31 May 2022

ELESIG Webinar

University of
South Australia

Emergency remote education during the COVID-19 pandemic

Developing rapid reviews to synthesise teaching and learning experiences

Dr Melissa Bond
melissa.bond@unisa.edu.au
@misc_nerd

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

Acknowledgement of Country

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

I respectfully acknowledge the Kaurna, 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. I am honoured to recognise our connection to the Kaurna, the Boandik and the Barngarla 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.

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Agenda

1. Presenter background
2. What are systematic reviews? What are rapid reviews?
3. Emergency remote education in schools: a rapid review
4. ERE: A focus on secondary schools
5. ERE in higher education
6. Lessons learned
7. Further resources
8. Q&A

Dr Melissa Bond

- Former high school teacher in South Australia (10 years)
  - Masters dissertation: *'Student perceptions towards studying German in South Australia at two crucial transition points in secondary schooling'*
- Research Associate (3 years, CvO Universität Oldenburg)
  - PhD, 2020: *'Facilitating student engagement through educational technology: Current research, practices and perspectives'*
- EPPI-Reviewer Support Officer (Feb 2020 onwards)
- Lecturer (Digital Technology Education), University of South Australia (Nov 2021 onwards)
- Systematic & mapping reviews

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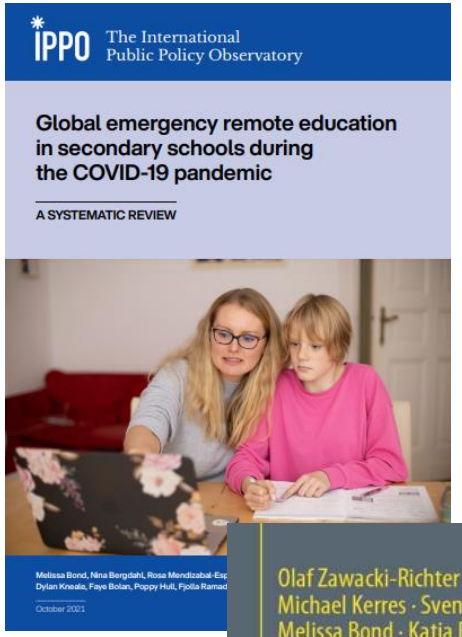
Evidence synthesis

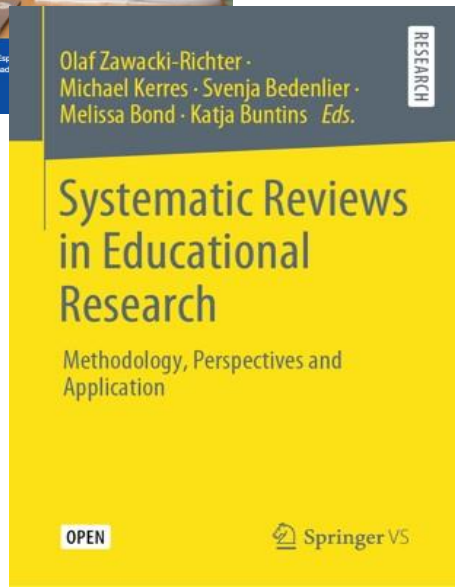
Published reviews

- 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

- Language bias in educational technology research synthesis
- Learning analytics and student engagement
- Doctoral education and motherhood
- International research collaboration in educational research





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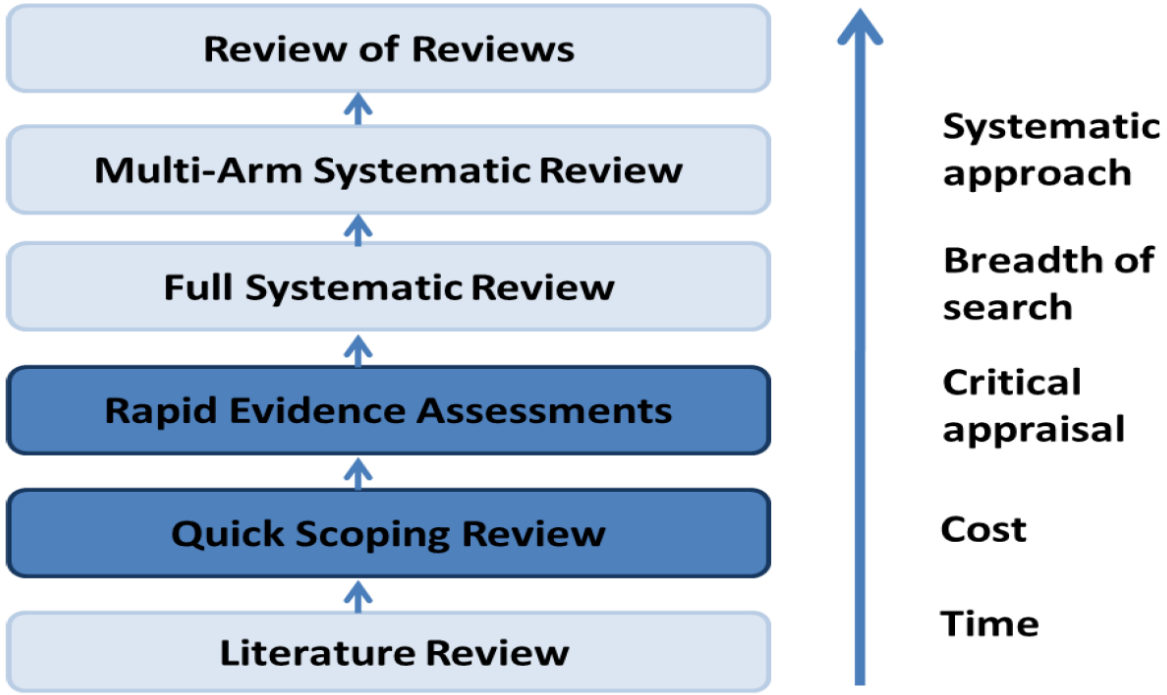
Systematic Review Methodology

- "Rather than looking at any study in isolation, we need to look at the body of evidence"[1]

- "a review of research literature using systematic and explicit, accountable methods"[2]
  - ➢ Transparent and explicit
  - ➢ Replicable and updatable
  - ➢ Identify gaps, contradictions or (in)consistencies

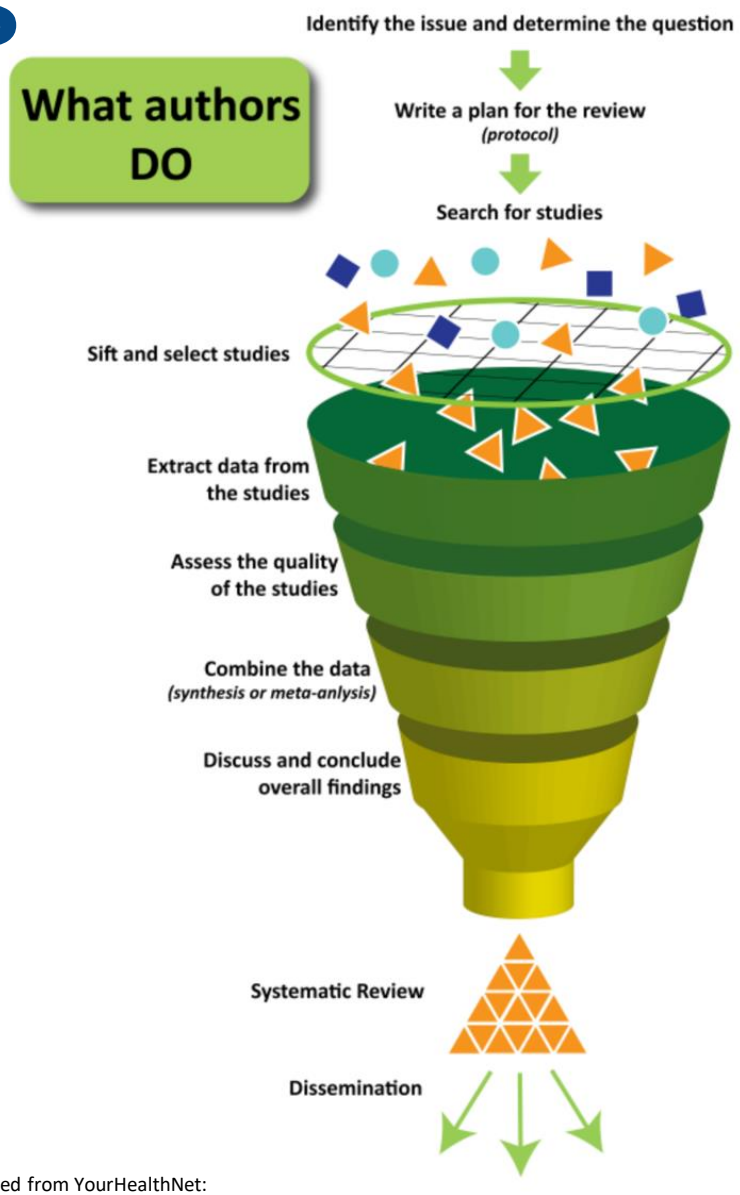


Collins, Coughlin, Miller, & Kirk (2015, p. 1)

1. Nordenbo (2009, p. 22)
2. Gough, Oliver, & Thomas (2012, p. 2)

Systematic Review Process

- Review question and conceptual framework
- Search strategy: search string and selection criteria
- Study screening
  - Title & Abstract
- Study retrieval
- Screen on full text
- Data Extraction
- Quality assessment
- Synthesis
- Report



Retrieved from YourHealthNet: http://navigatingeffectivetreatments.org.au/exploring_systematic_reviews.html (12 Feb, 2019)

Systematic Review Methodology

Benefits

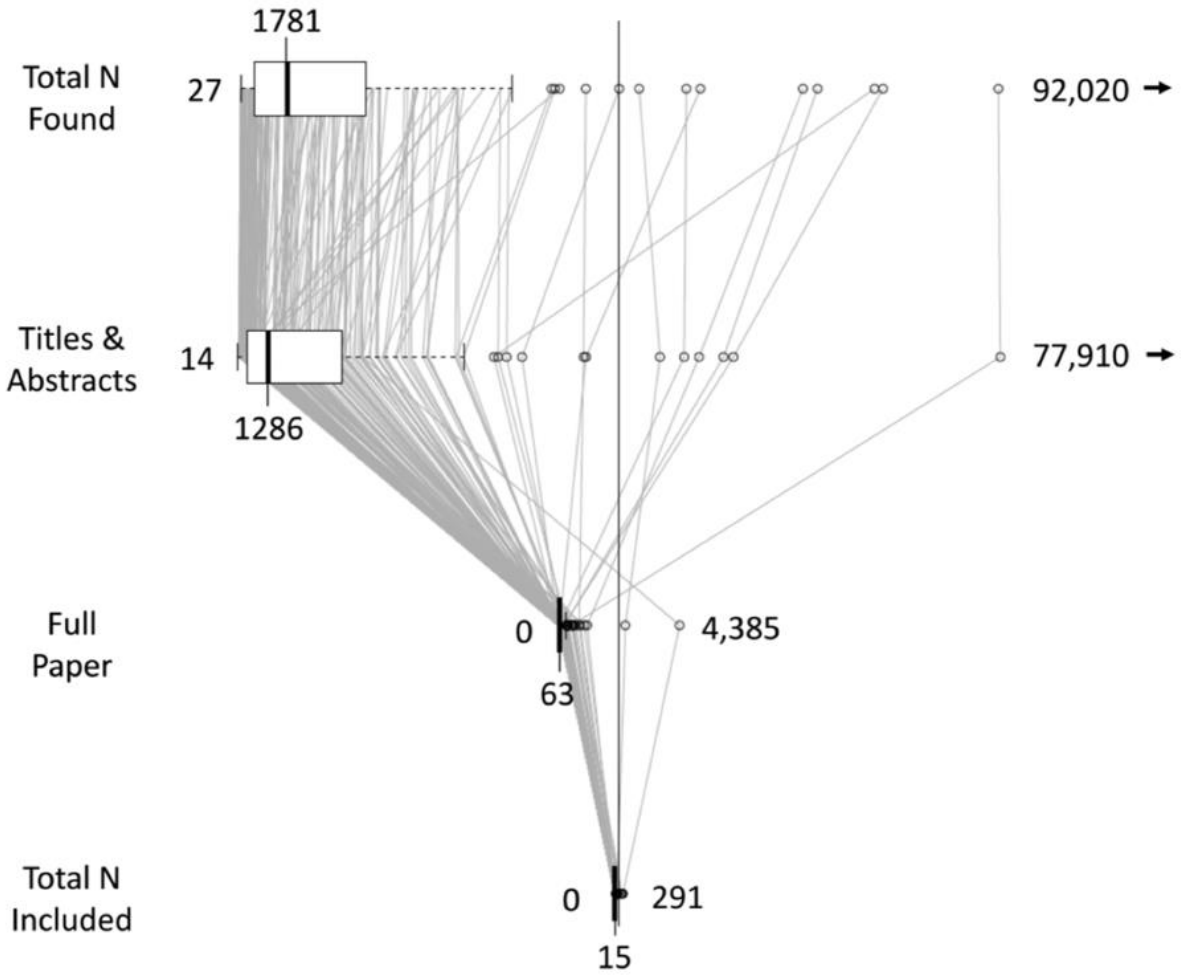
- Search and retrieval skills
- Exposure to many research & writing styles
- Broad understanding of a topic
- Identification of research gaps

Challenges

- Understanding of method
- Software
- Scope and retrieval
- Resources (time and people)

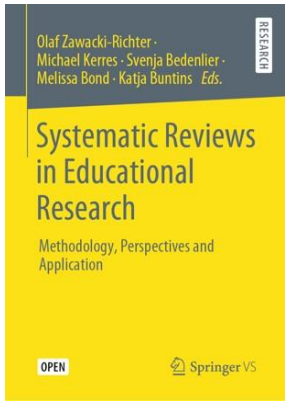
Systematic Review Methodology

- average of 67 (SD = 31) weeks to conduct and publish a review
- reviews that reported funding took longer (42 vs 26 weeks) and involved more team members (6.8 vs 4.8 people) than reviews that reported no funding
- final average yield rate below 3%



Borah et al. (2017, p. 4), N=195

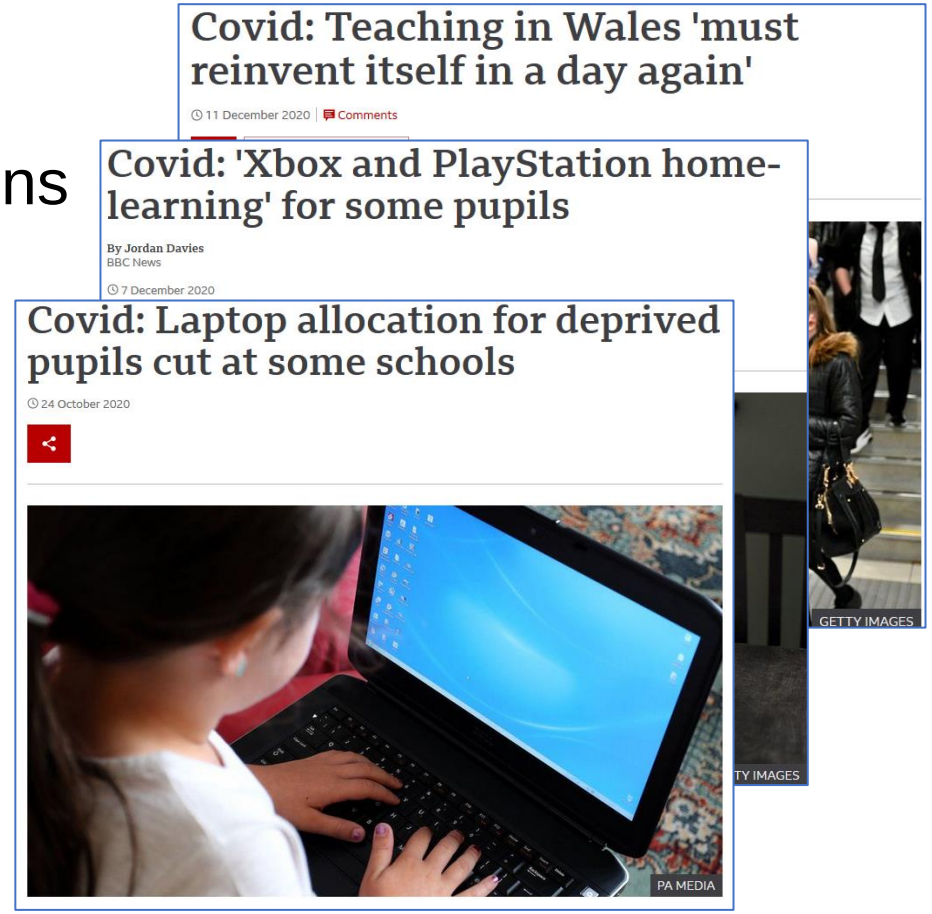
	Tai et al.	Bedenlier et al.	Lo et al.	Goagoses & Koglin	Zawacki-Richter et al.
Topic	conceptualization and measure-ment of student engagement	student engage-ment and edu-cational techno-logy in higher education	flipped and video-based learning in various subject areas in higher education	social goals and academic success	AI in higher education
Duration	18 months	24 months	1 – 4 months	11 months	9 months
No of team members	4 authors, 1 research assistant	5 authors, 2 research assistants	1 – 3 authors	2 authors	3 authors, 1 research assistant
Initial references	4,192	77,508	936 – 4,053	2,270	2,656
Final references	186	243	5 – 61	26	146
Yield rate	4.44 %	0.31 %	0.05 – 1.51 %	1.14 %	5.50 %
Databases searched	PsycINFO, ERIC, Education Source, and Academic Search Complete were accessed via Ebscohost, Scopus, Web of Science	ERIC, Web of Science, PsychINFO, and SCOPUS	Academic Search Complete, TOC Premier, and ERIC, PubMed, PsycINFO, CINAHL Plus, and British Nursing Index	Web of Science Core Collection, Scopus, and PsychINFO	EBSCO Education Source, Web of Science, and Scopus



Zawacki-Richter at al. (2020)

Emergency remote education during the COVID-19 pandemic

- Abrupt switch to emergency remote teaching.
- Research gaps, especially within vulnerable populations and the role of parents.
- Many teachers and educators were looking to explore how other countries had reacted.
  - However, lack of time plus added stress.
- Early attempts to collate information.
- Evidence synthesis needed for policy and practice.



BBC (2020); Davies (2020)

Rapid Review Methodology

"A rapid review is a form of knowledge synthesis that **accelerates** the process of conducting a traditional systematic review through **streamlining or omitting** specific methods to produce evidence for stakeholders in a **resource-efficient** manner."[1]

- Limiting search to published literature
- Only searching one database
- Using automation (machine learning)
- Limiting inclusion criteria by date or language
- Only one person conducting the review
- Conducting multiple steps simultaneously
- Not conducting quality appraisal[2]

1. Garrity et al., 2020, p. 1
2. Tricco et al., 2015; Tricco et al., 2020

Schools and ERE during the COVID-19 pandemic[1]

Research questions

1. Where, when and by whom has K-12 research on teaching and learning during the COVID-19 pandemic been published?

2. What are the characteristics of, methods used, and topics studied in research on teaching and learning in K-12 during the COVID-19 pandemic?

3. What technology has been used during emergency remote teaching and what are stakeholder perceptions?

4. Which influential factors on student engagement within the microsystem were the most discussed?

5. What recommendations have been provided in the included studies for emergency remote teaching and learning going forward?

1. Bond, 2020

(Living) rapid review

- Limit the number of databases
- Conduct the review alone
- Limit to English-only
- Draw on previous reviews

Search

- Use of previous reviews to construct search string
- WoS, EBSCOHost, Scopus, Microsoft Academic Graph, ResearchGate, Twitter

"emergency remote teaching" OR "student-centred remote teaching" OR "emergency remote education" OR "student-centered remote teaching" OR "COVID-19" OR "COVID19" OR pandemic OR "Corona virus" OR "online pivot"

AND

"K-12" OR kindergarten OR kindy OR "primary school" OR "middle school" OR "secondary school" OR school OR "high school" OR "reception" OR "R-12" OR "junior primary" OR "elementary school" OR "middle primary" OR "upper primary" OR "senior school"

NOT

"public health" OR nonpharmaceutical OR energy OR pharmaceutical OR pharmacy OR clinic* OR pathology OR telemedicine OR inflammation OR patient* OR neurolog* OR telehealth OR surgery OR universit* OR "higher education" OR postgrad* OR undergrad* OR "tertiary education" OR college

Figure 3. Search string

(Living) rapid review

Screening

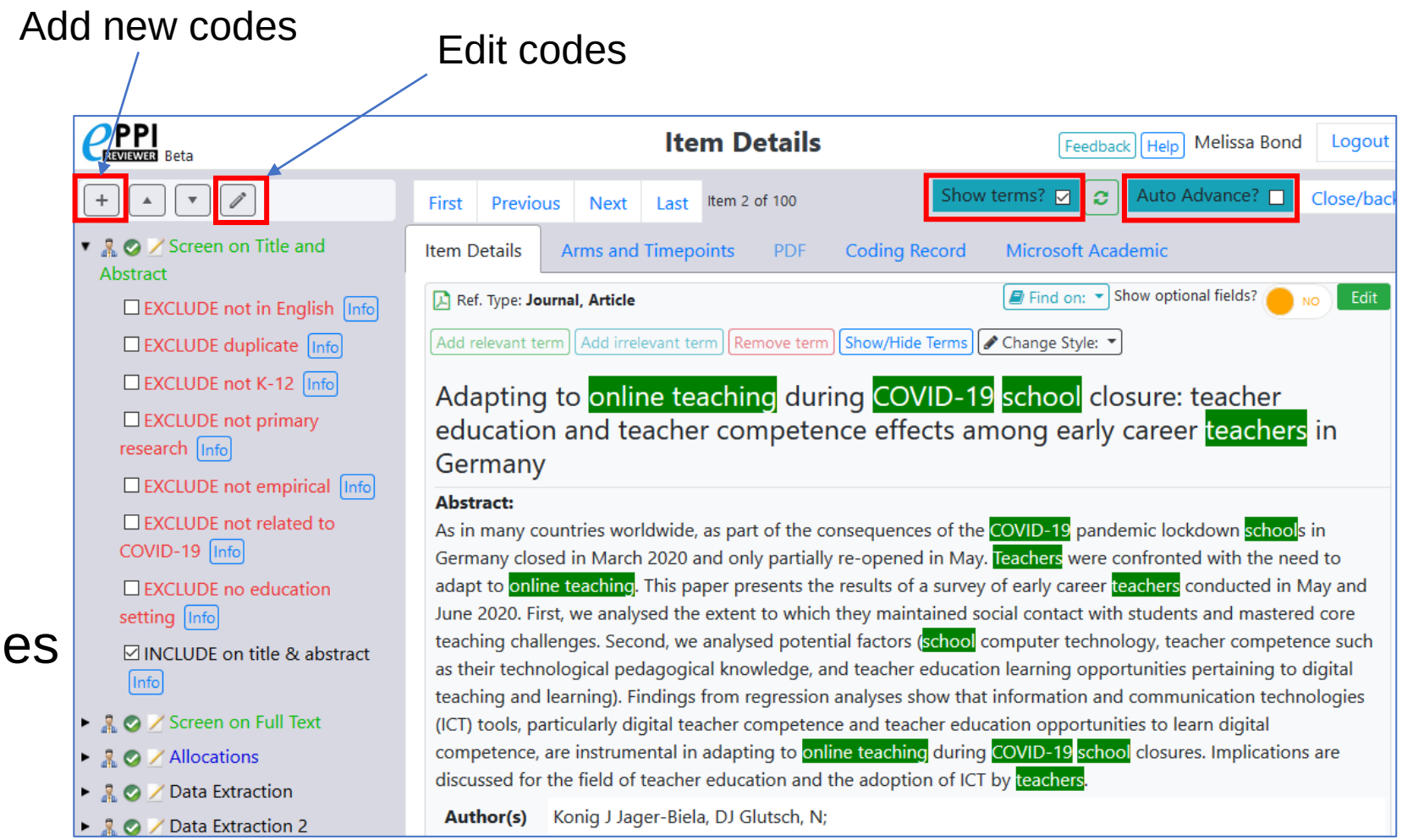
- EPPI-Reviewer
- 777 screened on title and abstract, 156 on full text

Inclusion Criteria	Exclusion Criteria
K-12	Higher education, further education
Teaching and learning setting (students, teachers, school leaders, administrative support structures)	No teaching and learning setting
English language	Not in English
Empirical study	Not empirical or primary research
Studies undertaken during the COVID-19 pandemic	Studies undertaken before the outbreak of COVID-19

EPPI-Reviewer

Screening

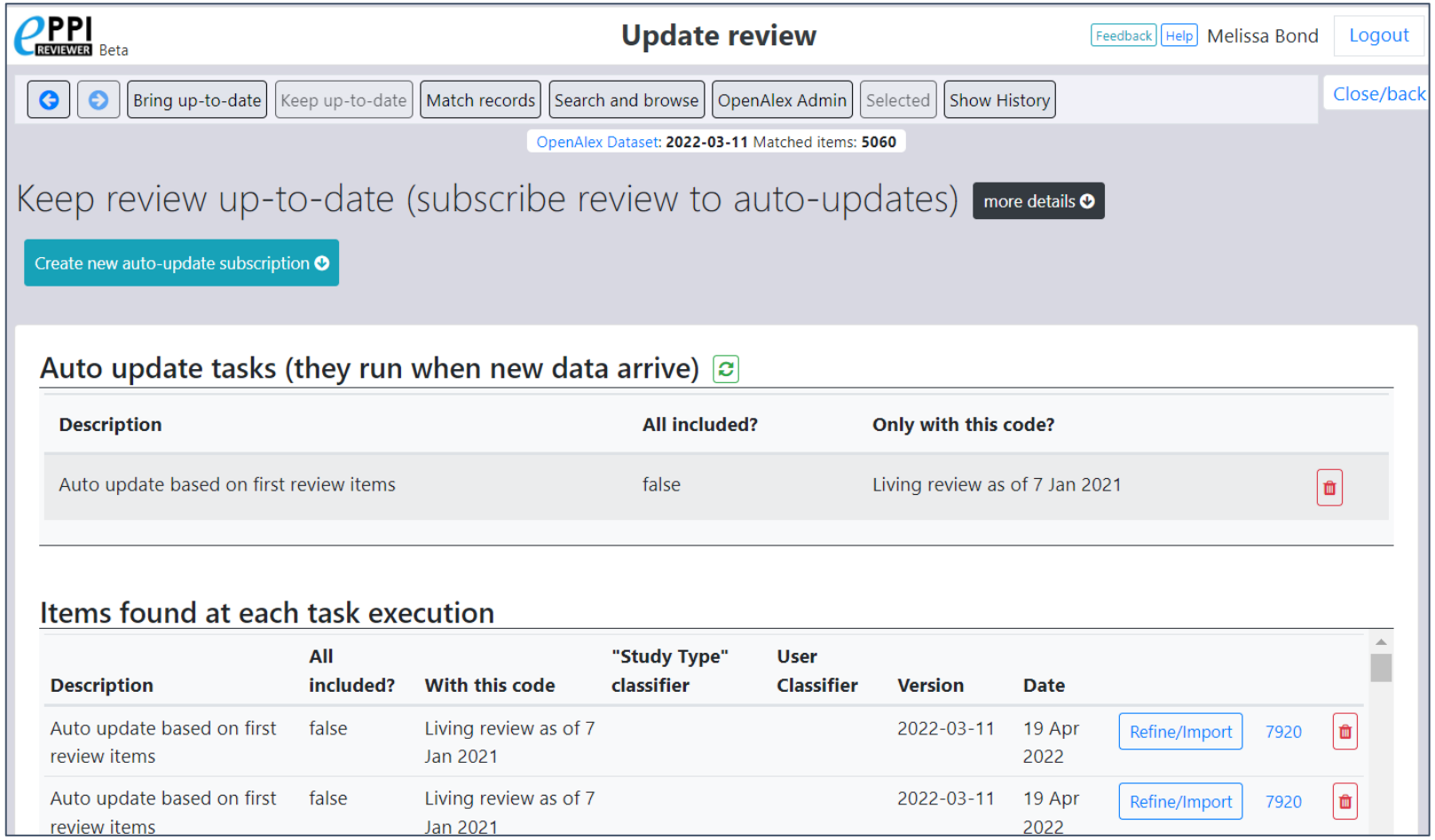
- Enable ***auto advance***
- ***Show terms*** function highlights key phrases
- Use touch device
- Easy to edit and add codes or extra information



(Living) rapid review

Using Open Alex in EPPI-Reviewer

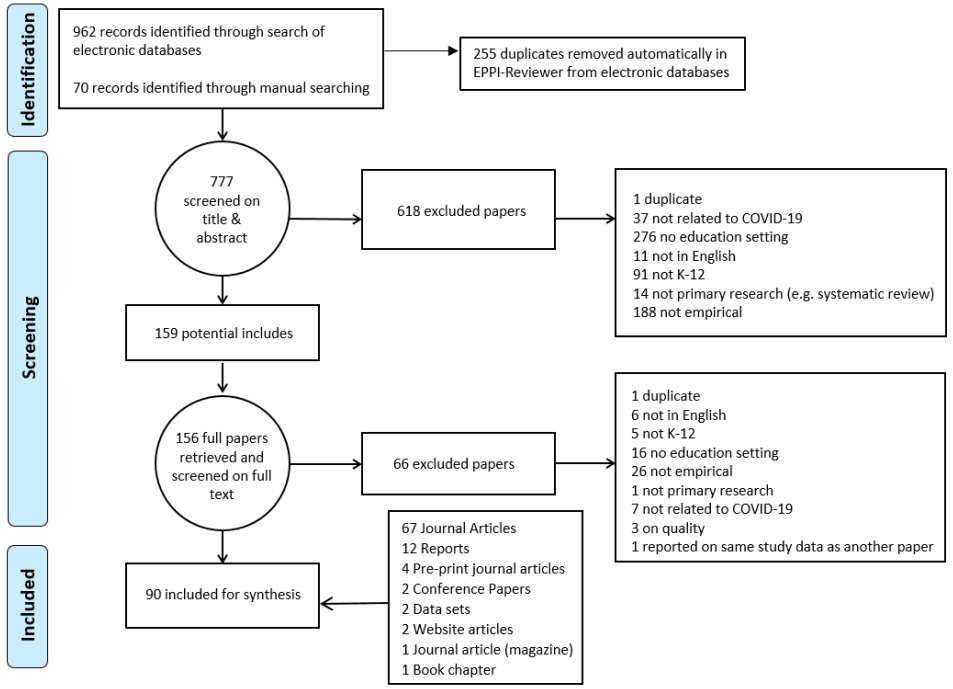
- Bring up-to-date or keep up-to-date
- Allows easy citation checking.
- Import items directly into your review.
- Create auto-updates for included items in your review.

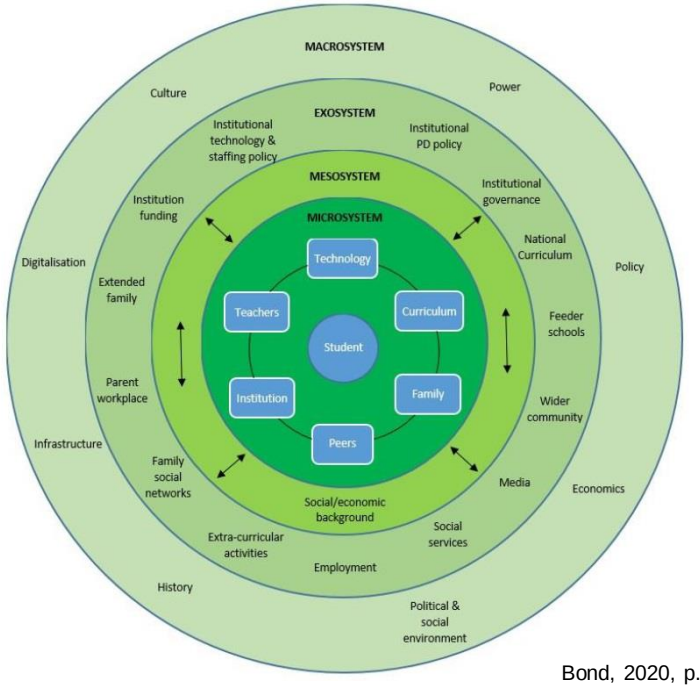


(Living) rapid review

Data extraction

- 89 studies included for data extraction
- Use of previous reviews to construct data extraction tool



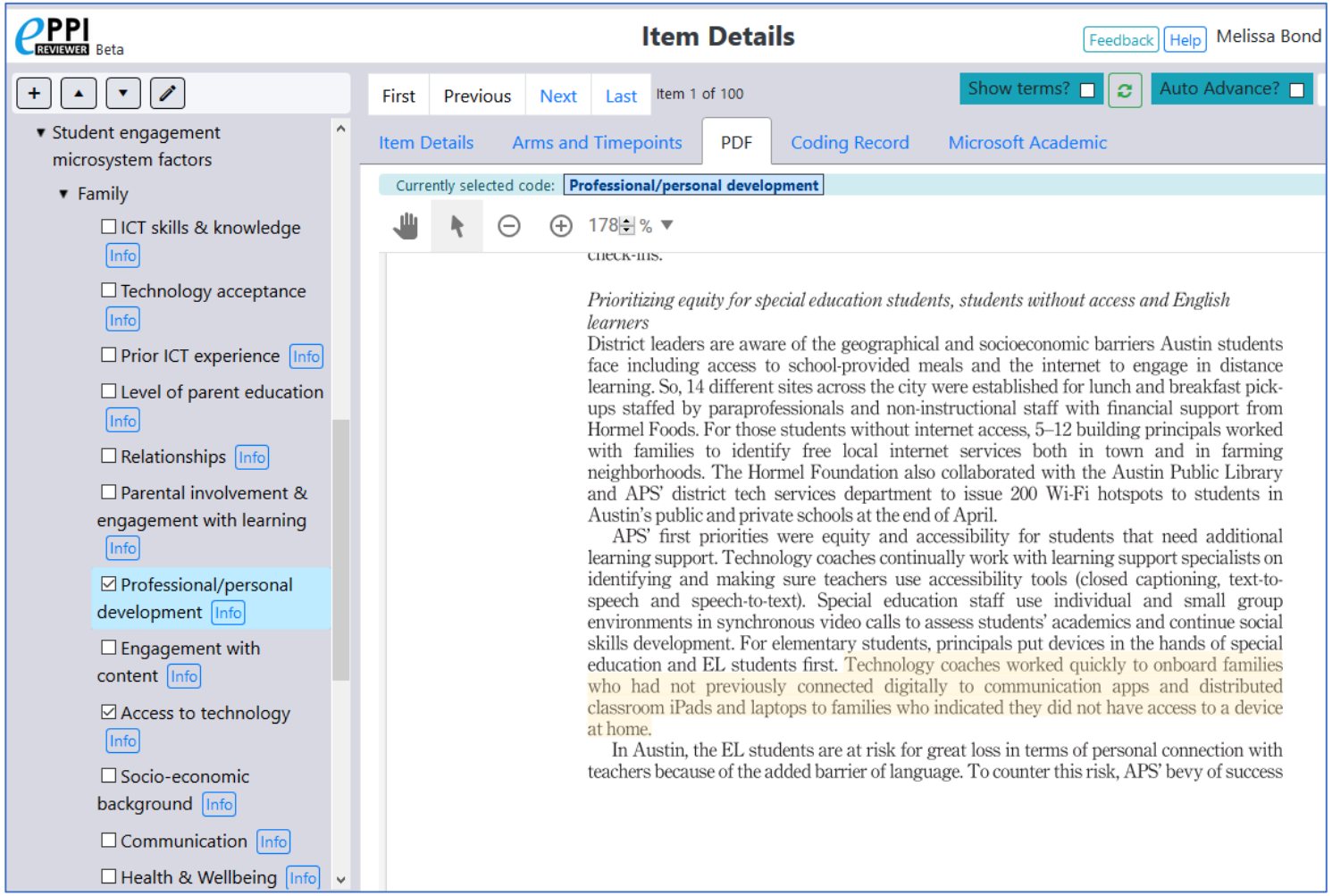


Bond, 2020, p. 35

EPPI-Reviewer

Data extraction

- View PDFs within item records
- Highlight text and assign to codes
- Highlighted quotes appear in reports
- Produce reports with quotes for just one code



(Living) rapid review

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Data synthesis

- Narrative synthesis
- Tabulation and interactive evidence gap maps, computer-assisted content analysis

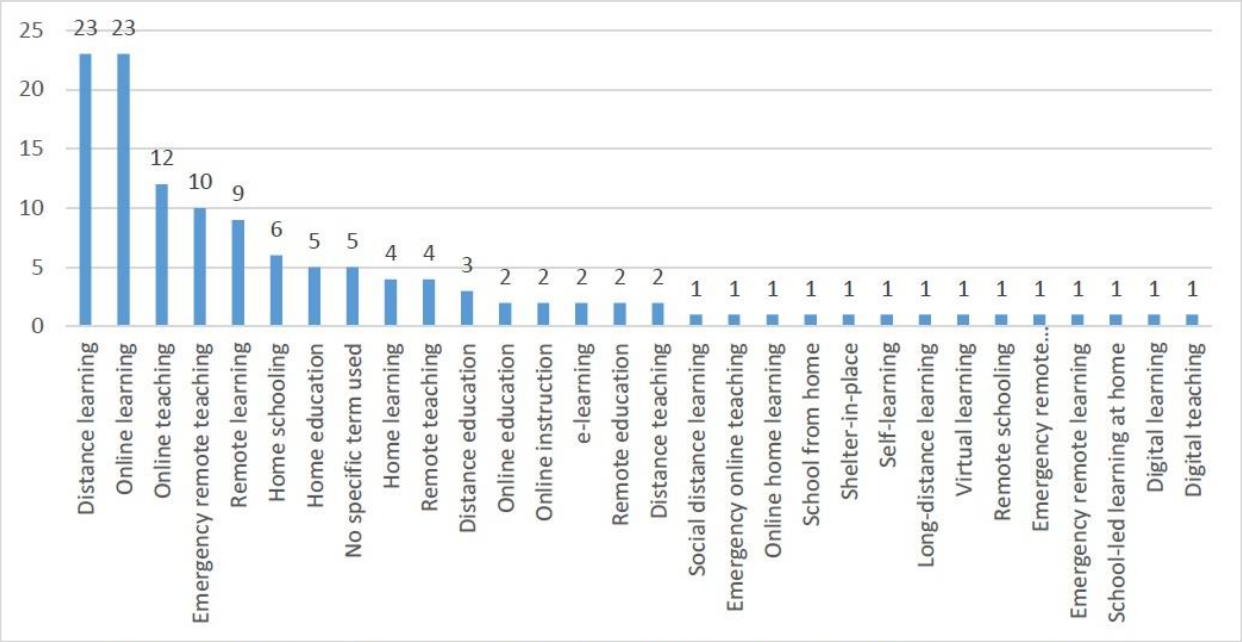


Figure 7. Terminology used to describe teaching and learning during the pandemic

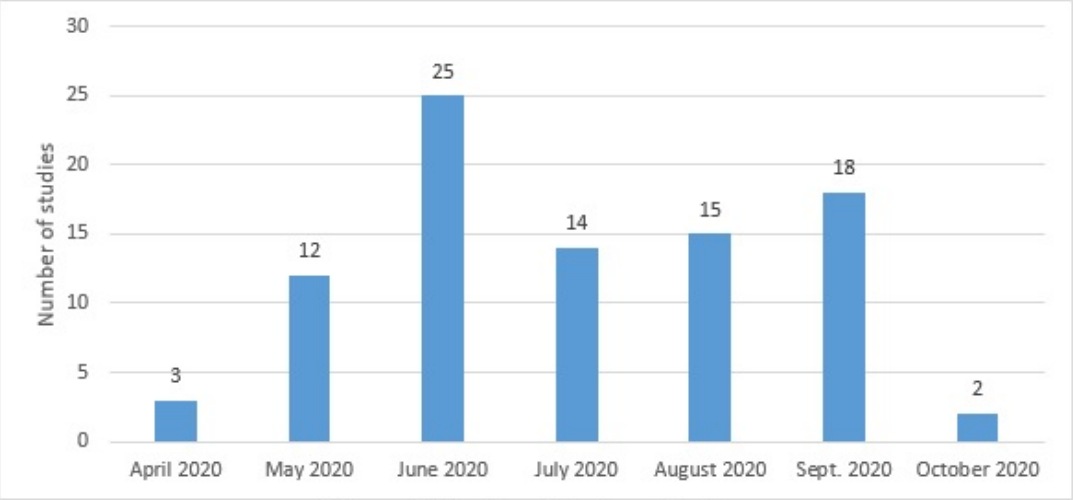
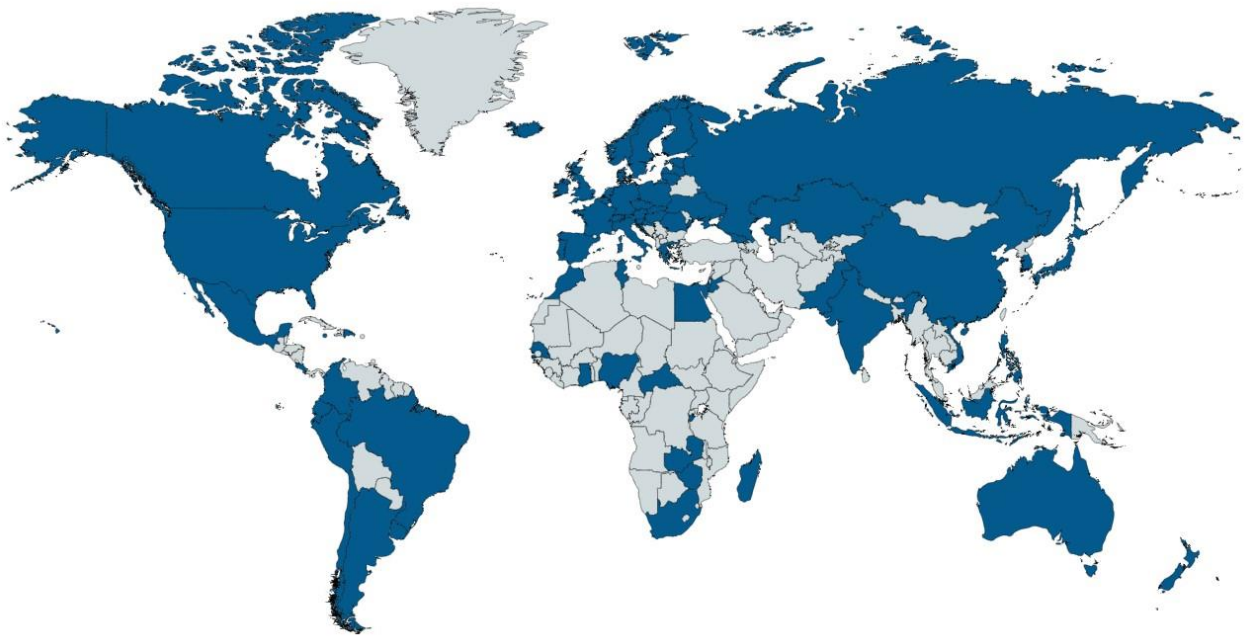
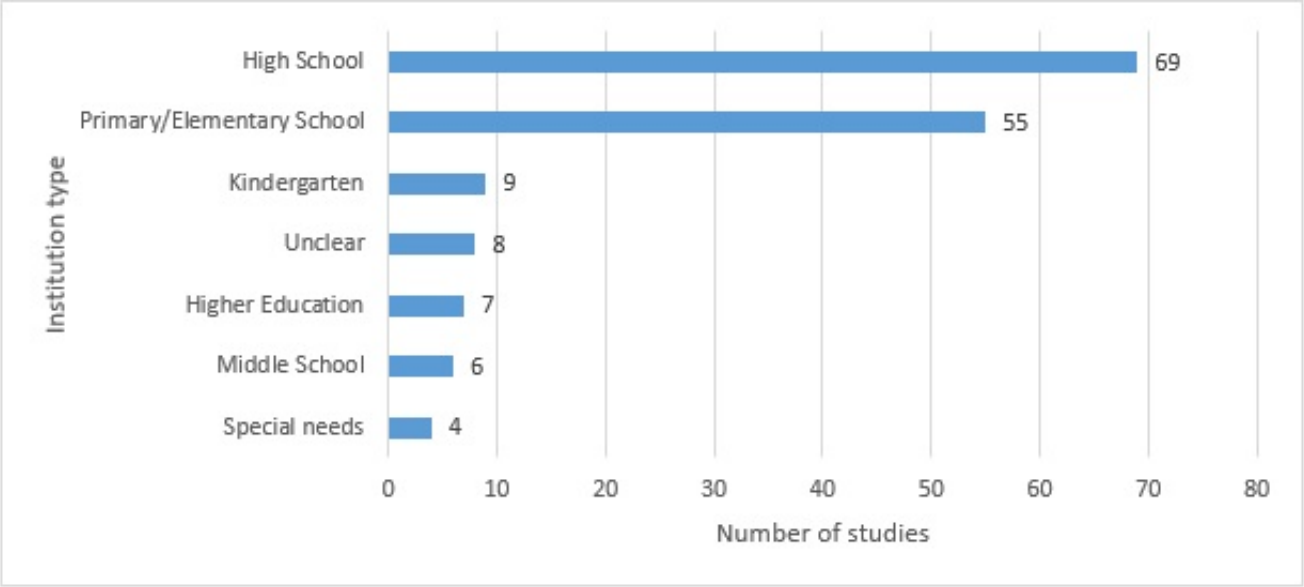


Figure 6. Timeline of study publication

Selected key findings

- 88% of studies are available open access.
- Most research participants were from Europe (44%), Asia (27%) and North America (22%).
- The majority of studies were focused on experiences at secondary school level (78%), and focused on teachers and school leaders (71%).

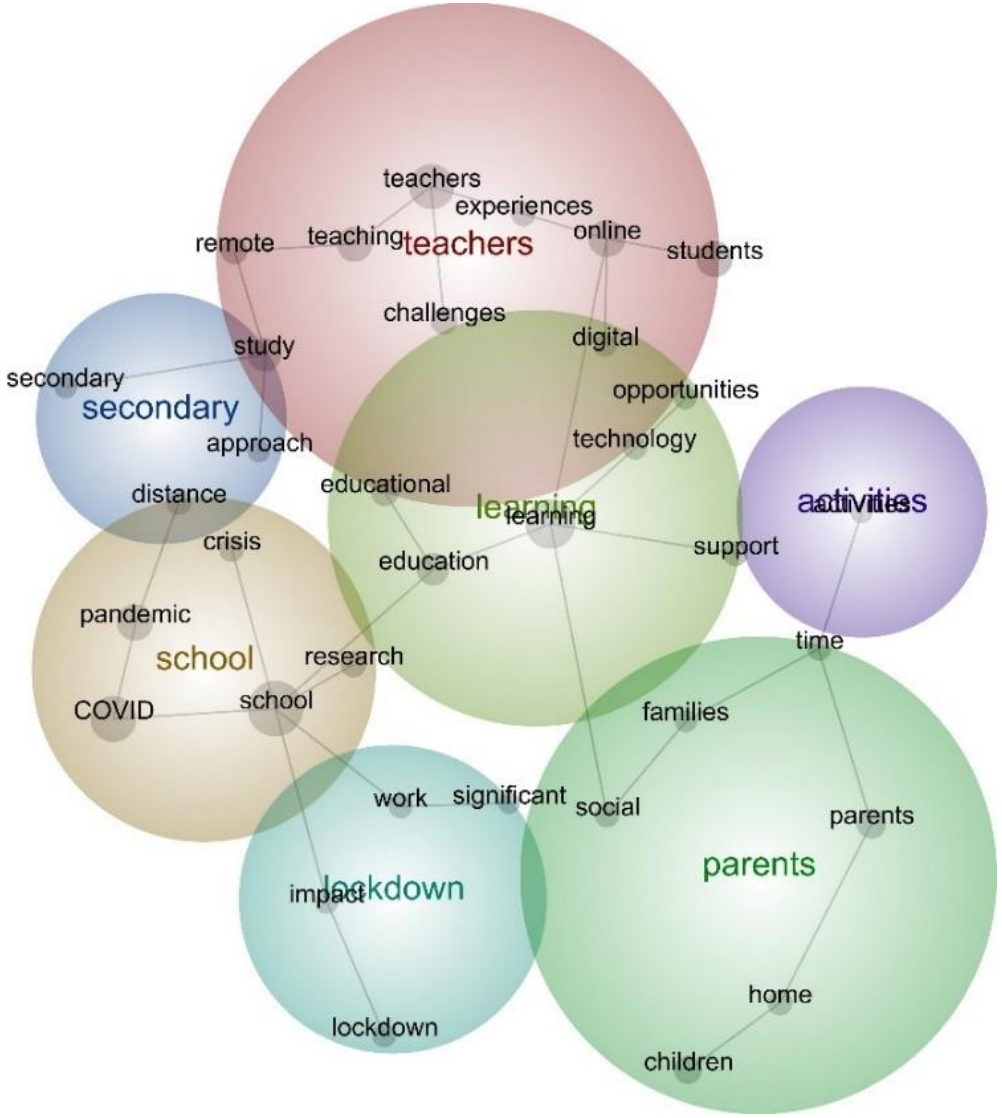




https://eppi.ioe.ac.uk/CMS/Portals/35/Maps/Mel/EGM_Schools_ERE_RQ1.html

Selected key findings

- 52% qualitative, 44% quantitative, 4% mixed methods.
- Online surveys most prevalent (67%) and fit for purpose.
- The majority of studies were focused on general challenges in teaching and learning (63%), followed by teacher digital competence (33%), digital infrastructure (33%), student learning habits (32%), and school/home connection (31%).



Selected key findings

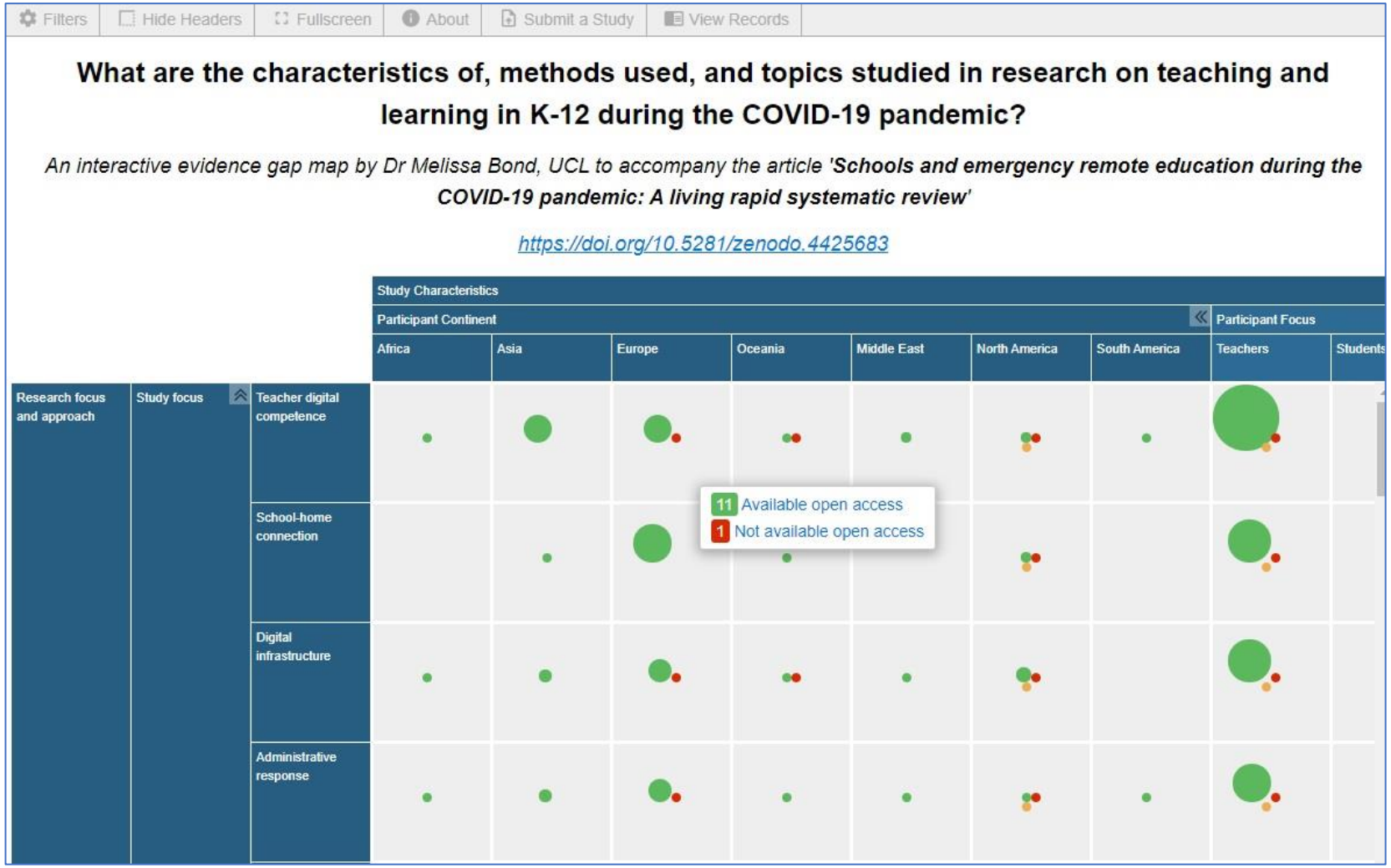
- Over 80 individual tools used.
- *Synchronous collaboration tools* (47%), *knowledge organisation and sharing tools* (43%), and *text-based tools* (38%).
- Most frequently mentioned tools Zoom, Google Classroom, LMS, videos made by teachers, and video conferencing software.

Technology	*n*	Technology	*n*	Technology	*n*
Zoom	26	Discussion forums	2	URPlay	1
Google Classroom	19	Google Drive	2	Sli	1
Other unnamed LMS	17	Class Dojo	2	SLearning platform	1
Videos (teacher made)	14	Showbie	2	Screencastify	1
Video conferencing (unknown)	12	BBC Bitesize	2	Flipgrid	1
Email	11	Oak Academzy	2	Blackboard	1
Facebook	9	DingTalk	2	Explain Everything	1
WhatsApp	9	WeChat	2	Codecombat	1
Chat/messaging (unknown)	9	Moodle	1	Blogs	1
YouTube	7	Edpuzzle	1	International Children's digital library	1
PowerPoint	6	Podcasts	1		
Google Meet	6	Twitter / Snapchat	1	Radio	1
Videos (made by others)	5	Learning games	1	PowToon	1
Google Forms	5	Autodesk SketchBook	1	Alcody	1
Google Docs	5	FastStone Capture	1	Formative	1
Schoology	5	TEDEd	1	WebASsign	1
Seesaw	4	Sumdog	1	Google Slide Deck	1
Teams	4	Paragraph Punch	1	Twinkl	1
TV lessons	4	Spelling City	1	Padlet	1
Videos (uncertain origin)	3	The OT Toolbox	1	Jitsi	1
Self-assessment quizzes	3	Google Hangout	1	MeisterTask	1
Webex	3	Gleerups	1	MOOCs	1
Kahoot	3	Bingel	1	Chaoxing	1
Tencent Meeting	3	GSuite	1	CCTalk	1
Edmodo	2	Compass	1	Daymap	1
Microsoft 365	2	Education Perfect	1	Skype	1

https://eppi.ioe.ac.uk/CMS/Portals/35/Maps/Mel/EGM_Schools_ERE_RQ3.html

Interactive evidence gap maps

- Created for each research question
- Freely available open access
- Filterable, searchable
- Can download references
- Direct links to studies
- Can assist synthesis



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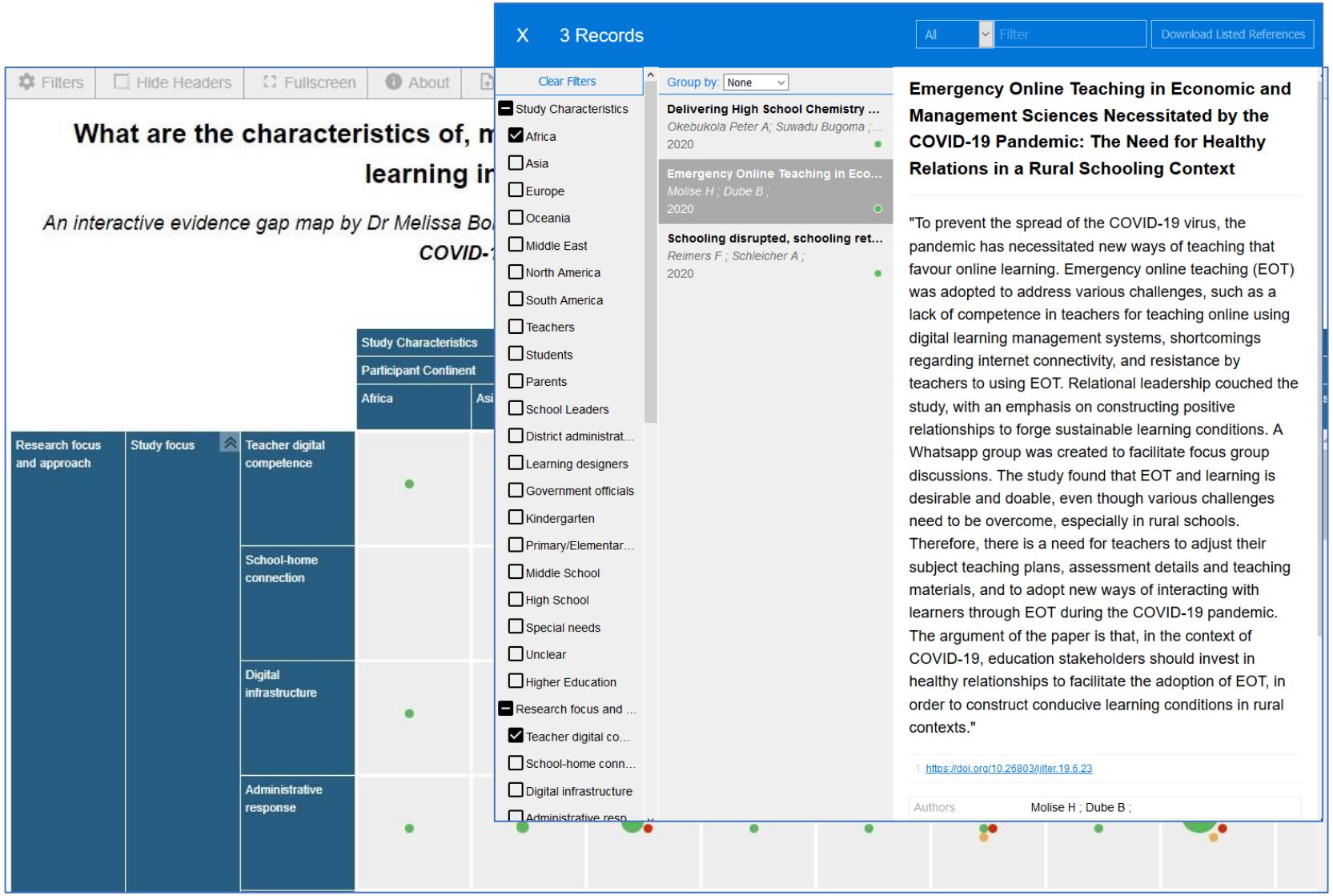

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Identified research gaps

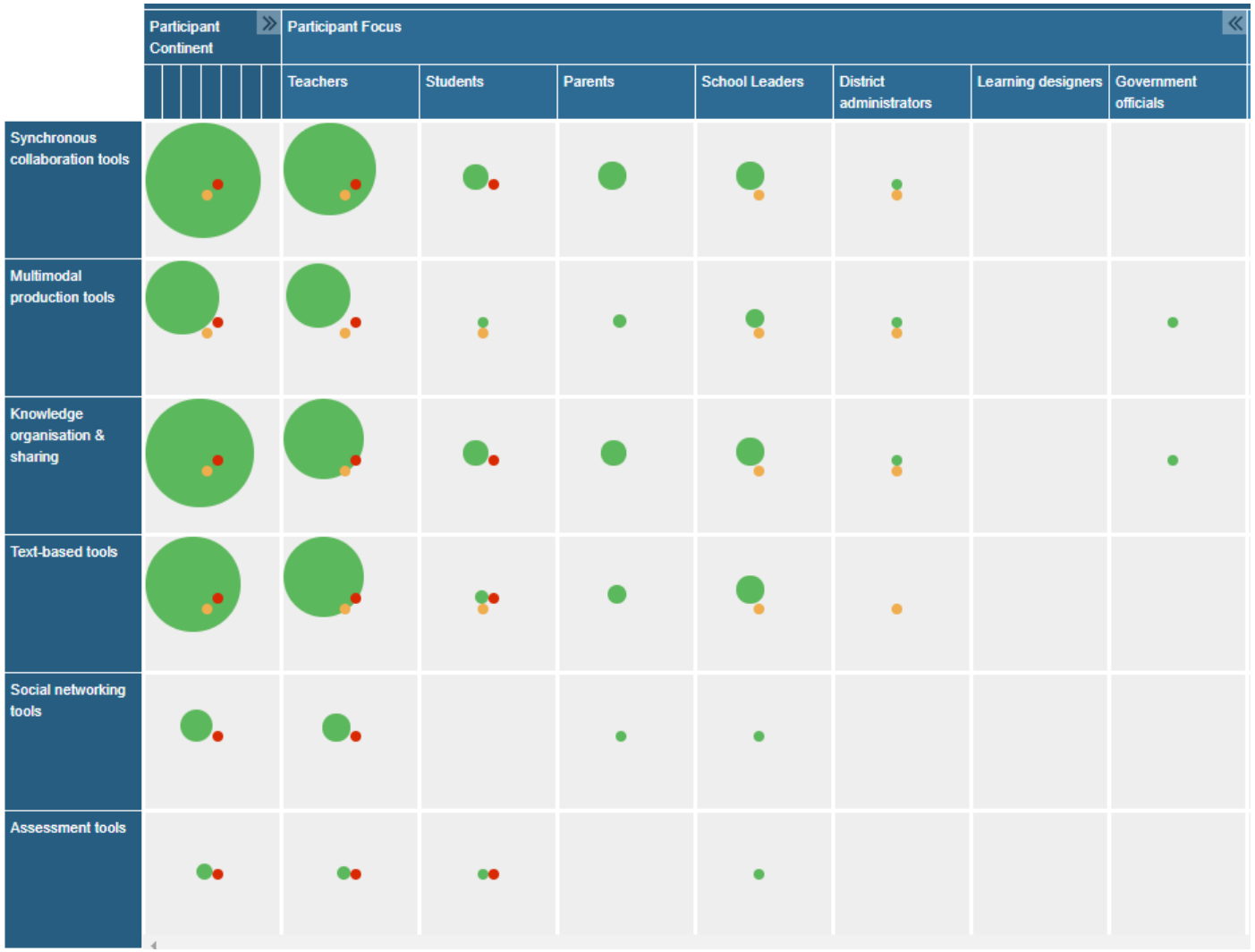
- Lack of research from Africa, Oceania, the Middle East and South America.

Identified research gaps

- Lack of research from Africa, Oceania, the Middle East and South America.
- More research needed on the experiences and preferences of students, especially in regards to vulnerable populations.

Identified research gaps

- Lack of research from Africa, Oceania, the Middle East and South America.
- Experiences and preferences of students, especially in regards to vulnerable populations.
- Multimodal production tools, social networking tools and assessment tools.



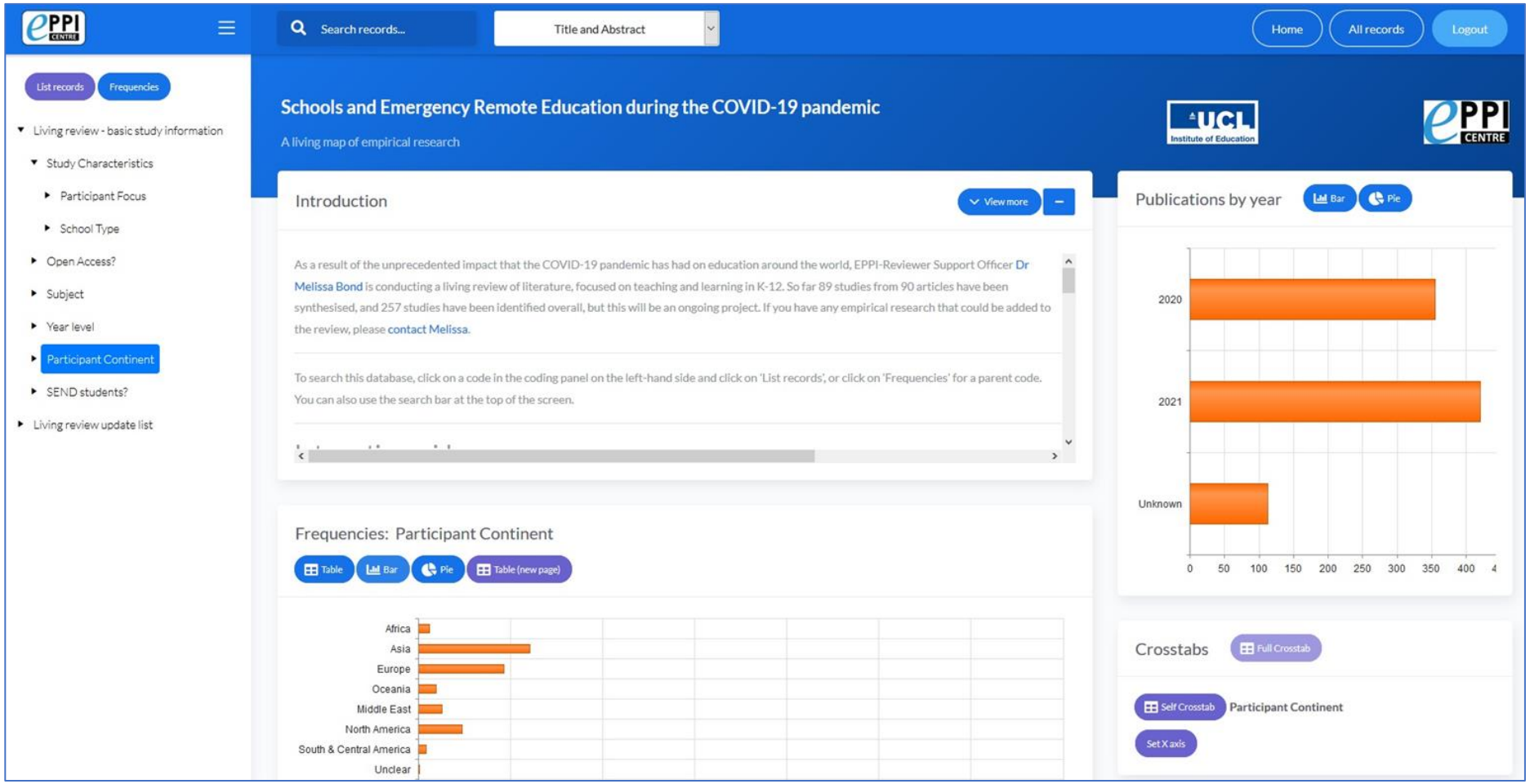
Identified research gaps

- Lack of research from Africa, Oceania, the Middle East and South America.
- Experiences and preferences of students, especially in regards to vulnerable populations.
- Multimodal production tools, social networking tools and assessment tools.
- Google Classroom, Edmodo, Moodle and videos.

(Living) review

Using EPPI-Visualiser within EPPI-Reviewer

https://eppi.ioe.ac.uk/eppi-vis/login/open?webdbid=5



Online and blended learning in secondary schools during the COVID-19 pandemic[1]

Research questions

1. In what ways did emergency remote education affect motivation and engagement in secondary students?
2. How did research report on emerging online assessment practices in secondary schooling during the pandemic?
3. Are new approaches to peer collaboration emerging and what does this suggest?
4. How did online learning in secondary schools affect parent engagement?
5. What emerging uses of online and blended learning approaches in secondary schools could continue to be implemented going forward?

1. Bond et al., 2021a

METHOD

Systematic review

This is a systematic review of research, using rigorous methods for identifying evidence, conducting quality appraisal and synthesis: 81 studies met our criteria and were included in the review.

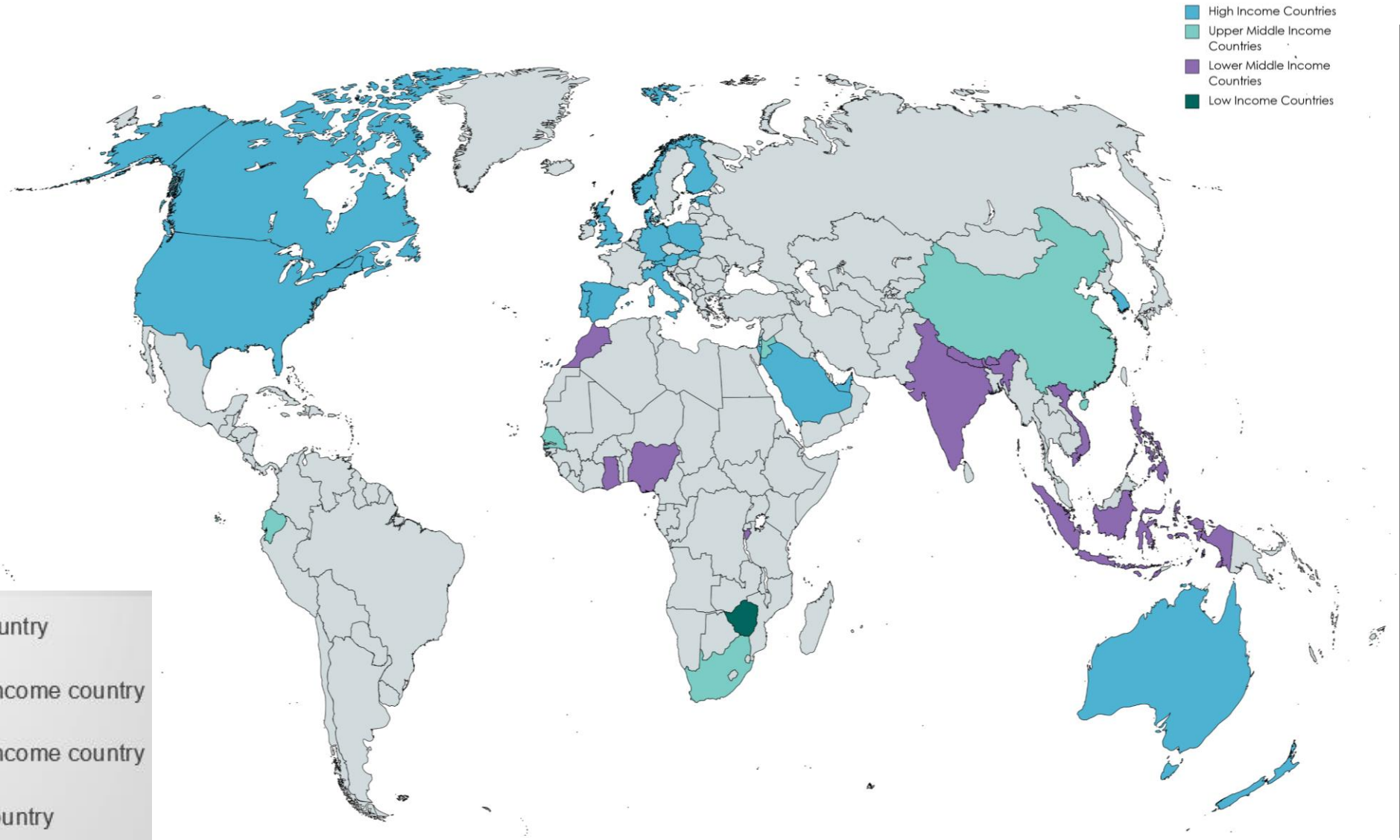
Inclusion criteria

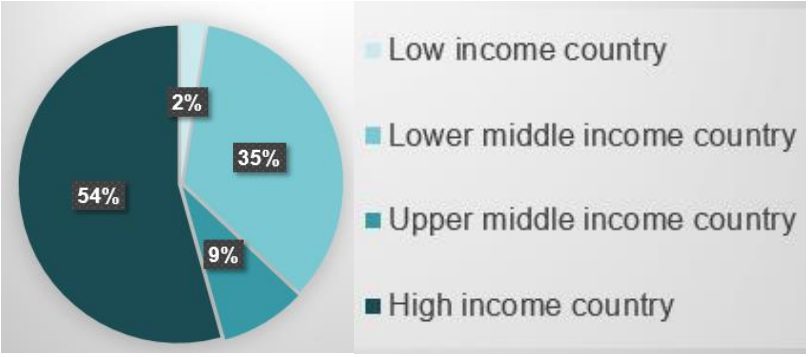
- Secondary school only
- English
- Teaching and learning
- Online or blended learning
- Primary, empirical research
- Undertaken during the pandemic

Search	Screening T&A	Screening full text	Data extraction	Quality appraisal	Synthesis
6,274 studies	5,488 studies	759 studies	129 studies	129 studies	81 studies

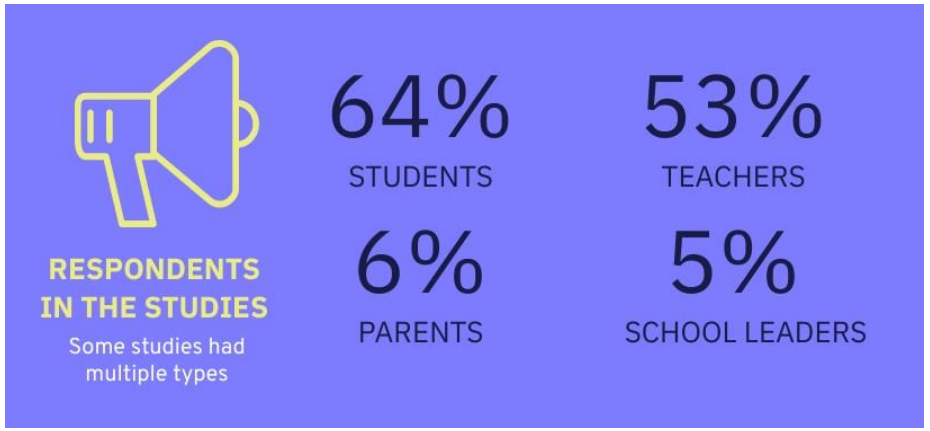
State of research

Continent	N	%
Asia	34	42%
Europe	21	26%
North America	12	15%
Africa	5	6%
Middle East	5	6%
Oceania	3	4%
South America	1	1%





State of research



- **Characteristics**
  - “emergency remote research”
  - Largely focused on student and teacher data
    - Minimal focus on SEND students
    - Whose voices are being heard, and in which ways?
  - STEM subjects still the most researched, even in pandemic times
  - Years 10 and 11 more prevalent

Key findings

- Some students were more motivated to learn and complete school work.
  - Increased ability to study.
  - Heightened sense of responsibility.

- Some reserved students were found to interact and participate more.

	Top 5 Engagement Indicators	
1	Heightened self-regulation	26%
2	Understanding of topics/tasks	19%
3	Enjoyment	17%
4	Positive study habits	17%
5	Sense of wellbeing	16%

Some students found group work easier when collaborating online

21
Types of online assessment

Key findings

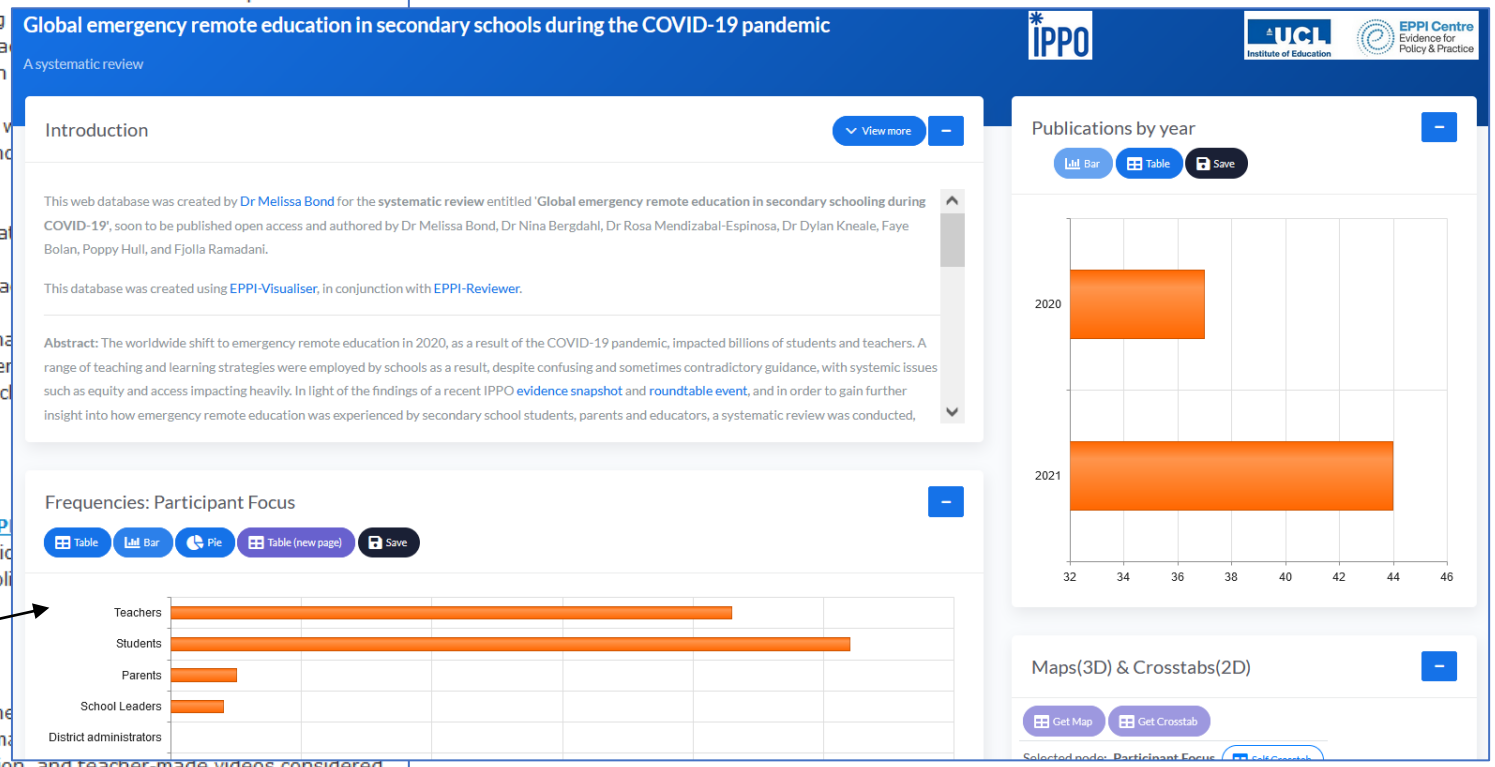
- Emotional and physical distance.
- More instances of behavioural disengagement in studies from high income countries (59%) as opposed to lower middle income countries (29%).
- Having to learn to use new tools, as well as learning online, was quite overwhelming, alongside life load.

	Top 5 Engagement Indicators	
1	Heightened self-regulation	26%
2	Understanding of topics/tasks	19%
3	Enjoyment	17%
4	Positive study habits	17%
5	Sense of wellbeing	16%

	Top 5 Disengagement Indicators	
1	Feeling isolated socially	27%
2	Absence from live lessons	19%
3	Confusion	19%
4	Feeling overwhelmed	14%
5	Dislike	12%

Web Database

Openly accessible



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Emergency remote teaching in higher education: Mapping the first global online semester[1]

Research questions

1. Where, when and by whom has research on teaching and learning in higher education during the COVID-19 pandemic been published?
2. What are the characteristics of, methods used, and topics studied in teaching and learning research in higher education during the COVID-19 pandemic?
3. What technology has been used during emergency remote teaching in higher education?

1. Bond et al., 2021b

Mapping review

Search

- Use of previous reviews to construct search string
- WoS, EBSCOHost, Scopus, Microsoft Academic Graph, PsycINFO, ProQuest, Dialnet, Latindex, Redalyc, ResearchGate, CHELD V1 database, COVID-19 living systematic map, Twitter

Screening

- EPPI-Reviewer
- 9,946 screened on title and abstract, 661 on full text
- Higher ed, teaching and learning setting, empirical, English/Spanish/German language, during pandemic

Data extraction

- 282 studies included for data extraction
- Use of previous reviews to construct data extraction tool

Data synthesis

- Narrative synthesis
- Computer-assisted content analysis
- Tabulation, interactive evidence gap maps and web database

Sample focus

Continent	N	%
Asia	78	27.7%
Europe	77	27.3%
North America	64	22.7%
Middle East	40	14.2%
South & Central America	18	6.4%
Africa	17	6.0%
Oceania	6	2.1%

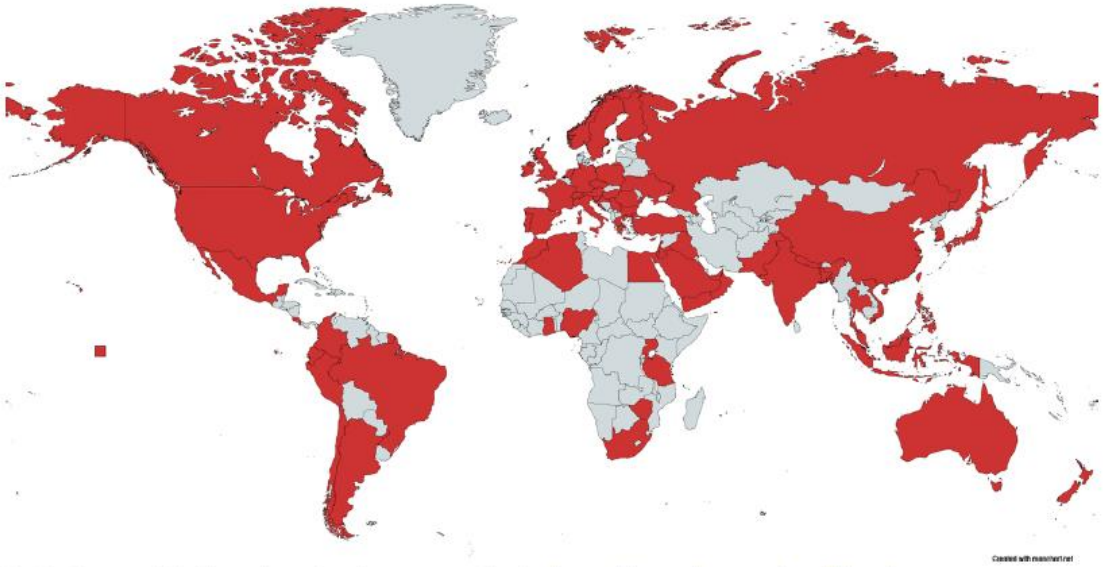


Fig. 2 Geographical location of authors, created using https://mapchart.net/world.html

- Predominantly focused on undergraduates (46.1%)
- Health & Welfare (27.3%)
- Natural Science, Maths & Stats (24.1%)
- Education (16%)

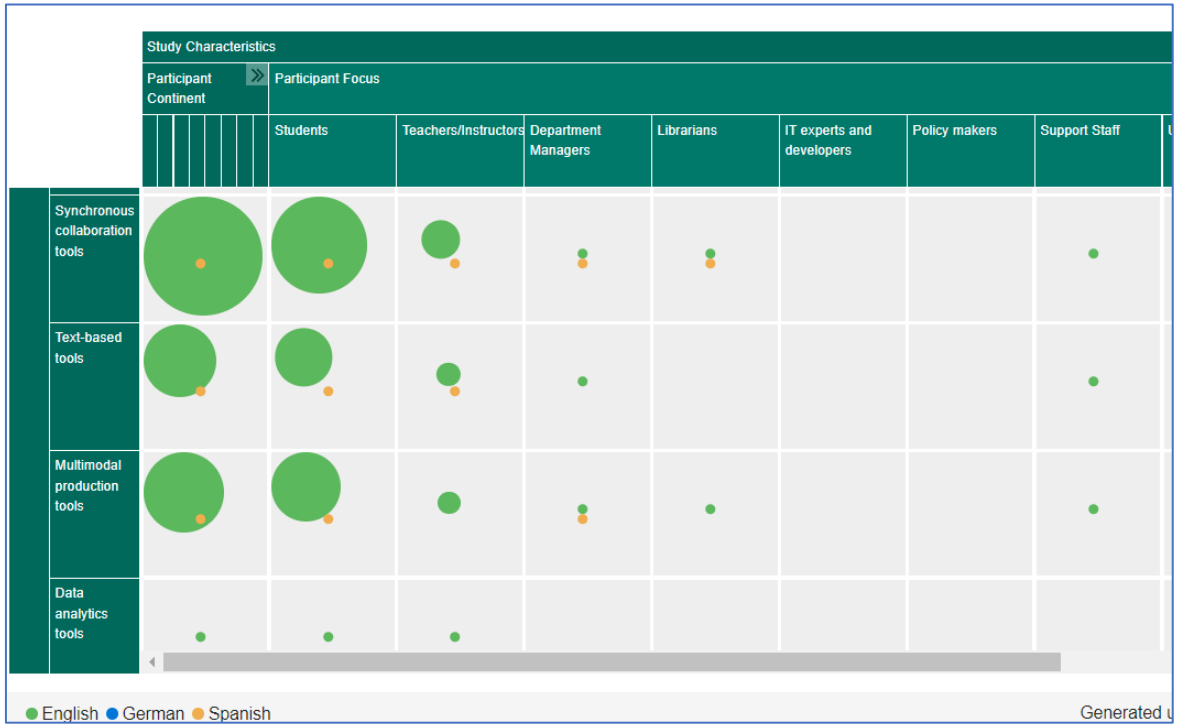
Appendix D. Scope of participant focus

Participant Focus	*N* Studies	*N* Studies [%]
Students	233	82.6
Teachers/Instructors	81	28.7
Department Managers	10	3.5
Support Staff	8	2.8
Librarians	2	0.7
IT experts and developers	1	0.4
Policy makers	1	0.4

Key findings

Table 7 Top five topic focus of studies ($n = 282$)

Area of focus	*N* studies	*N* studies [%]
Student perceptions of online learning	171	60.6
Impact of shift to online learning	84	29.8
Teacher perceptions of online learning	54	19.1
Students' technical equipment	38	13.5
Course redesign	31	11.0



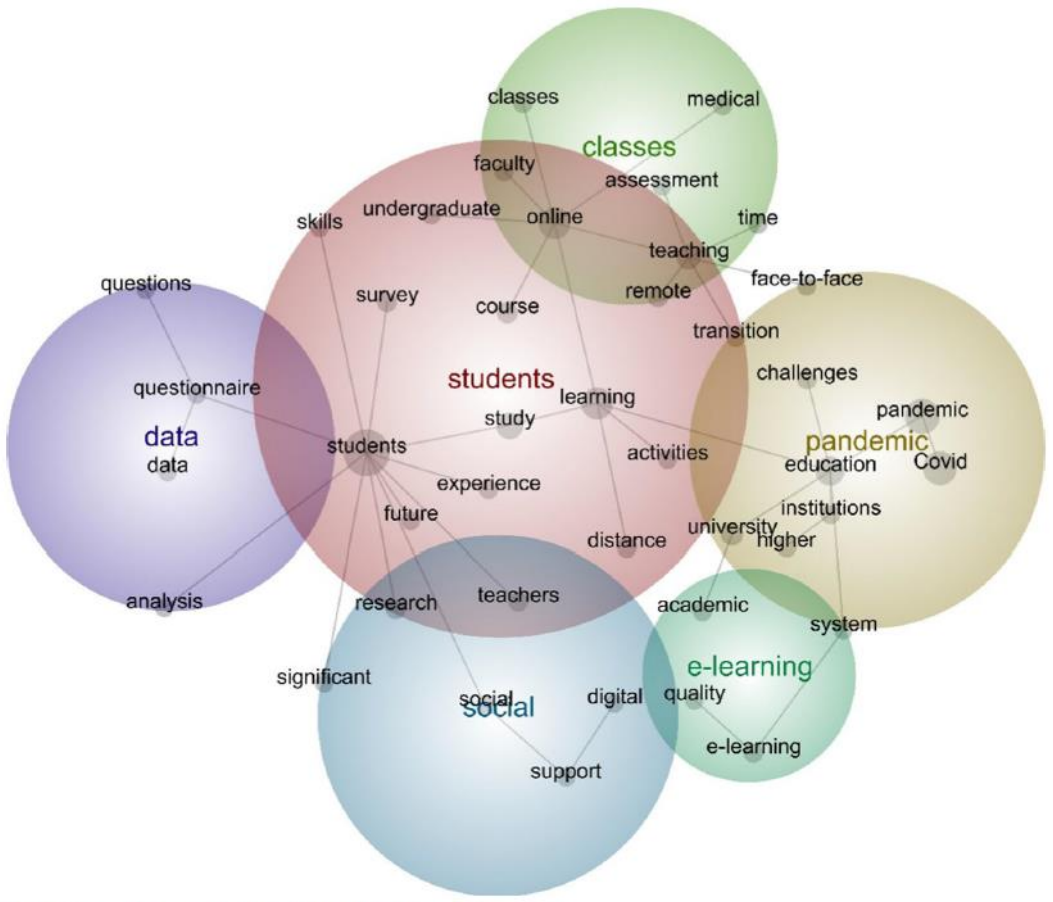


Fig. 5 Concept map of study titles and abstracts ($n = 262$)

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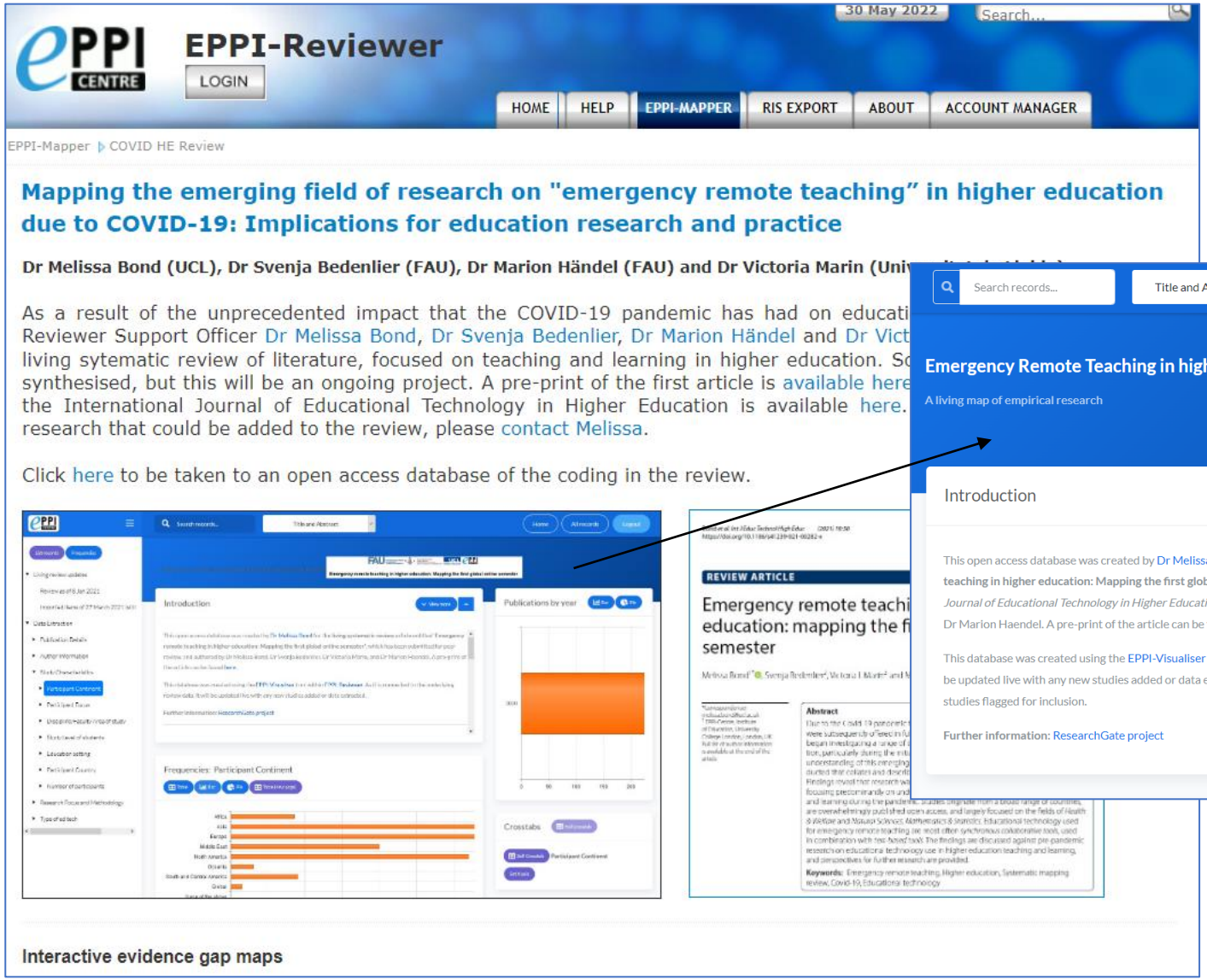
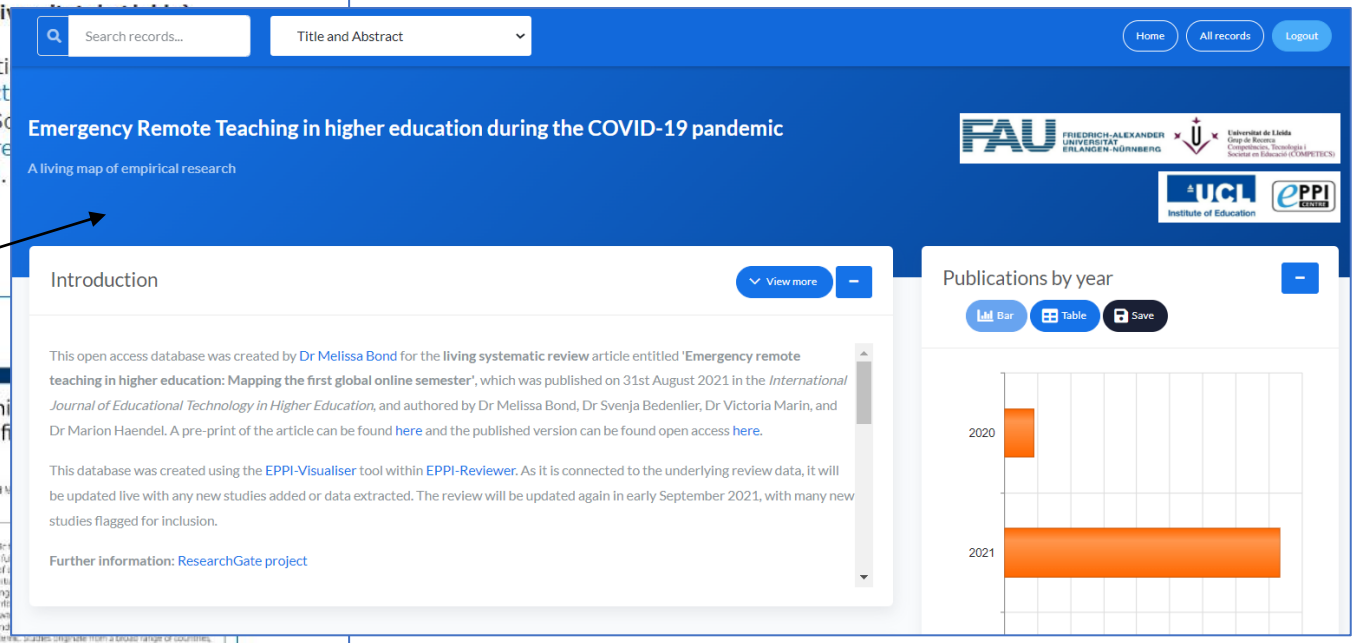
Web Database

Openly accessible





https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3802

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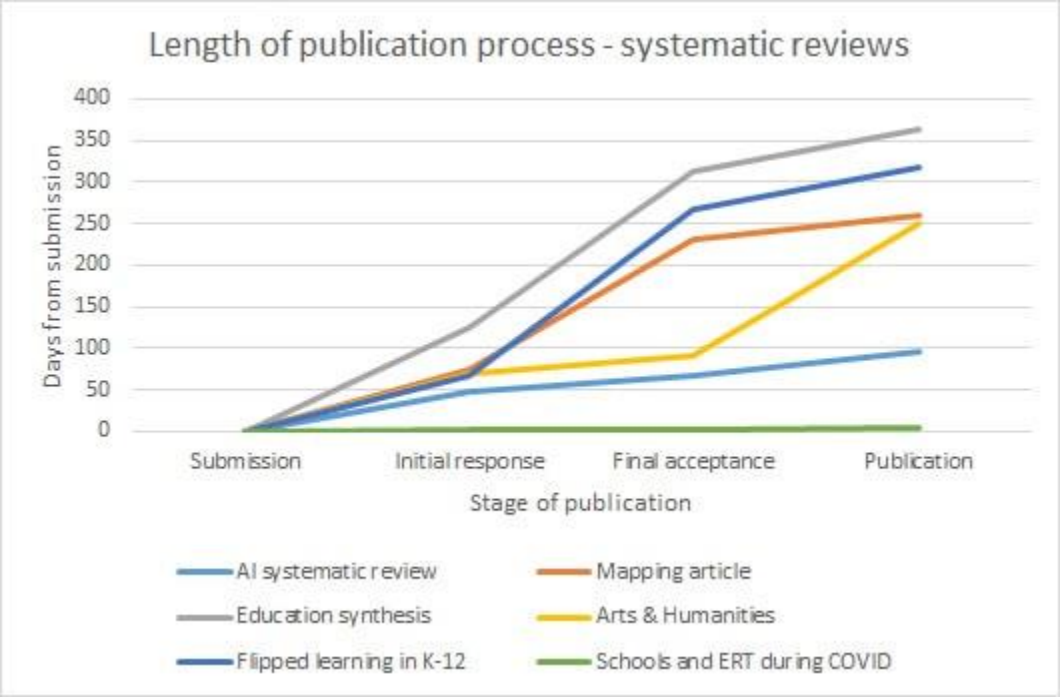
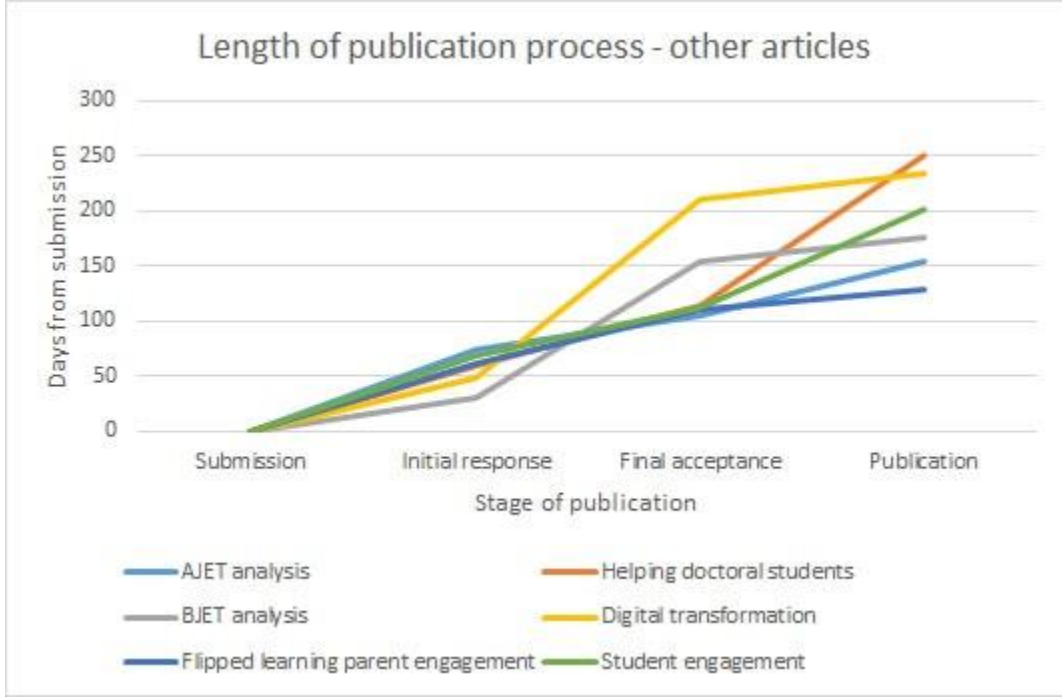
Are systematic reviews ‘harder’ to get published?





	Submission to initial response	Initial response to final acceptance	Final acceptance to publication	Entire process
Minimum	3 days (outlier)	1 day	1 day	4 days
Maximum	124 days	201 days	159 days	363 days
Average	64 days (76 removing outlier)	99 days (118 removing outlier)	52 days (63 removing outlier)	215 days (257 removing outlier)

	Submission to initial response	Initial response to final acceptance	Final acceptance to publication	Entire process
Minimum	30 days	31 days	17 days	128 days
Maximum	75 days	163 days	136 days	251 days
Average	57 days	78 days	56 days	191 days

On average, 19 days longer to receive an initial response to a systematic review article, and 40 days longer to final acceptance, with the overall process taking 66 days longer on average for the entire publication process.

Bond, 2021

Lessons learned and suggestions

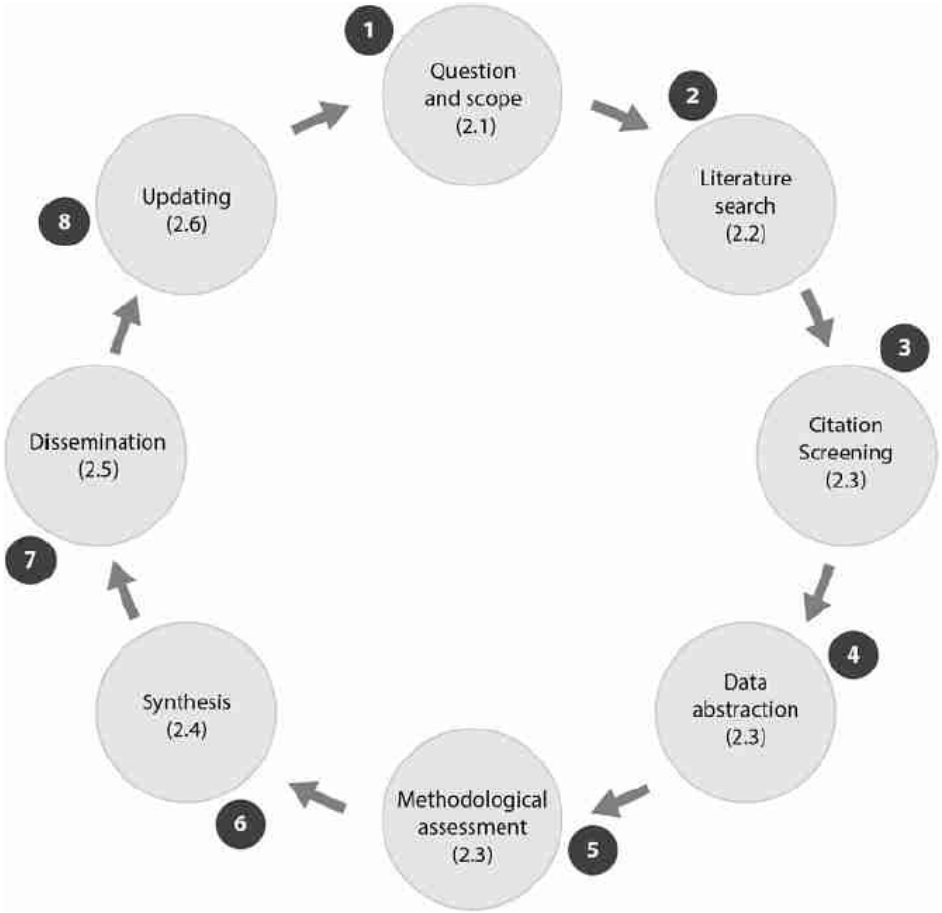


Fig. 1. This figure provides specific steps related to the rapid review process.

Tricco et al., 2020, p. 178

- Seek expert guidance if possible
  - At least one person on a team
- Keep team small for rapid reviews
- Factor in time scale
- Have a good understanding of RQ and coding scheme between you
- Use evidence synthesis software (e.g. EPPI-Reviewer) and keep all information in one place
- Consider language bias and grey literature
- Utilise machine learning where appropriate
- Include a PRISMA diagram (see Page et al., 2021)
- If planning to publish, have an outlet in mind as early as possible

See also Bond (2021); Bedenlier et al. (2020)

Further Resources

- Blog post - The classroom of the future: how has COVID-19 changed the ways children learn and teachers teach?
- Blog post - Lockdown schooling: research from across the world shows reasons to be hopeful
- Schools and emergency remote education during the COVID-19 pandemic – information and interactive evidence gap maps.
- Further information about secondary education teaching and learning during the COVID-19 pandemic.
- Interactive web database of included studies in the IPPO project.
- EPPI-Reviewer homepage – sign up to a free one month trial.
- Reach out for hands-on workshops, research collaboration or assistance with conducting reviews - http://drmelissabond.weebly.com/

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University of
South Australia

Dr Melissa Bond

CENTRE FOR CHANGE AND
COMPLEXITY IN LEARNING

e melissa.bond@unisa.edu.au | Twitter | ResearchGate | Google Scholar | LinkedIn
w http://drmelissabond.weebly.com/ |https://people.unisa.edu.au/Melissa.Bond