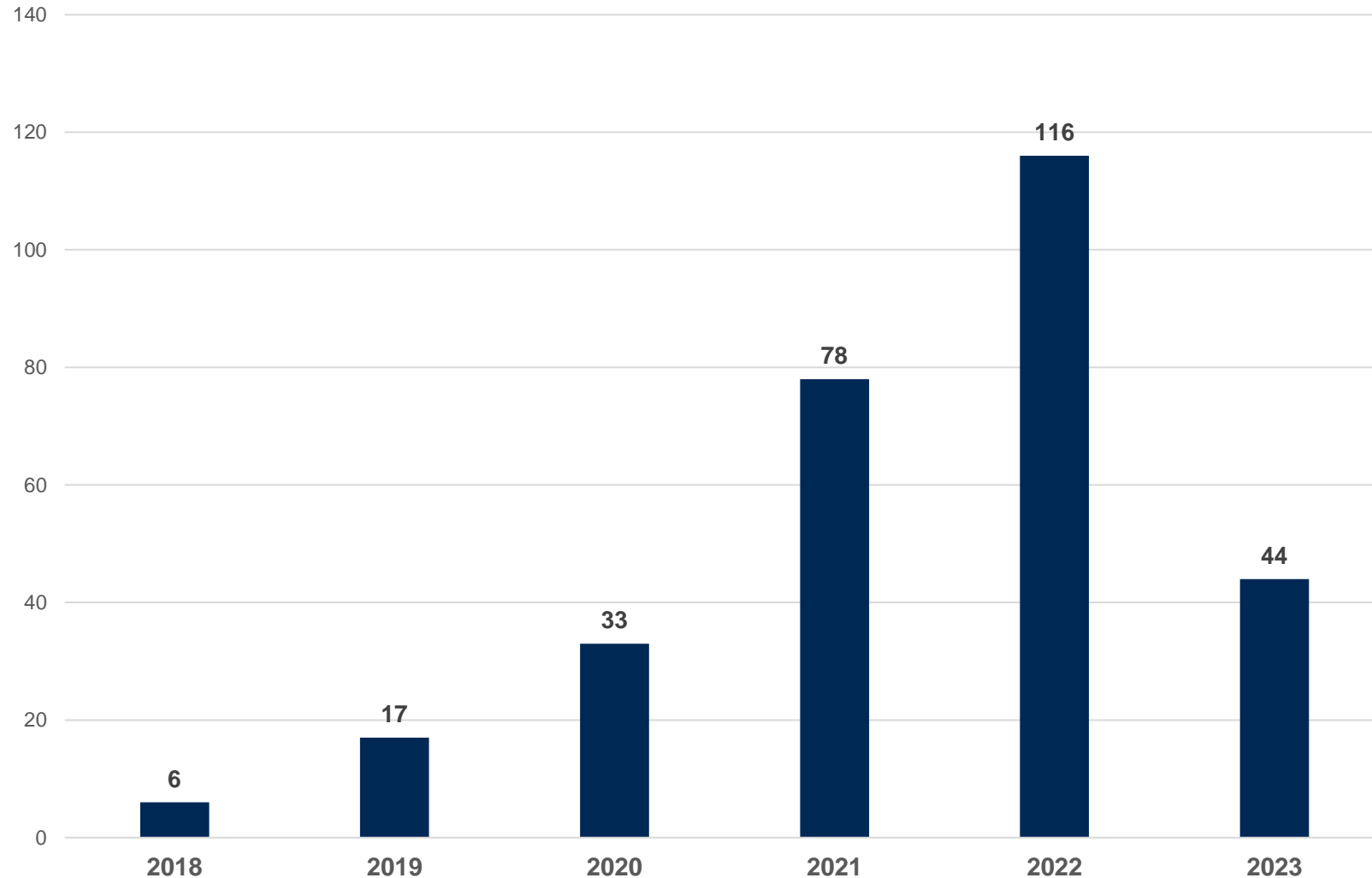


Evidence synthesis

“Rather than looking at any study in isolation, we need to look at the body of evidence”¹



Exponential rise



Scoping review of reviews

AI applications in
Education
2018 – 2023

$n = 294$
(so far...)

Benefits

Search and retrieval skills

Exposure to many research
& writing styles

Broad understanding of a
topic

Identification of research
gaps

Challenges

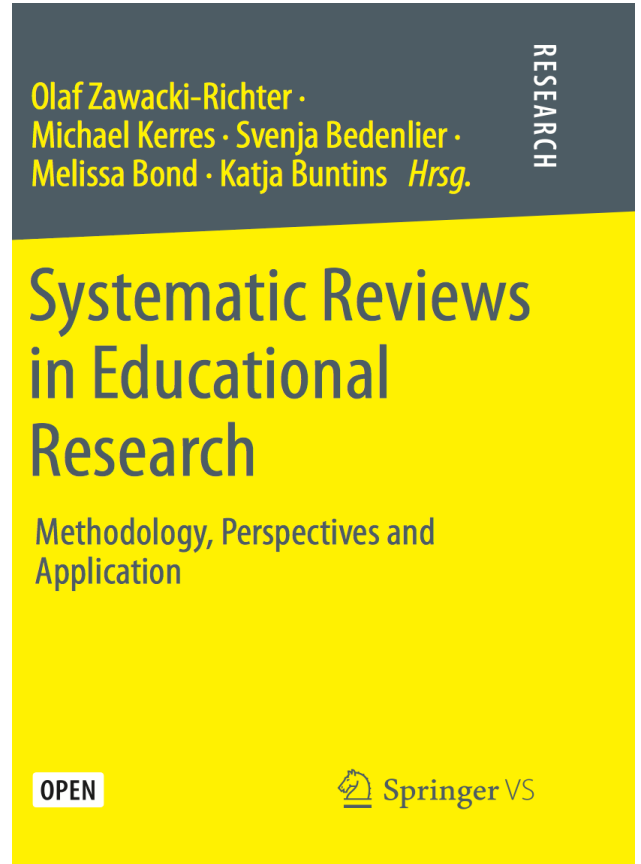
Understanding of method

Software

Scope and retrieval

Resources (time and people)

Further development



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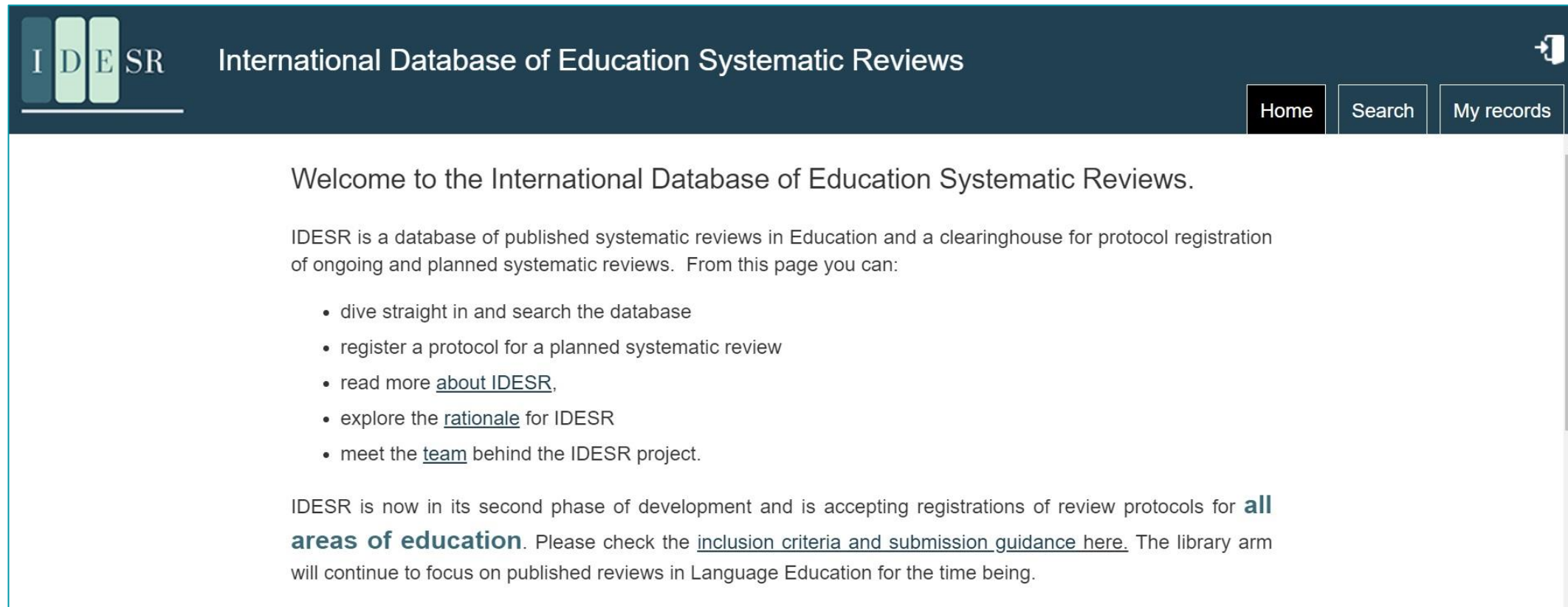
ABOUT ▾ FOR AUTHORS ▾ FOR REVIEWERS ▾ BROWSE CONTENT ▾

Q Search

<http://link.springer.com/10.1007/978-3-658-27602-7>

<https://noredreviews.org/index.php/NJSRE/index>

Further development



The screenshot shows the homepage of the International Database of Education Systematic Reviews (IDESR). The header features the IDESR logo and navigation links for Home, Search, and My records. The main content area includes a welcome message, a description of the database, a list of user actions, and information about the current phase of development.

IDE SR International Database of Education Systematic Reviews

Home Search My records

Welcome to the International Database of Education Systematic Reviews.

IDESR is a database of published systematic reviews in Education and a clearinghouse for protocol registration of ongoing and planned systematic reviews. From this page you can:

- dive straight in and search the database
- register a protocol for a planned systematic review
- read more [about IDESR](#),
- explore the [rationale](#) for IDESR
- meet the [team](#) behind the IDESR project.

IDESR is now in its second phase of development and is accepting registrations of review protocols for **all areas of education**. Please check the [inclusion criteria and submission guidance here](#). The library arm will continue to focus on published reviews in Language Education for the time being.

<https://idesr.org/>

Student engagement conceptualisation

Like a black box¹

“A catch-all term”²

Suffers from indigestion³

“One of the most widely used and overgeneralised constructs found in the educational, learning, instructional and psychological sciences.”⁴

“3 blind men describing an elephant”⁵

1. Bryson & Hardy (2011)
2. Krause (2005, p. 3)
3. Zepke (2018, p. 43)
4. Azevedo (2015, p. 84)
5. Eccles (2016, p. 71); also Baron & Corbin (2012)

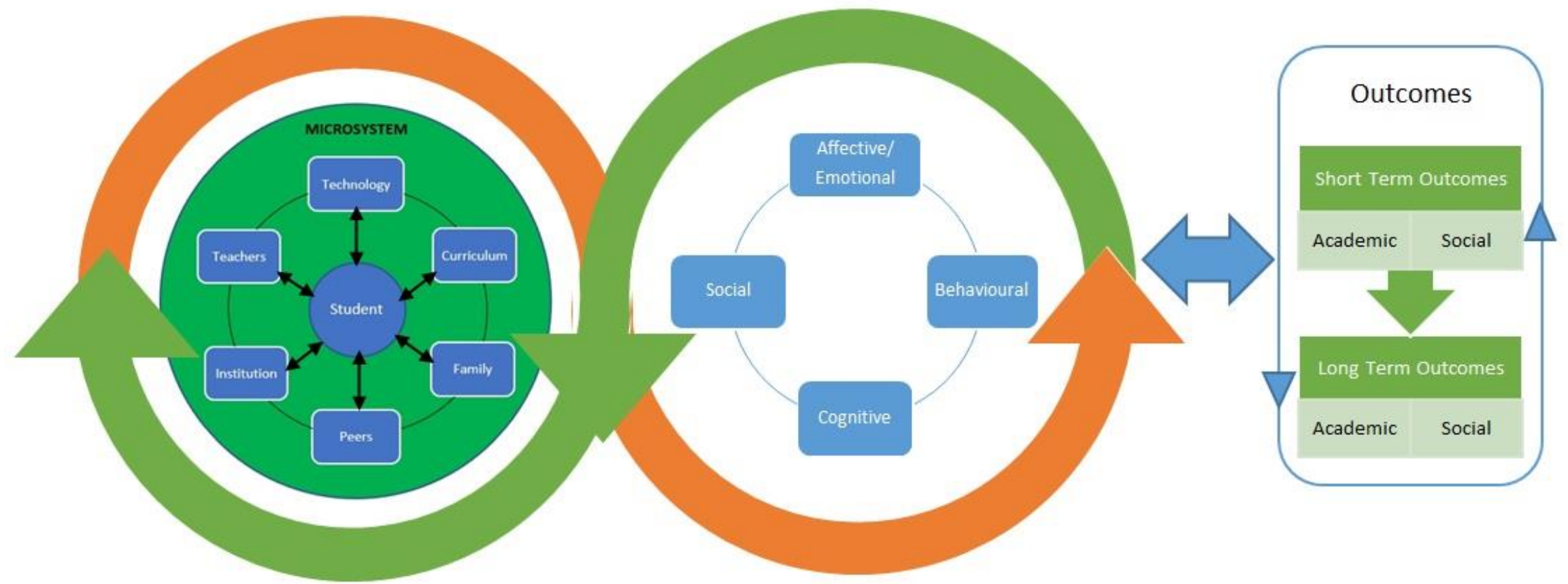
What is student engagement?

Student engagement is the **energy and effort** that students employ within their learning community, observable via any number of **behavioural, cognitive, affective or social** indicators across a continuum. It is shaped by a range of **structural and internal influences**, including the complex interplay of relationships, learning activities and the learning environment. The more students are engaged and empowered within their learning community, the more likely they are to channel that energy back into their learning, leading to a range of short and long term outcomes, that can likewise further fuel engagement.

Student engagement framework

Technology-Enhanced Learning Environment

Student Engagement



Adapted from Bond & Bedenlier (2019, p. 8)

Behavioural Engagement	Cognitive Engagement	Affective Engagement	Social Engagement
Effort	Critical thinking	Enthusiasm	Collaborating & interacting with peers
Study habits/homework completion	Self-regulation	Interest	Collaborating & interacting with teachers
Attending live lessons	Reflection	Satisfaction	Shared knowledge building
Assuming responsibility	Deep learning	Pride	Asking for help
Participation/involvement	Focus/concentration	Excitement	Caring for others

Behavioural Disengagement	Cognitive Disengagement	Affective Disengagement	Social Disengagement
Procrastination	Unwilling	Boredom	Feeling isolated
Absence	Apathy	Anger	Not feeling cared for
Giving up	Opposition/rejection	Dislike	Withdrawing
Poor conduct	Avoidance	Disinterest	Social anxiety
Task incompleteness	Unfocused/inattentive	Frustration	Challenging interactions



EDEN 2023 ANNUAL CONFERENCE

DUBLIN, IRELAND
18-20 JUNE 2023

"DIGITAL EDUCATION FOR BETTER FUTURES"



What does a better future look like?

How can digital education contribute to this future?

What can you do to help make and shape a better future?

C A R R I N G



Compassionate

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#PhDMums

- 1,323 doctoral mothers
- 112 countries
- Support is often lacking



JOURNAL OF FURTHER AND HIGHER EDUCATION
<https://doi.org/10.1080/0309877X.2023.2218274>

Routledge
Taylor & Francis Group

Check for updates

How motherhood enhances and strains doctoral research/ers

Shannon Mason ^{a,b}, Melissa Bond ^c and Susan Ledger ^d

^aSchool of Education, Murdoch University, Perth, Australia; ^bFaculty of Education, Nagasaki University, Nagasaki, Japan; ^cCentre for Change and Complexity in Learning, Education Futures, University of South Australia, Adelaide, Australia; ^dSchool of Education, University of Newcastle, Callaghan, Australia

ABSTRACT

Motherhood is often positioned as incompatible with further education, and various cohort studies have revealed the many ways in which mothers are discouraged from and disadvantaged in higher education. Guided by role theory, we investigated the experiences of more than 1300 'PhD mums' from across the world as they simultaneously navigate the roles of doctoral researcher and mother (or mother-like role). Using a mixed-methods survey design, qualitative and quantitative results were analysed to reveal the contradictions and complexities of the PhD mum experience, with motherhood both straining and enhancing the doctoral journey. Motherhood may

ARTICLE HISTORY

Received 15 April 2022
Accepted 9 May 2023

KEYWORDS

Doctoral education; motherhood; PhD mum; role strain; role enhancement

Database



Website



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Open Access Research

ERT in HE review

➤ 88% OA

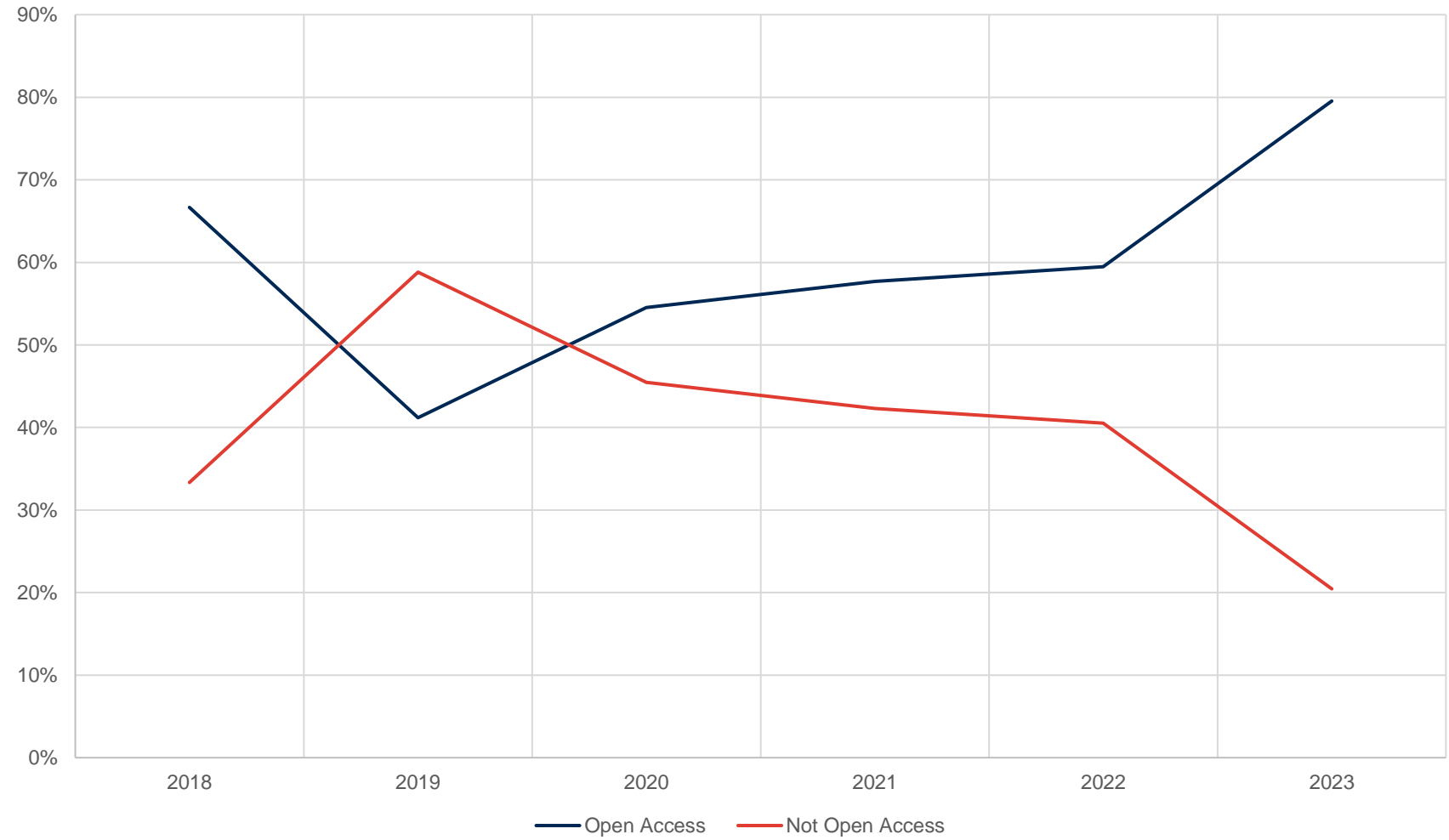
ERT in K-12

➤ 88% OA

AIEd ScRR

➤ 61% OA

Scoping review of reviews – AI applications in Education (*n* = 294)



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Quality

AIED ScRR

Quality Assessment? (*n* = 208)

- Yes 18%
- Partly 12%
- No 70%

Reflection on limitations? (*n* = 274)

- Yes 42%
- Partly 19%
- No 39%

EdTech

Quality Assessment? (*n* = 446)

- Yes 22%
- No 78%

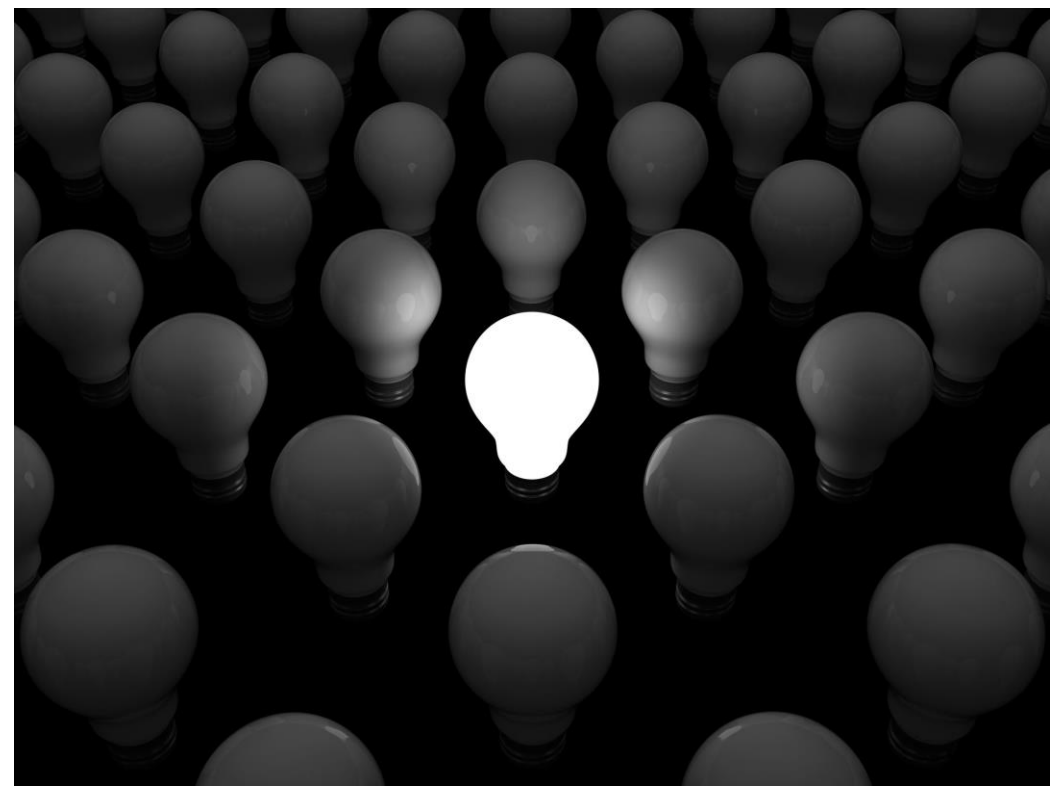
Reflection on limitations? (*n* = 446)

- Yes 47%
- No 53%

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Research Gaps

- SEND
- Non-STEM subjects
- Postgraduate students
- Primary school students
- (AI) ethics
- Novel multimodal methods



Scoping Review of AIEd reviews, with 257 coded so far...

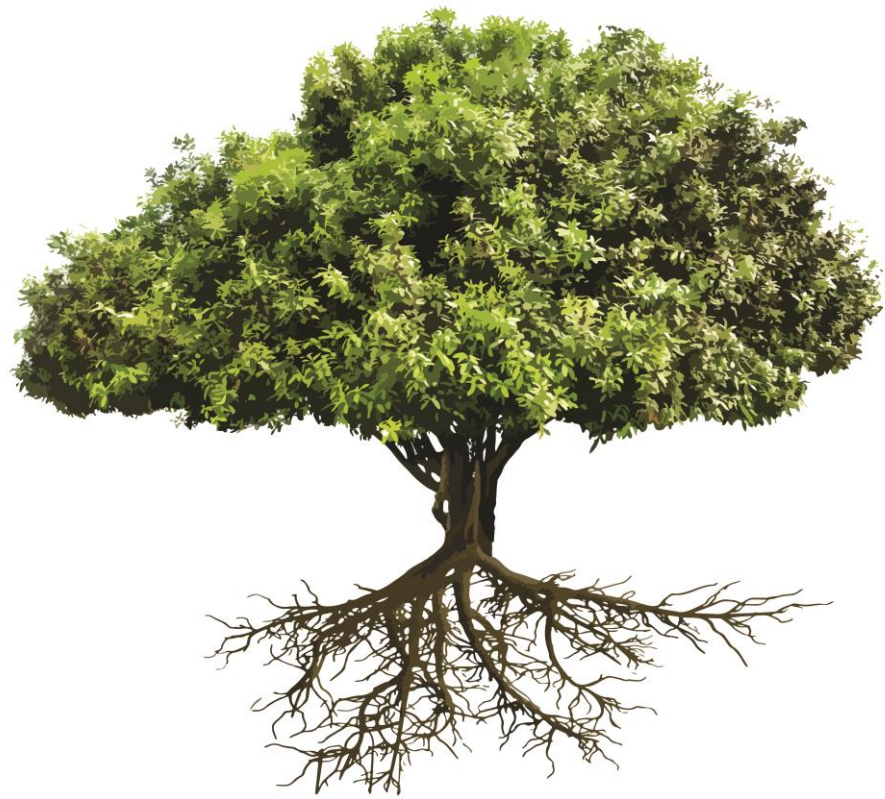
Although it has been found to make the process more efficient, especially when using machine learning tools¹,

- ❖ 55.6% of reviews didn't report which technology was used to conduct the review.
- ❖ Of those that did report it...
 - 15.2% used Excel
 - 13.2% used reference management software (e.g. EndNote)
 - Only **5% of AIEd reviews** used tailored systematic reviewing software
 - Rayyan² ($n = 6$)
 - EPPI-Reviewer ($n = 3$)
 - Covidence³ ($n = 3$)
 - DistillerSR⁴ ($n = 1$)



1. Cowie et al. (2022), Harrison et al. (2020), Kebede et al. (2022), Marshall & Wallace (2019), Tsou et al. (2020)
2. <https://www.rayyan.ai/>
3. <https://www.covidence.org/>
4. <https://www.distillersr.com/products/distillersr-systematic-review-software>

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Grounded



Grounded in theory

Flipped learning and student engagement in K-12 SR

- 88% did not provide a definition of engagement

EdTech and student engagement in HE (pre-pandemic) mapping review

- 93% did not provide a definition of engagement

Student engagement and learning analytics in K-12 ScR

- Conceptualisation and operationalisation issues

Student engagement and learning analytics in HE SR

- Most approaching from behavioural
- Conceptualising separately but results together

Compassionate
Accessible
Rigorous
Inclusive
Novel
Grounded



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- LinkedIn: <https://www.linkedin.com/in/bondmelissa/>
- YouTube: <https://www.youtube.com/user/EPPIReviewer4>

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