



University of  
South Australia

# Digital learning in post-pandemic education

*Accessibility for all?*

Dr Melissa Bond

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



[www.menti.com](https://www.menti.com) and enter code **81 27 43 3**



Unisa

 CENTRE FOR CHANGE AND  
COMPLEXITY IN LEARNING

Education Futures



# 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.



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



# Agenda

- Presenter background
- Emergency remote education in schools
  - What was learned about education for students, especially those with special educational needs, disabilities and medical conditions?
  - What was learned about how best to engage students using digital technology?
  - How can we leverage the knowledge gained to provide a more accessible education to our children going forwards?
- Q&A

# My background

- Adelaide Uni: International Studies, Dip. Lang. (German)
- High School teacher (10 years)
  - German
  - English
  - Pastoral Care
  - IPP
  - Music
  - Special Education
  - HASS
  - Drama
  - Integrated Learning
- Languages/HASS/Year 8 Coordinator (2 years)
- ICT Coordinator (3 months)
- DfE Language Centre Key Teacher (2 years)
- Goethe Institut Professional Learning Facilitator (9 years)



# My background

- Research Associate, 2017-2020
  - Carl von Ossietzky Universität Oldenburg
  - ActiveLearn Project
  - PhD, 2020:
    - ❖ *Facilitating student engagement through educational technology: Current research, practices and perspectives*



**Facilitating student engagement through educational technology**

*Current research, practices and perspectives*

Melissa Bond

PhD Disputation  
Thursday, 9th July 2020



# My background

- EPPI-Reviewer Support Officer
  - University College London
  - Feb. 2020 – Feb. 2022
  - Systematic & mapping [reviews](#)
  - Technical and methodological support



# My background

- Lecturer (Digital Technology Education)
  - University of South Australia
  - Research: Student engagement & ed tech, AI in education, doctoral education and motherhood, international research collaboration...
  - Undergraduate and Postgraduate
    - ❖ EDUC 1084 – Digital Citizenship
    - ❖ EDUC 2090 – Technologies Curriculum 1
    - ❖ EDUC 3070 – Technology by Design
    - ❖ EDUC 5237 – Learners in a Digital Age: Innovative Practices
    - ❖ EDUC 5239 – Online Learning Communities
- ❖ **mtl100 - Principles, Theory and Practice of Technology Enhanced Learning**



# My background

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

## Empathetic Remote and Hybrid Learning

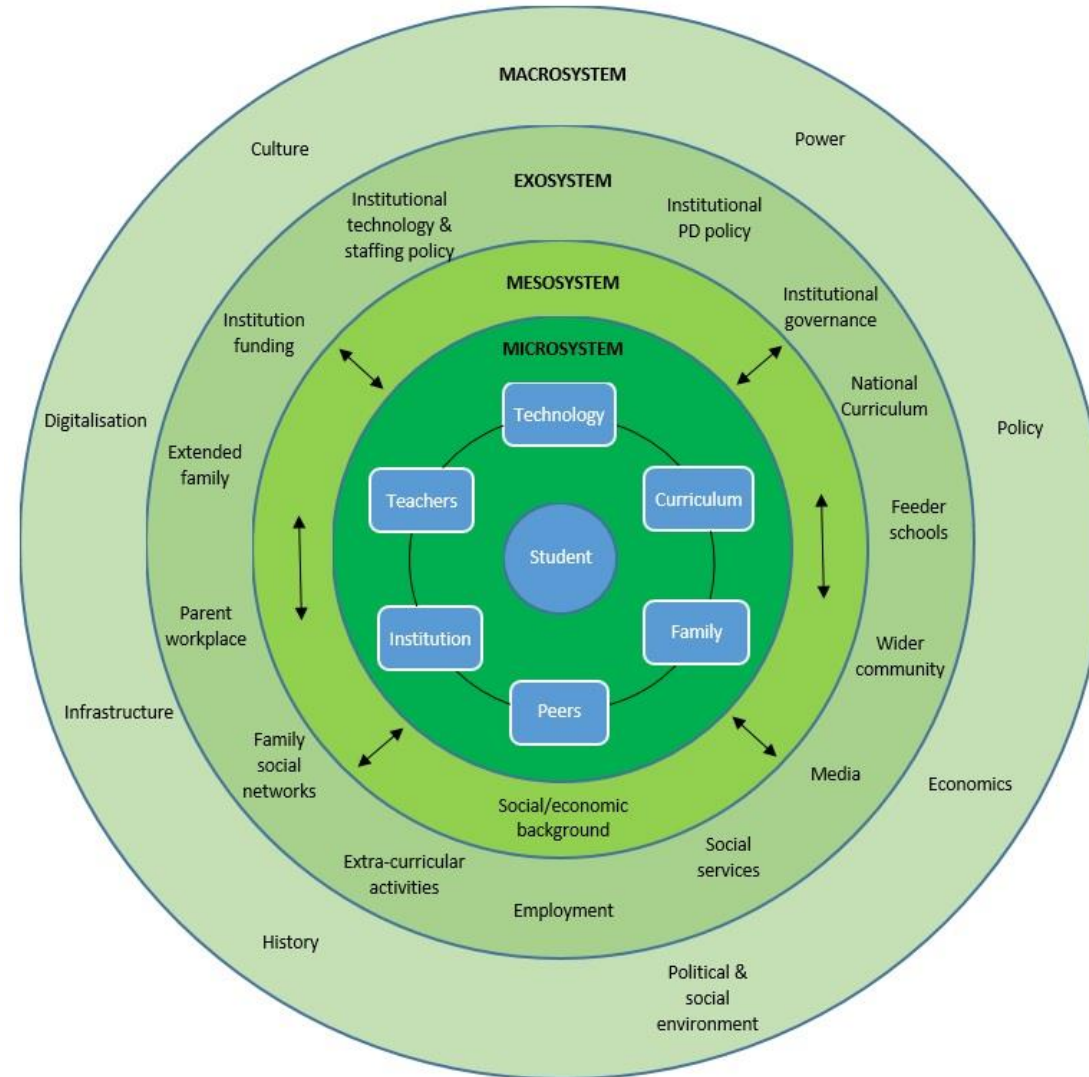


Eric Sheninger (@E\_Sheninger)  
Image created by @RigorRelevance

Sheninger (2020)



# Bioecological model of engagement



# 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.
- Evidence synthesis needed for policy and practice.

Covid: Teaching in Wales 'must reinvent itself in a day again'

© 11 December 2020 | Comments

Covid: 'Xbox and PlayStation home-learning' for some pupils

By Jordan Davies  
BBC News

© 7 December 2020

Covid: Laptop allocation for deprived pupils cut at some schools

© 24 October 2020



# 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?

# METHOD

## Rapid literature review

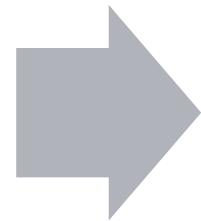
- Comprehensive search string
- Web of Science, Scopus, EBSCOHost, Microsoft Academic Graph, ResearchGate, Twitter

### Inclusion criteria

- 2020-2021
- K-12
- English
- Teaching and learning setting
- Peer-reviewed
- Primary, empirical research
- Digital learning
- During the pandemic

Screening T&A

777 Studies



Screening full text

156 Studies

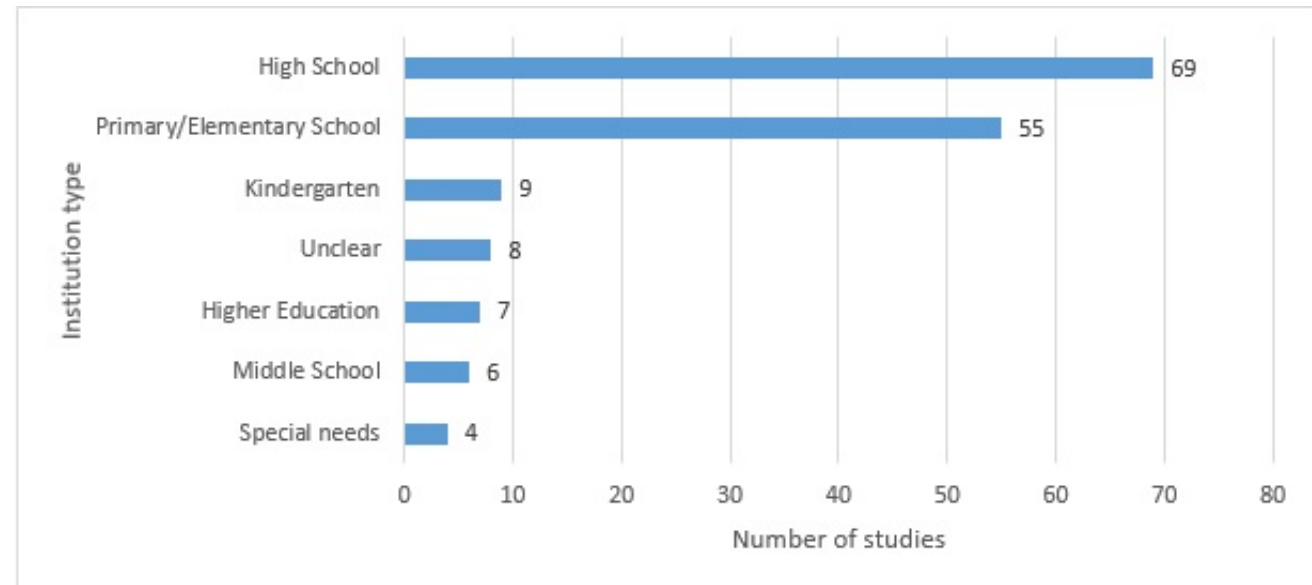
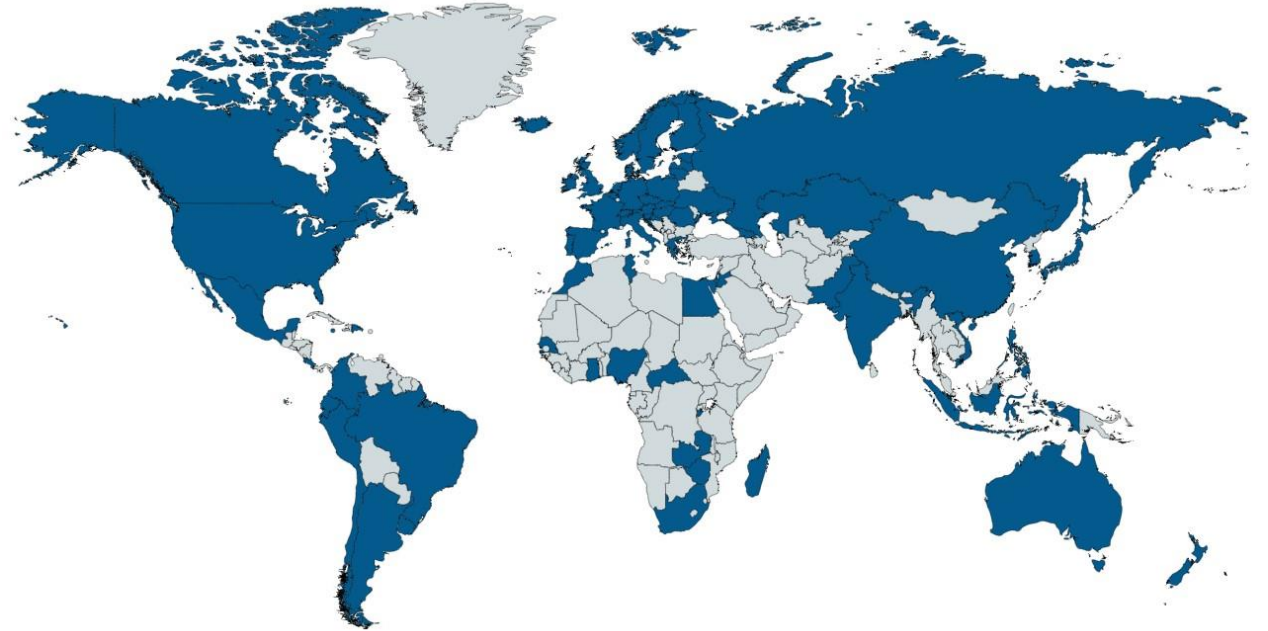


Synthesis

89 Studies

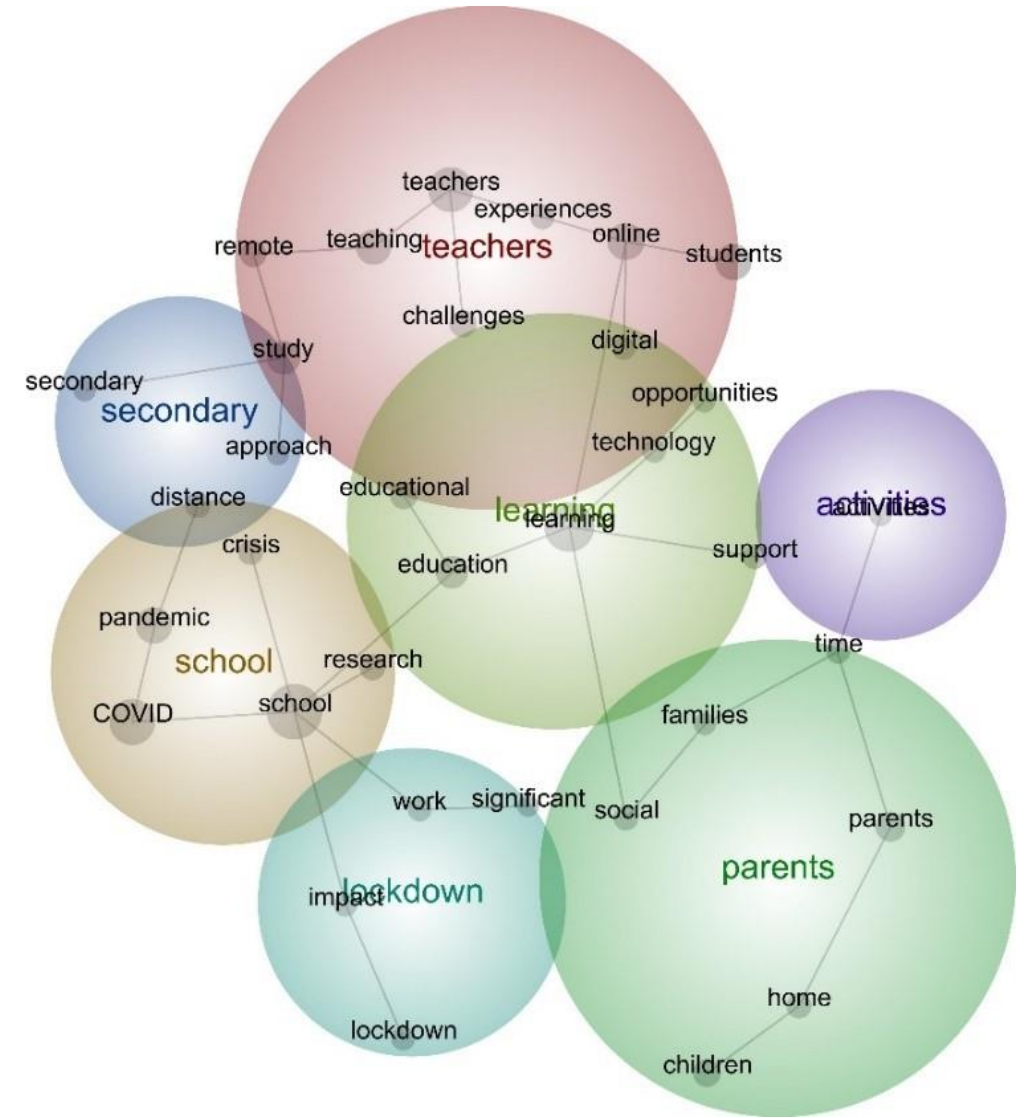
# Selected key findings

- 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%).



# Selected key findings

- 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%).





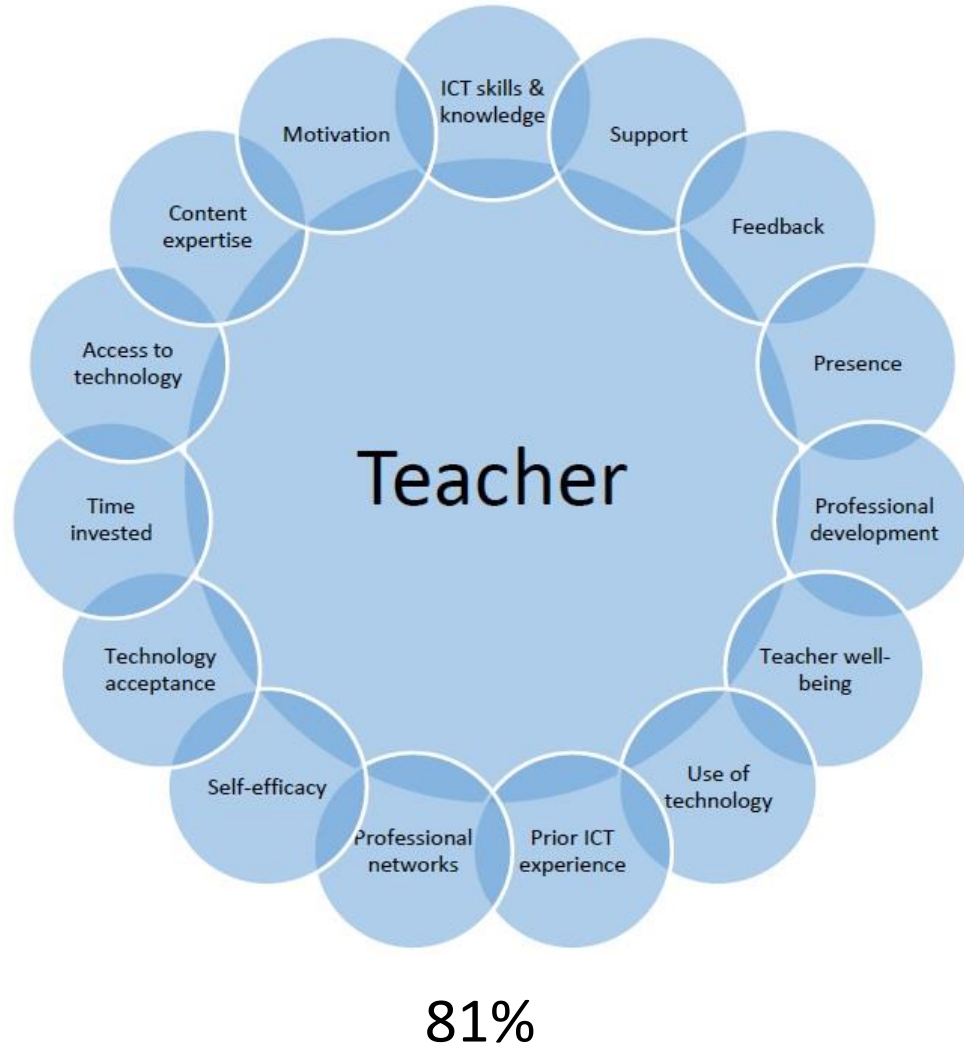
# Selected key findings

- 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	Radio	1
Google Meet	6	Twitter / Snapchat	1	PowToon	1
Videos (made by others)	5	Learning games	1	Alcody	1
Google Forms	5	Autodesk SketchBook	1	Formative	1
Google Docs	5	FastStone Capture	1	WebASsign	1
Schoology	5	TEDEd	1	Google Slide Deck	1
Seesaw	4	Sumdog	1	Twinkl	1
Teams	4	Paragraph Punch	1	Padlet	1
TV lessons	4	Spelling City	1	Jitsi	1
Videos (uncertain origin)	3	The OT Toolbox	1	MeisterTask	1
Self-assessment quizzes	3	Google Hangout	1	MOOCs	1
Webex	3	Gleerups	1	Chaoxing	1
Kahoot	3	Bingel	1	CCTalk	1
Tencent Meeting	3	GSuite	1	Daymap	1
Edmodo	2	Compass	1	Skype	1
Microsoft 365	2	Education Perfect	1		



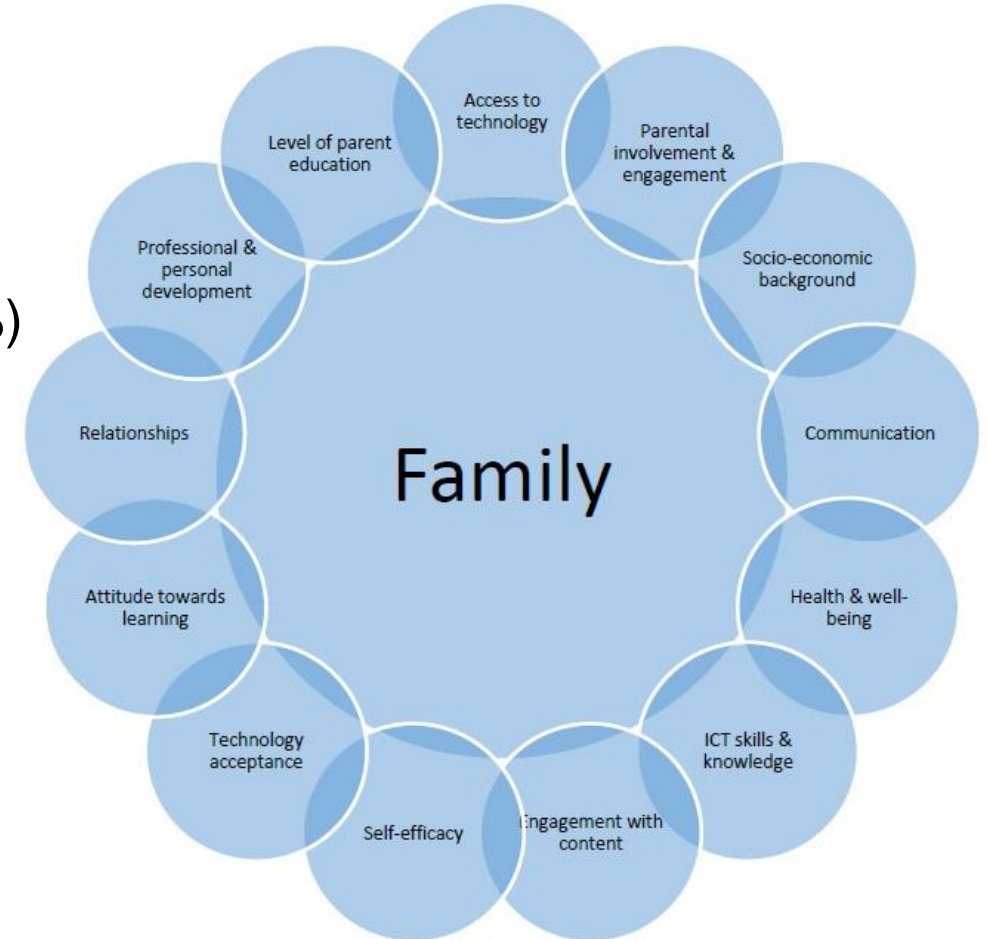
# Influences on engagement



1. Teacher ICT skills & knowledge (37%)
2. Support provided by teachers (32%)
3. Feedback (31%)
4. Presence (26%)
5. Professional development & teacher wellbeing (24%)

# Influences on engagement

1. Access to technology (54%)
2. Parental involvement & engagement with learning (53%)
3. Communication (23%)
4. Health & wellbeing (13%)
5. ICT skills & knowledge (9%)

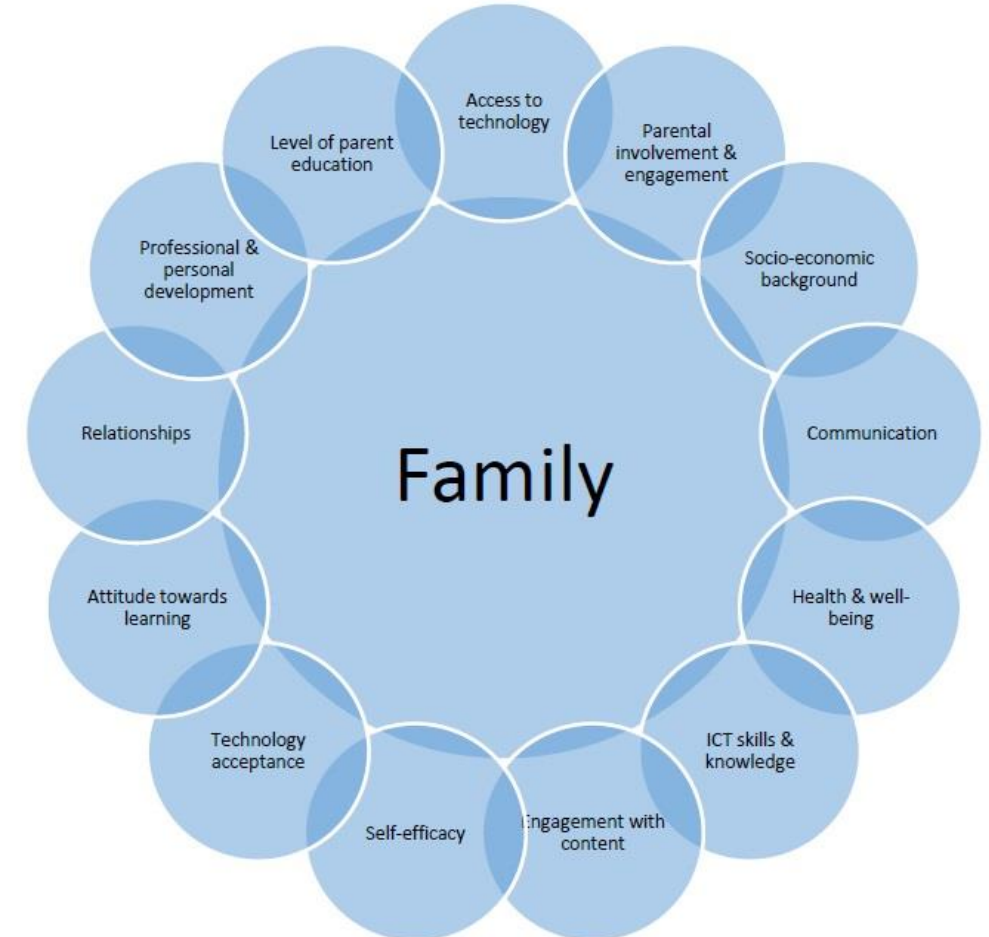


78%

# Influences on engagement

“When it first happened the principal contacted the Department and said we have a community here where 10% of the kids have access to computers and the internet. We were sent 74 laptops and internet access points. It only happened because we are one of the 12 lowest socio-economic areas in the state.”

Page et al. (2021, p. 146)

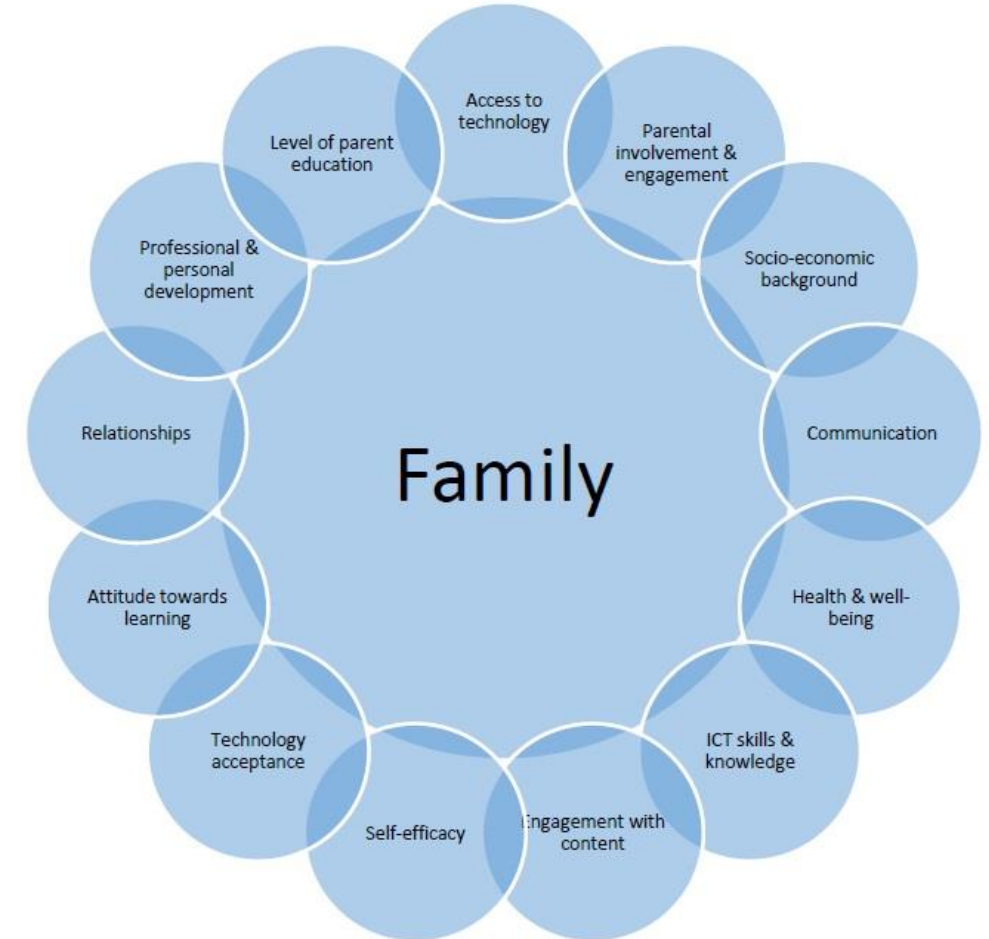


78%

# Influences on engagement

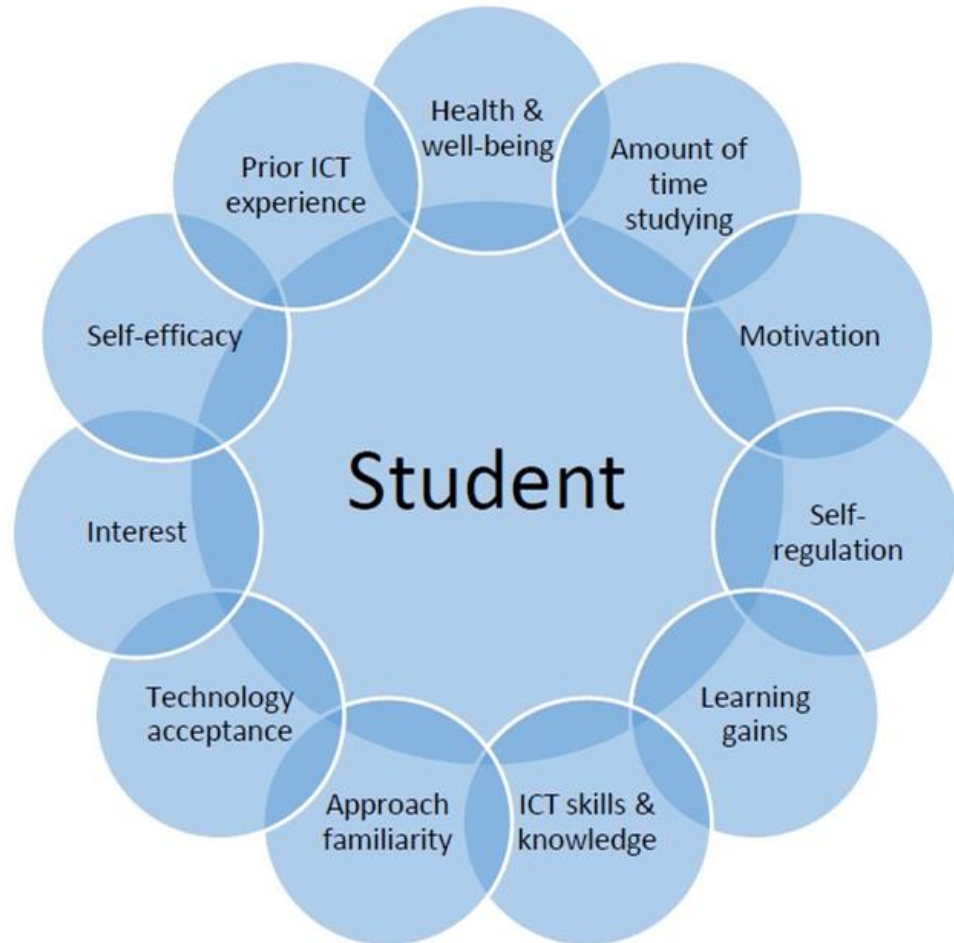
“We also found that older students could use their technology better than the younger ones and it was definitely too hard for the ones with a learning disability without help, if they had to do anything independently.”

Page et al. (2021, p. 147)



78%

# Influences on engagement



1. Health & wellbeing (43%)
2. Amount of time studying (36%)
3. Motivation (34%)
4. Self-regulation (22%)
5. Learning gains (18%)

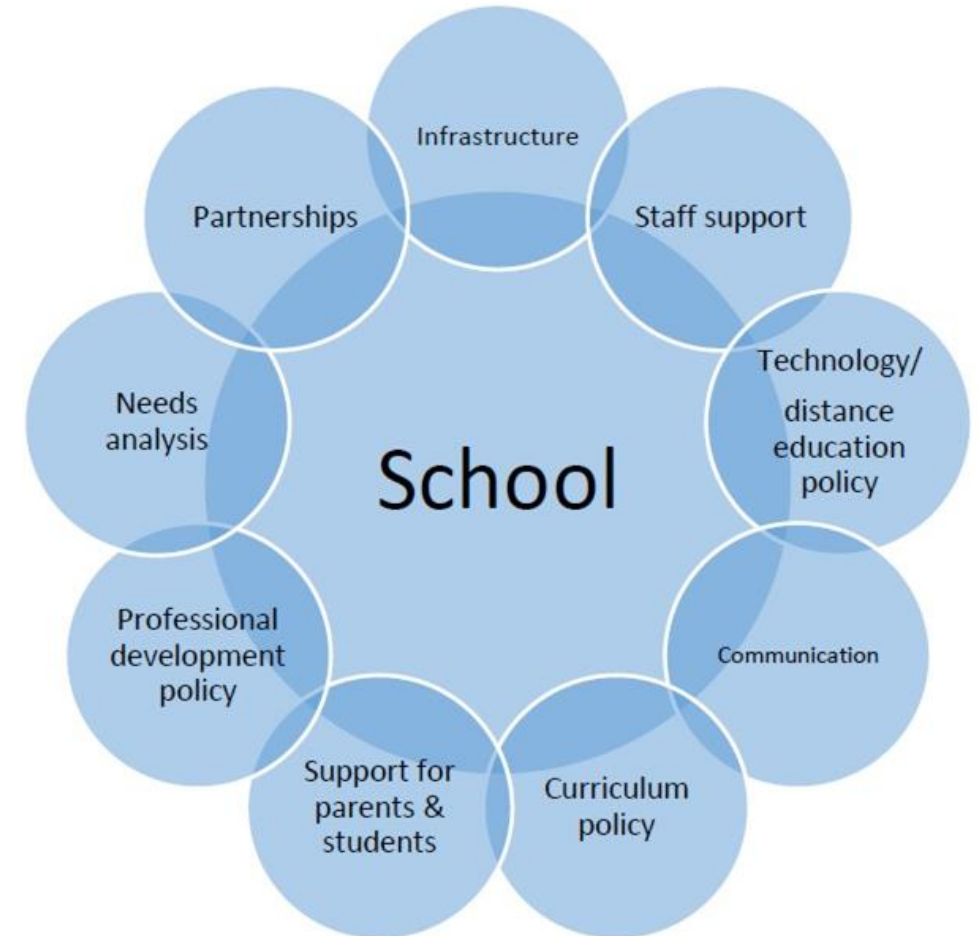
78%

# Influences on engagement

1. Infrastructure (28%)
2. Staff support (23%)
3. Technology/distance education policy (22%)
4. Communication (17%)
5. Curriculum policy (13%)

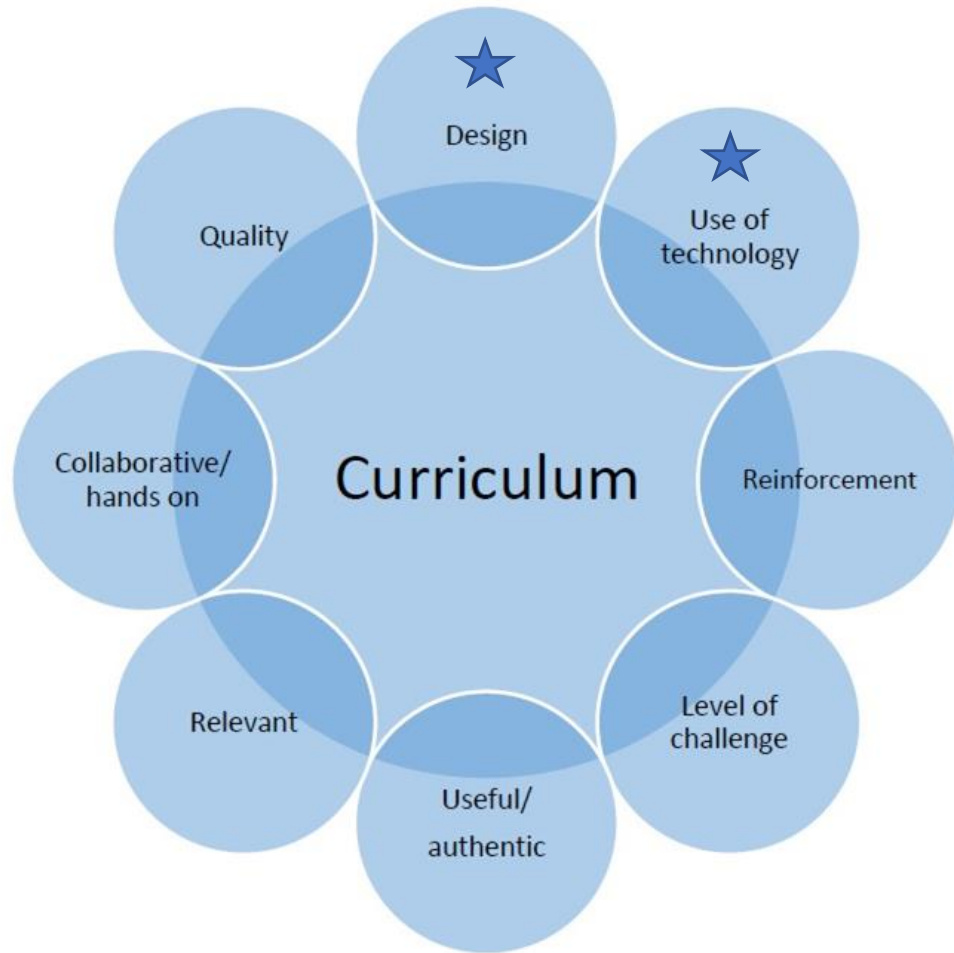
“Online Parent-Teacher interviews were a huge success in discussing how their child was handling online learning”

Ewing & Cooper (2021, p. 49)



58%

# Influences on engagement

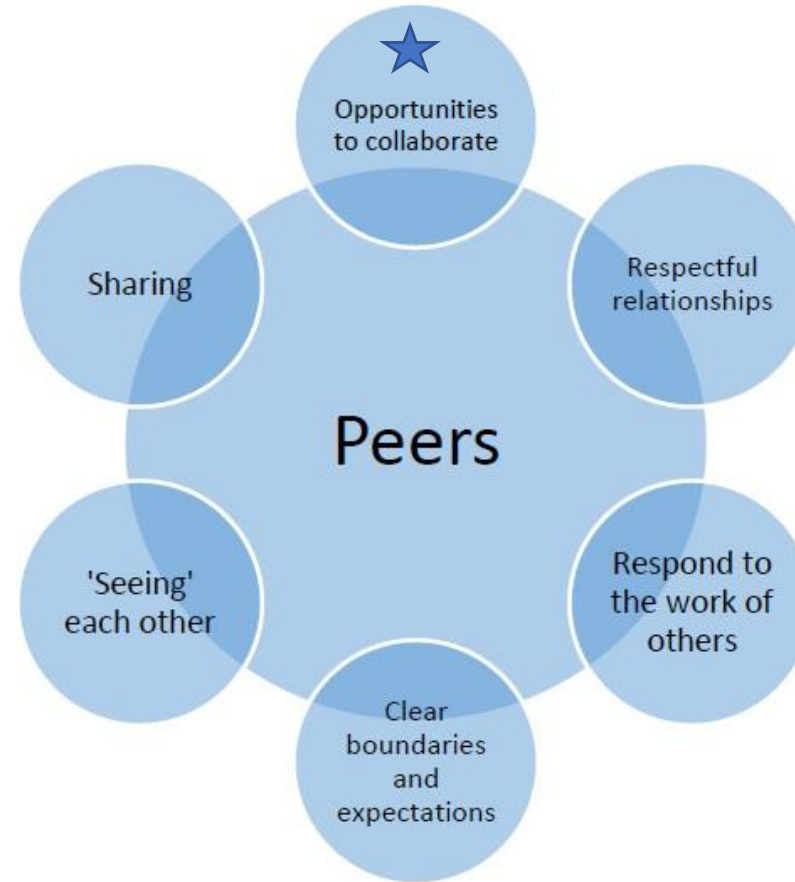


44%



42%

# Influences on engagement



28%



# Identified research gaps

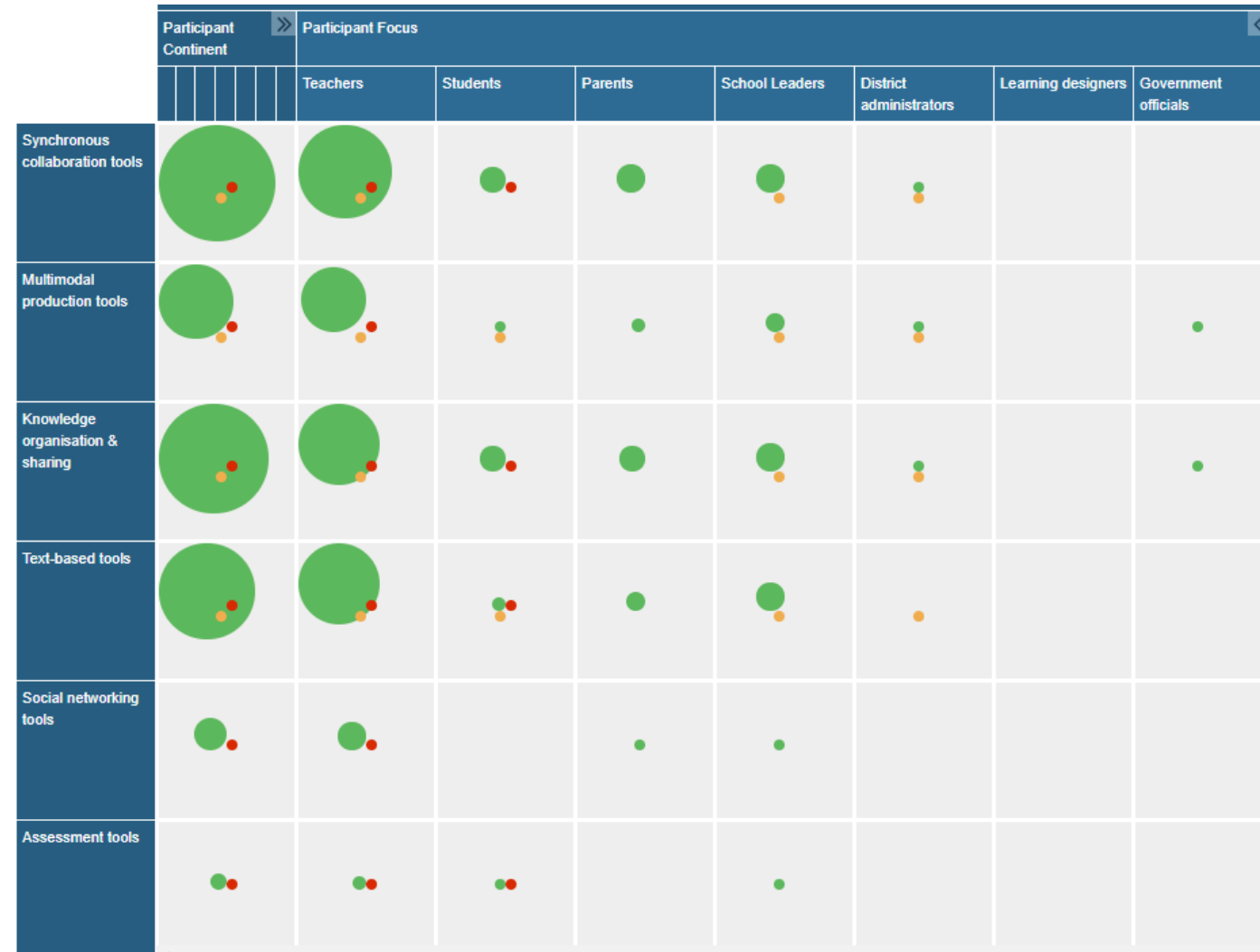
- Lack of research from Africa, Oceania, the Middle East and South America.





# Identified research gaps

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



## Global emergency remote education in secondary schools during the COVID-19 pandemic

A SYSTEMATIC REVIEW



Melissa Bond, Nina Bergdahl, Rosa Mendizabal-Espinosa,  
Dylan Kneate, Faye Bolan, Poppy Hull, Fjolla Ramadani

October 2021



Economic  
and Social  
Research Council

- ❑ Motivation and engagement
- ❑ Online assessment practices
- ❑ Peer collaboration
- ❑ Parent engagement
- ❑ Emerging uses of online and blended learning approaches

## METHOD

### Systematic review

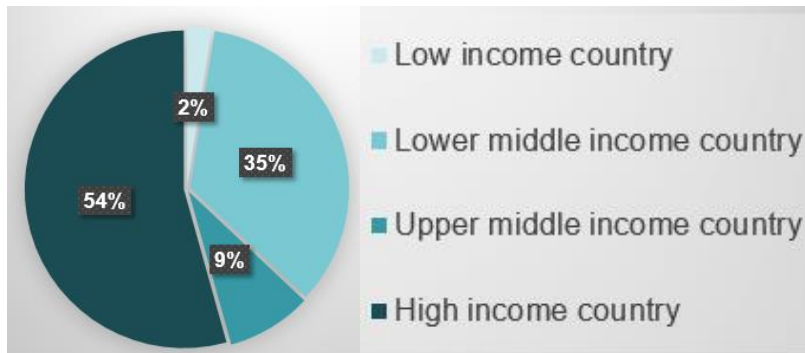
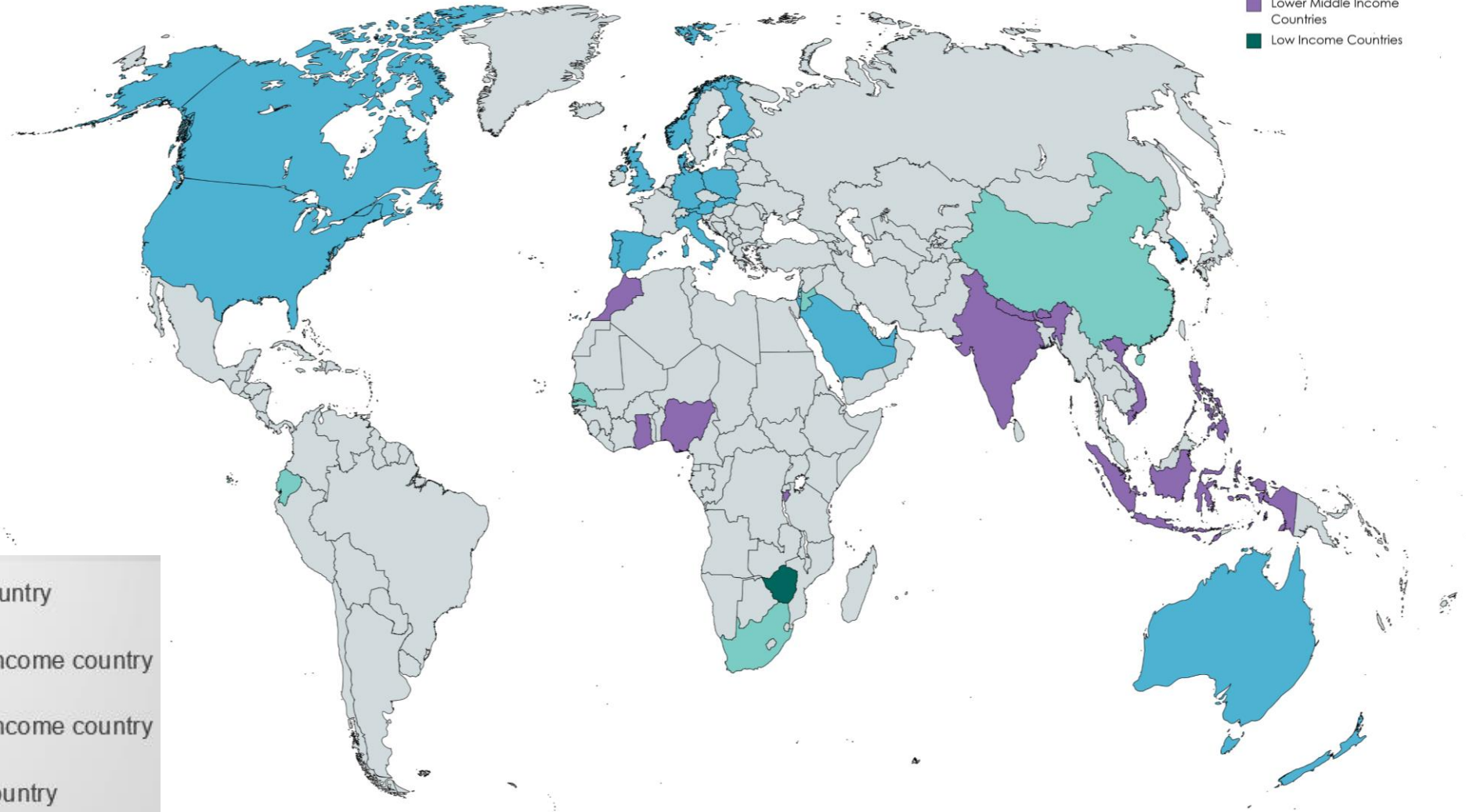
This is a systematic review of research, using rigorous methods for identifying evidence, conducting quality appraisal and synthesis: 81 studies met our criteria and were included in the review.

### Inclusion criteria

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

# State of research

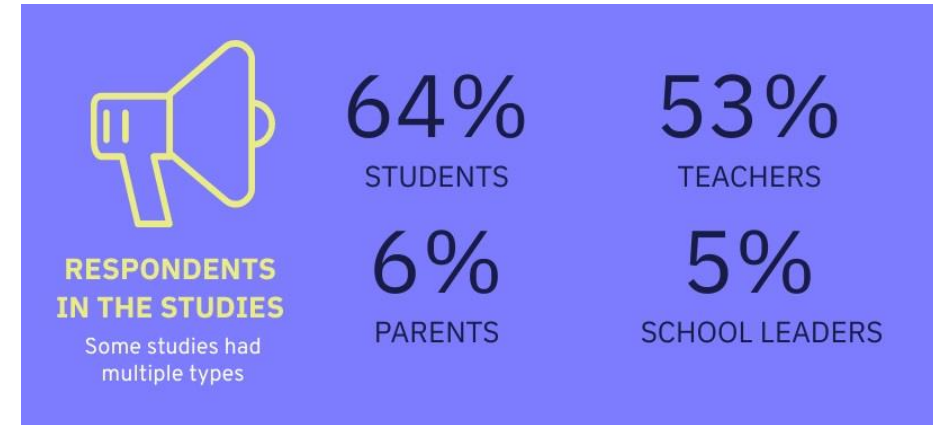
Continent	N	%
Asia	34	42%
Europe	21	26%
North America	12	15%
Africa	5	6%
Middle East	5	6%
Oceania	3	4%
South America	1	1%



# State of research

- **Characteristics**

- “emergency remote research”
- STEM subjects still the most researched, even in pandemic times
- Years 10 and 11 more prevalent
- Largely focused on student and teacher data
  - Minimal focus on SEND students (5 studies)
  - One study about migrants and refugees
  - One about students with ‘lower levels of attainment’
  - Seven studies on students from lower socio-economic backgrounds
  - Whose voices are being heard, and in which ways?



# State of research

- **Experiences of SEND students**

- Parent support was crucial for mediating communication<sup>1</sup>, with parents of SEND students spending more than twice the amount of time supporting their children's learning<sup>2</sup>.
- A German study found that home schooling was more challenging for parents if their child was male<sup>2</sup>.
- 21% of Year 9-11 students with ADHD in a US study received no remote/online learning during lockdown, particularly low-income families<sup>3</sup>
- Continued socialisation for students and visibility of education for parents were among the positives<sup>4</sup>.

1. Álvarez-Guerrero et al. (2021); Balkist & Agustiani (2020)  
2. Nusser (2021)  
3. Becker et al. (2020)  
4. Tomaino et al. (2021); Asbury et al. (2020)



# PARENT ENGAGEMENT



WhatsApp very popular, especially in lower middle income countries



Not all families had enough devices in the household, or had email accounts already set up



Students particularly needed family support to create visual materials



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



# How do we move education online effectively?

- **Tools**

- Synchronous collaboration tools

- Regular Zoom calls with social time
- Breakout rooms – opportunities for social engagement

- Knowledge organisation & sharing tools

- LMS with collaborative tools
- Quizzes embedded within LMS or videos

- Multimedia production tools

- Videos made by both teacher and other resources (e.g. YouTube, Oak)
- Record/use oral assessments, conversations, debates, role plays, music/drama performances, sport skills

# How do we move education online effectively?

- **Approaches**

- **Structure**

- Scaffold structure for students to begin with & clear expectations
- Include time for synchronous and asynchronous activities

- **Collaboration**

- Explicit instruction/guidance in how to collaborate effectively with peers online
- Provide opportunities for peer collaboration, e.g. co-creation of resources

- **Assessment**

- Self and peer assessment
- Quizzes
- Flipped feedback
- Differentiation

# Implications for policy, research and practice

## Policy

- Increased focus on teacher digital skills, knowledge and pedagogical approaches
- Further opportunities for teacher professional development in the area of blended/hybrid/online learning
- Allow time for learning design in new learning formats and content creation
- Increased recognition of ongoing issues of digital divide

## Research

- Heightened consideration of wider school community and partnering on research design
- Heightened focus on vulnerable populations and issues of equity

## Practice

- School-wide approach: needs analysis, loan equipment, multiple methods of delivery
- Joint/parent teacher workshops on digital approaches
- Continued use of successful online strategies, e.g. online parent-teacher interviews
- Practitioner research

Download report (PDF)



This report is a product of the IPPO project – please see the project page for more

Interactive evidence gap map



Database of included studies



Global emergency remote education in secondary schools during the COVID-19 pandemic

What do we want to know?

The worldwide shift to emergency remote education in 2020 as a result of the COVID-19 pandemic impacted billions of students and teachers. A range of teaching by schools as a result, despite confusing and sometimes contradictory systemic issues such as equity and access impacting heavily on

In order to gain insight into how emergency remote education was experienced by students, parents and educators, a systematic review was conducted to synthesise research evidence. The research questions were:

1. In what ways did emergency remote education affect motivated students?
2. How did research report on emerging online assessment practices during the pandemic?
3. Are new approaches to peer collaboration emerging and what are they?
4. How did online learning in secondary schools affect parent engagement?
5. What emerging uses of online and blended learning approaches are likely to continue to be implemented in future?

Who wants to know?

The ESRC-funded **International Public Policy Observatory (IPPO)** was established in response to roundtable meetings discussing the current situation. The systematic review should be useful to a range of communities including policy makers, teachers and students and their families.

What did we find?

Findings reveal that self-regulation and understanding were the most frequently reported indicators of student engagement, with online assessment tools, learning management systems, live synchronous lessons with peer and teacher interaction, and teacher-made videos considered particularly engaging. Social isolation was the most frequently reported indicator of disengagement, characterised by poor attendance in live lessons, a lack of opportunities to seek help with challenges and difficulties facilitating peer collaboration.

Global emergency remote education in secondary schools during the COVID-19 pandemic

A systematic review

Introduction

View more

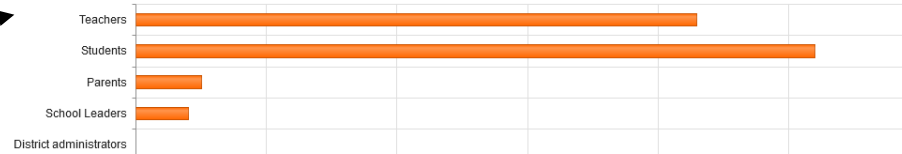
This web database was created by **Dr Melissa Bond** for the systematic review entitled 'Global emergency remote education in secondary schooling during COVID-19', soon to be published open access and authored by Dr Melissa Bond, Dr Nina Bergdahl, Dr Rosa Mendizabal-Espínosa, Dr Dylan Kneale, Faye Bolan, Poppy Hull, and Fjolla Ramadani.

This database was created using **EPPI-Visualiser**, in conjunction with **EPPI-Reviewer**.

**Abstract:** The worldwide shift to emergency remote education in 2020, as a result of the COVID-19 pandemic, impacted billions of students and teachers. A range of teaching and learning strategies were employed by schools as a result, despite confusing and sometimes contradictory guidance, with systemic issues such as equity and access impacting heavily. In light of the findings of a recent IPPO **evidence snapshot** and **roundtable event**, and in order to gain further insight into how emergency remote education was experienced by secondary school students, parents and educators, a systematic review was conducted.

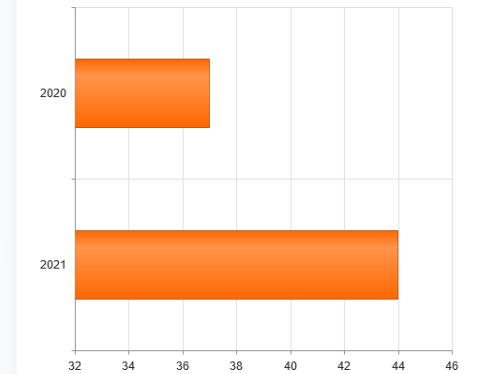
Frequencies: Participant Focus

Table Bar Pie Table (new page) Save



Publications by year

Bar Table Save



Maps(3D) & Crosstabs(2D)

Get Map Get Crosstab

Selected nodes: Participant Focus

<https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3847>

# Web Database

*Openly accessible*

The screenshot displays the EPPi Centre web database interface. The top navigation bar includes the EPPi logo, a search bar with the text 'Search records...', a dropdown menu set to 'Title and Abstract', and buttons for 'Home', 'All records', and 'Logout'. The main content area is titled 'Schools and Emergency Remote Education during the COVID-19 pandemic' and is described as 'A living map of empirical research'. It features a left-hand navigation menu with categories like 'Living review - basic study information', 'Open Access?', 'Participant Focus', 'Type of educational institution', 'Participant Continent', 'Subject', 'Year level', 'Publication language', and 'SEND students?'. The main content is divided into several sections: 'Introduction' (with a 'View more' button), 'Interactive evidence gap map', 'Evidence and Gap Maps' (with sub-sections for 'Institution type by continent' and 'Participant focus by institution type', each with '+ Details' and 'View map' buttons), and 'Publications by year' (a horizontal bar chart showing 2020 and 2021). The 'Publications by year' chart shows 2020 with approximately 168 publications and 2021 with approximately 156 publications. At the bottom, there is a 'Maps(3D) & Crosstabs(2D)' section with 'Get Map' and 'Get Crosstab' buttons, and a 'Selected node: Yes, focus on SEND students' with a 'Self Crosstab' button.



# 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.
- Book chapter - [Turning the world upside down: A single mother's PhD journey](#)
- Book chapter - [From PhD by Publication to Full-Time Academic: Narratives of Three Women](#)

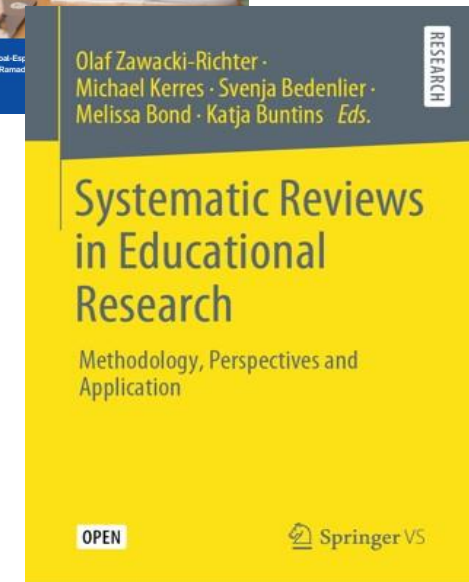
# Evidence synthesis

## 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





# Grad. Cert. in Education Studies (Digital Learning)

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Study the only education-focused digital learning postgraduate qualification in South Australia.

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Study this qualification fully online.

---

Gain advanced skills and knowledge in the development and delivery of digital and online learning platforms.

---

This qualification is suitable for educators and education support staff across all year levels, including early childhood, primary, secondary and adult education.

---

Apply course concepts directly to your sector's digital learning environment.

---

Learn from a university that has over 25 years' experience in delivering online education.

---

Use this qualification as a pathway to further learning, including the Master of Education or doctoral studies.

---

Explore specific areas of personal interest including gamification, augmented reality, and mobile learning in project-based courses.

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## Degree structure

Course name	Area and cat no.	Units
<b>FIRST YEAR</b>		
Introduction to Digital Learning	EDUC 5243	4.5
Digital Learning Environments: Design and Implementation	EDUC 5242	4.5
Two of the following 3 courses:		
Online Learning Communities: Formal and Informal	EDUC 5239	4.5
Learning Analytics and Digital Learning	EDUC 5244	4.5
Learners in a Digital Age: Innovative Practices	EDUC 5237	4.5



University of  
South Australia

Dr Melissa Bond



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w <http://drmelissabond.weebly.com/> | <https://people.unisa.edu.au/Melissa.Bond>

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