## Data Extraction

* Publication Type
  + Journal article (peer reviewed)
  + Journal article (teacher magazine)
  + Editorial
  + Journal article (pre-print, not peer-reviewed)
  + Conference paper
  + Book chapter
  + Report
  + Data set
  + Website article
* Methodology
  + Date of data collection
    - Unclear
    - Before Jan 2020
    - January 2020
    - February 2020
    - March 2020
    - April 2020
    - May 2020
    - June 2020
    - July 2020
    - August 2020
    - September 2020
    - October 2020
    - November 2020
    - December 2020
    - January 2021
  + Method
    - Qualitative
    - Quantitative
    - Mixed Methods
  + Data Collection
    - Interviews
    - Survey
    - Focus groups
    - Content/Thematic analysis
    - Documents  
      *student production (writing, art, digital, e.g. 3D printed robots), artefacts, student programmes, teaching material, written reflections, lesson plans*
    - Observation/Field notes
    - Test (assessment)
    - System log data  
      *Dashboard or LMS data  
      Tracking device data (eye tracking, mouse tracking) Sensors*
    - Respondent diary
  + Length of study
    - Unclear
    - Less than 1 week
    - 1 week
    - 2 weeks
    - 3 weeks
    - 1 month
    - 5 weeks
    - 6 weeks
    - 7 weeks
    - 2 months
    - 3 months
    - 4 months
    - 6 months
    - 7 months
    - 9 months
* Setting/Context
  + Participant Country
    - Country not indicated
    - Argentina
    - Australia
    - Austria
    - Belgium
    - Bhutan
    - Bosnia Herzegovina
    - Brazil
    - Burundi
    - Canada
    - Central African Republic
    - Chile
    - China
    - Colombia
    - Costa Rica
    - Croatia
    - Czech Republic
    - Denmark
    - Dominican Republic
    - Ecuador
    - Egypt
    - Estonia
    - Finland
    - France
    - Georgia
    - Germany
    - Ghana
    - Greece
    - Hong Kong
    - Hungary
    - Iceland
    - India
    - Indonesia
    - Iran
    - Ireland
    - Israel
    - Italy
    - Jamaica
    - Japan
    - Jordan
    - Kazakhstan
    - Kenya
    - Latvia
    - Lithuania
    - Macedonia
    - Madagascar
    - Malaysia
    - Malta
    - Mexico
    - Morocco
    - Nepal
    - New Zealand
    - Nigeria
    - Norway
    - Pakistan
    - Peru
    - Philippines
    - Poland
    - Portugal
    - Republic of Korea
    - Romania
    - Russia
    - Saudi Arabia
    - Senegal
    - Slovak Republic
    - Slovenia
    - South Africa
    - South Korea
    - Spain
    - Sweden
    - Switzerland
    - Tajikistan
    - The Netherlands
    - Timor-Leste
    - Tunisia
    - Turkey
    - UAE
    - Uganda
    - UK
    - Ukraine
    - Uruguay
    - USA
    - Vietnam
    - Zambia
    - Zimbabwe
    - Bulgaria
    - Cyprus
  + Participant Continent
    - Africa
    - Asia
    - Europe
    - Oceania
    - Middle East
    - North America
    - South America
  + Country wealth status
    - Low income country
    - Lower middle income country
    - Upper middle income country
    - High income country  
      *High income country*
    - Country not indicated
  + Subject  
    *Where the subject under investigation is explicit (that is, they only researched one or more particular subjects), please code it.* 
    - Subject not mentioned
    - Maths
    - Physical Education
    - Literacy
    - English (first language)
    - English as a second/foreign language
    - Biology
    - Science
    - Physics
    - Chemistry
    - Engineering
    - History
    - Social Studies
    - Geography
    - Liberal Studies
    - ICT
    - Chinese (first language)
    - Information Literacy Skills
    - Music
    - Art
    - Technology
    - Agriculture
    - Religious education
    - Dance
    - Chinese as a second/foreign language
    - Economics
    - Performing Arts
    - German (second language)
    - Indonesian (first language)
    - Arabic
* Population
  + Number of participants  
    *Choose appropriate checkbox and type exact number into INFO box.* 
    - 1-25
    - 26-50
    - 51-99
    - 100-299
    - 300-499
    - 500-749
    - 750-999
    - 1000+
    - Not stated
  + Participant Focus  
    *In observations, who is the focus?  
    In surveys, who is answering?* 
    - Teachers
    - Students
    - Parents
    - School Leaders
    - District administrators
    - Learning designers
    - Government officials
  + Year Level  
    *Year level of students where mentioned.  
    Choose as many as appropriate. Choose â€˜Unclear/Secondary’ where specific year levels not mentioned.* 
    - Unclear/Secondary
    - Year 7
    - Year 8
    - Year 9
    - Year 10
    - Year 11
    - Year 12
    - Year 13
  + Student variables
    - SEND students  
      *Special educational needs and disabilities*
    - Migrants/Refugees
    - Low-income background  
      *Where the information is given explicitly that lower-income students are included, please indicate this and feel free to code text that provides further information about them here.*
    - Low attainment
* Our research questions
  + RQ1. Student motivation/engagement  
    *In what ways did emergency remote education affect motivation and engagement in secondary students?*
  + RQ2. Online assessment  
    *How did research report on emerging online assessment practices in secondary schooling during the pandemic?*
  + RQ3. Peer collaboration  
    *Are new approaches to peer collaboration emerging and what does this suggest?*
  + RQ4. Parent engagement  
    *How does online learning in secondary schools support parent engagement?*
* Intervention
  + Technology Types Used
    - Synchronous collaboration tools  
      *Audio-Video conferencing (e.g. Zoom)  
      Collaborative writing tools (e.g. Google Docs)* 
      * Video conferencing (unknown)
      * Zoom
      * Teams
      * Webex
      * Skype
      * Google Meet
      * Google Docs
      * Tencent Meeting
      * Explain Everything
      * Jitsi
      * Google Workspace for Education   
        *Google Workspace for Education Fundamentals (Formerly known as G Suite for Education) Â·*
      * Any video conferencing
    - Multimodal production tools  
      *Animations  
      Tutorials Recorded lectures Videos Podcast/Vodcast Screencast Authoring tools Voice recorder* 
      * Videos (teacher made)
      * Videos (made by others)
      * Videos (uncertain origin)
      * Khan Academy
      * YouTube
      * Oak Academy
      * BBC Bitesize
      * Twinkl
      * Movie Maker
      * Edpuzzle
      * Podcasts
      * Scratch
      * Zmaker
      * Autodesk SketchBook
      * FastStone Capture
      * TEDEd
      * Gleerups
      * URPlay
      * Screencastify
      * Flipgrid
      * PowToon
      * Alcody
      * Sonometer app
      * Macromedia Flash
      * Studio (Canvas)
      * Oak Academy
    - Knowledge organisation & sharing  
      *LMS (e.g. Google Classroom)  
      Cloud storage Bookmarking Diary tool in Moodle* 
      * Other LMS
      * Google Classroom
      * Edmodo
      * Class Dojo
      * Moodle
      * Blackboard
      * Daymap
      * Schoology
      * Aula
      * Cloud storage (e.g. Google Drive)
      * Dropbox
      * Google Drive
      * SLearning platform
      * PlayPosit
      * Seesaw
      * Microsoft 365
      * Bingel
      * Gsuite
      * Showbie
      * WebAssign
      * Padlet
      * MeisterTask
      * Compass
      * EduPage
      * ItsLearning
      * Canvas
      * OneNote
    - Text-based tools  
      *Discussion forums  
      Readings Newsletter Text RSS Interactive textbook Annotation tools Email Chat Instant messaging Wikis* 
      * Discussion forums
      * Email
      * Chat/Messaging (unknown)
      * WhatsApp
      * DingTalk (Alibaba)
      * WeChat
      * CCTalk
      * Chaoxing
      * Google Slide Deck
      * PowerPoint
      * School website
      * Interactive eBook
      * iBooks
      * International Children's Digital Library
      * Word
      * Excel
      * Telegram
      * Jabber
      * GroupMe
    - Social networking tools  
      *Social platforms (e.g. Facebook)  
      Microblogging (e.g. Twitter)* 
      * Facebook
      * Twitter
      * Social media
      * Social networks
      * DingDing
      * Instagram
      * Snapchat
    - Assessment tools  
      *eAssessment  
      Quizzes ARS Open badges Online exams* 
      * Self-assessment quizzes
      * Socrative
      * Kahoot
      * Google Forms
      * Formative
      * Microsoft Forms
      * In-built tests and assignments (within LMS)
    - Learning games
      * Computer games
      * Paragraph Punch  
        *https://paragraphpunch.com/*
      * Video games
      * Sumdog  
        *https://pages.sumdog.com/*
      * Spelling City  
        *https://www.spellingcity.com/*
      * Codecombat
      * TT Rockstars
      * Education Perfect
      * Hegarty Maths
    - Non-tech printed materials
      * Textbooks and printed materials
    - MOOCs
      * MOOCs
    - Website creation tools  
      *Blogs  
      ePortfolios* 
      * Blogs
      * GeoGebra Notes
    - Data analysis tools  
      *Learning analytics dashboard* 
      * Learning analytics dashboard
    - Mobile learning  
      *Apps  
      mLearning* 
      * mLearning
    - Virtual worlds  
      *Virtual lab  
      Simulations Virtual worlds* 
      * Minecraft
      * Augmented reality
      * PhET  
        *Physics Education and Technology simulation media*
    - Other technology
      * TV lessons
      * Radio
      * CMACC
      * Laptops
      * The OT Toolbox  
        *https://www.theottoolbox.com/*
      * Sli
      * Audio book
      * Devices used
    - None listed
  + Assessment
    - Online exams  
      *Exams that are held solely online using technology.*
    - Portfolio  
      *A collection of student work, housed online.*
    - Choose your own adventure  
      *A task where students are provided with multiple activity options that they can choose from.*
    - Peer assessment  
      *Where peers assess each other’s work.*
    - Self-assessment  
      *Where students assess their own work.*
    - Online quizzes  
      *Short quizzes (often multiple choice) that students answer online, e.g. Kahoot.*
    - Research project  
      *Large project that is presented online.*
    - Reflective learning journal  
      *Where students reflect on what and how they have learned, e.g. a blog.*
    - Flipped feedback  
      *Where teachers record themselves (video or just audio) going through student work.*
    - Formative online feedback  
      *Diagnostic/formative feedback*
    - Assessment submission  
      *How students are submitting work*
    - No assessment allowed
    - Worksheets
    - Conversations/Speaking assessment
    - Video project makers
    - Images  
      *Students send a photo of their work*
    - Project-based (not research)
    - Checklists
    - General challenges with conducting assessment
    - Online debate
    - Providing exemplars of student work
    - Videos
    - Live marking
    - Differentiation
    - At home experiments
  + Pedagogical approaches
    - Flipped learning  
      *Where students learn through watching videos (either teacher made or made by other educators) in their own time, and then apply concepts learned in the group space.  
      An example is the Weinhandl (2021) study in this review.*
    - Collaborative learning  
      *Where students undertake learning activities in pairs or in groups, in order to achieve learning outcomes.*
    - Self-directed learning  
      *Independent learning. Students take responsibility for what to learn, when and how. It could include selection of topic, resources, mode of assessment.  
      An example would be where students have to undertake a research project, where the topic and design of the task, as well as pacing of work undertaken, is completely up to them. Creating ePortfolios are often examples of self-directed/self-regulated learning (see Weinhandl 2021).*
    - Inquiry-based learning
    - Teacher professional development  
      *Not a pedagogical approach per se, but related*
* Outcomes
  + Student
    - Positive/Increased Motivation  
      *Evidence of students being motivated, e.g. "94.4% considered that Alcody motivated them to learn how to program even during the COVID-19 pandemic when they were at home using Alcody online"*
    - Negative motivation/demotivation  
      *Evidence of students being demotivated, e.g. e.g. some parents were concerned that their children seemed to lack motivation and were easily distracted .[...]Not putting in effort as they think no one else is. Not taking learning at home seriously. [...]They don’t want to. It’s such a struggle.*
    - Positive overall engagement  
      *Where a study has measured engagement generically, without specifying exactly what aspect of engagement they’re focused on, e.g. "Online learning is more engaging, M = 4.0"*
    - Disengagement  
      *Where a study has measured disengagement generically, without specifying exactly what aspect of disengagement they’re focused on (which should be coded underneath the individual domains, e.g. Cognitive Disengagement)*
    - Learning gains  
      *Where students have increased the amount of learning, e.g. "It is clear that students learned a lot about preventive health care and SARS-CoV-2, with more than 70% of students responding e.g. agree and e.g. strongly agree. The number for sustainable development knowledge was around 50%.*
    - Learning loss  
      *Where a study has indicated less learning somehow, or where learning loss has been measured in absolute terms, e.g. "e.g. They learned, but less than they would have in school 51.11% according to teachers”  
      "These barriers resulted in 7 out of 10 students indicating that grades in their classes dropped during online learning in the spring."*
  + Parent engagement
    - Parental involvement & engagement with learning  
      *Examples of parents being involved or engaged with their child’s learning. Can also be examples of difficulties in parents engaging.*
    - Relationships  
      *Evidence of relationship building with the school community (parents, teachers etc), or difficulties in relationship building.*
    - Communication  
      *Home-school communication, preferably about how schools communicate with parents using specific technology.*
    - Attitude towards learning  
      *Evidence of parent attitudes towards learning or activities.*
    - Self-efficacy (as educator)  
      *Evidence of parent opinions about themselves as an educator (as a direct result of online/blended learning).*
    - ICT skills & knowledge  
      *Evidence around parent ICT skills & knowledge.*
  + Peers
    - Collaborating with peers  
      *Evidence of importance of peer interaction, or how collaboration was facilitated through technology.*
    - Co-creating learning materials  
      *Specific collaboration between students to create something together, e.g. lesson notes, revision guide, presentation.*
  + Learning environment & technology
    - Access to technology  
      *Impact of internet or device access on students’ learning, engagement or motivation.*
    - Usability  
      *How the ability to use technology affected learning, e.g. accessibility, design.*
    - Internet connection
  + Curriculum/Activities
    - Design  
      *How the design/pacing of activities affected learning and/or engagement.*
    - Content length  
      *Impact of   
      - Video length - Activity length*
    - Feedback  
      *- What students thought of how feedback was given.  
      - How did specific types of online feedback affect learning and/or student/parent engagement?*
  + Cognitive engagement
    - Critical thinking  
      *The process of actively conceptualising, applying, analysing, synthesising, and/or evaluating information.*
    - Setting learning goals  
      *Students setting learning goals for themselves/working to achieve a certain level.*
    - Understanding  
      *Students develop greater understanding of learning material, or of how to perform certain tasks.*
    - Reflection  
      *Student reflection on their own learning/knowledge, learning processes or skills.*
    - Focus/concentration  
      *Improved/enhanced ability to focus or concentrate.*
    - Deep learning  
      *Students learn concepts to a deeper level (not just surface level understanding) and retain the information.*
    - Learning from peers  
      *Students learn from other students.*
    - Follow through/care/thoroughness  
      *Students show particular care in their work, or ensure completion to a high standard. They finish what they start.*
    - Preference for challenging tasks  
      *Students choose to complete work of a higher level, or challenge themselves to work to a higher standard.*
    - Teaching self and peers  
      *Students take initiative to teach themselves and/or other students new concepts.*
    - Positive perceptions of teacher support  
      *Students find teacher feedback, teaching, and/or support good.*
    - Self-regulation  
      *Students manage aspects of their own learning, without being asked to do so. Students monitor their own thinking and make their own decisions as they’re engaged in learning activities.*
    - Positive self perceptions/self-efficacy  
      *Students acknowledge their skills or knowledge have improved, or see that they have accomplished something.*
  + Affective engagement
    - Enthusiasm  
      *Students show enthusiasm about something (intense and eager enjoyment, interest or approval)“ code this if the word enthusiastic or enthusiasm is used.*
    - Satisfaction  
      *Students are satisfied with something to do with their learning (activities/assignments, teaching, online learning, technology etc).*
    - Curiosity  
      *Evidence of a desire to know or learn something.*
    - Sense of connectedness  
      *Students feel connected to or at home among their classmates.*
    - Positive attitude towards learning  
      *Students display a positive approach towards learning.*
    - Sees relevance  
      *Students can relate what they learn to real life/to their own lives, or they see the reason for learning something in a particular way.*
    - Feeling appreciated  
      *Students feel appreciated for the work they do or the role they have played in the class.*
    - Pride  
      *Students feel proud of their skills or knowledge, or of any other aspect relating to their learning.*
    - Excitement  
      *Students are excited about their learning.*
    - Enjoyment  
      *Students enjoy an aspect of their learning (e.g. the teaching method used, the activities)*
    - Positive interactions with peers  
      *Working well with other students.*
    - Positive interactions with teachers  
      *Positive communication, interaction and/or connection between students and their teacher/s.*
    - Interest  
      *Students show interest in their learning/activities/teaching method etc.*
    - Sense of wellbeing  
      *Students feel comfortable and happy with their learning and/or within their learning environment.*
  + Behavioural engagement
    - Effort  
      *Students expend effort in their learning, e.g. doing extra work, watching videos multiple times.*
    - Study habits  
      *Students talk positively about studying/doing homework.*
    - Attending live lessons  
      *Positive attendance to live lessons (any synchronous activities - conference calls, collaborative writing etc).*
    - Increased interaction with peers  
      *Increased interaction and collaboration with fellow students.*
    - Increased interaction with teachers  
      *Increased interaction with teachers through activities, feedback, online lessons and so on.*
    - Homework completion  
      *Students complete set homework/activities, e.g. watching videos.*
    - Positive conduct  
      *Students behave and do the right thing (e.g. in online lessons).*
    - Participation/involvement  
      *Students participate or get more involved in their learning somehow.*
    - Asking teacher or peers for help  
      *Students ask the teacher or peers for help.  
      e.g. For example, they were more willing to ask for help and contribute key mathematical ideas rather than wait for these to be provided during a homework review.*
    - Assuming responsibility  
      *Students take responsibility for their learning and/or behaviour.  
      e.g. Many students explained that the flipped classroom required that they assume more responsibility for their own learning, especially outside of the classroom. Lucas talked about this external classroom experience: You actually have to be an adult. You have to self-teach yourself. You have to watch stuff at home. You have to do your work. You need to stay on top to make sure you continuously grow as a student.*
    - Confidence  
      *Students display increased confidence in an aspect of their learning, e.g. asking questions, undertaking/completing activities.*
    - Amount of time studying/Time on task  
      *Increased time on task (when completing activities).*
  + Cognitive disengagement
    - Unwilling  
      *Students resist or are unwilling to complete tasks or participate in live lessons for example.  
      e.g. Interview of the students who participated in the flipped classroom approach indicates that the biggest issue that was found related to students acceptance of the format. Students were resistant at first to the concept of having to watch videos and do work at home which were new to them.*
    - Apathy  
      *Students are apathetic towards learning activities and-or online learning in general. Lack of interest, enthusiasm, or concern.*
    - Helpless  
      *Students feel unable to act without help.  
      e.g. Can it be more complicated to control my avatar? Someone please give me a hand*
    - Opposition/rejection  
      *Students flat out refuse to do something or are completely against online learning, for example.*
    - Avoidance  
      *Students avoid completing activities and/or doing things that might be difficult.*
    - Pressured/stressed  
      *Students feel stressed or pressured as a result of their learning/technology etc.*
    - Unfocused/inattentive  
      *Students can not concentrate on activities or in live lessons.  
      e.g. students reported that staying focused when watching videos was a challenge. "I cannot focus on watching videos, not even 2 minutes"*
    - Distracted  
      *Students are distracted by things other than their learning.  
      "Sometimes when I am doing the pre-learning on my mobile hone, there are messages popping up frequently at the top of the screen and I have to reply"*
    - Confusion
  + Affective disengagement
    - Boredom  
      *Students express boredom around some aspect of their learning.  
      Student A (Traditional): e.g. Sometimes the PowerPoint presentations were boring and unclear.*
    - Anger  
      *Students are angry about some aspect of their learning and/or the technology they have to use.*
    - Dislike  
      *Students dislike an aspect of their learning, e.g. the activities, the technology used, online learning in general.*
    - Disinterest  
      *Students have lost interest in their learning.*
    - Dissatisfaction  
      *Students are dissatisfied about some aspect of their learning.  
      e.g. a minority of students expressed strong opinions that they did not enjoy working as a pair and some of these reported that their partners did not equitably contribute to the workload*
    - Disappointment  
      *Students are disappointed about an aspect of their learning, e.g. grades, interaction.  
      e.g. . . .miss out on discussions and explanations on certain topics. . ..*
    - Frustration  
      *Students are frustrated about an aspect of their learning.  
      e.g. Students shared it was frustrating when there was no one around to answer questions.*
    - Worry/anxiety  
      *Students are worried or anxious about an aspect of their learning.  
      e.g. Taking control of their learning was an attribute that caused anxiety amongst the student-participants. The fear of not being able to immediately ask questions and having to delve into the content in order to gain understanding was evident in the journals compiled by the participant-researcher for the first couple of days.*
    - Overwhelmed  
      *Students are overwhelmed by an aspect of their learning, e.g. using different technology, the amount of work to complete.*
    - Lack of confidence  
      *Students are not confident about an aspect of their learning, e.g. talking in online lessons.*
    - Negative or no interaction with teachers
  + Behavioural disengagement
    - Procrastination  
      *Students put off doing work or procrastinate in some way.  
      e.g. At first, if I had a lot of homework I would put off the videos thinking I would just get the information in class then next day*
    - Half-hearted  
      *Doing tasks in a half-hearted manner, not doing them to the best of a student’s ability.  
      e.g. Many students identified that a lack of personal effort was the root of a stagnant learning.*
    - Absent  
      *Students do not attend scheduled classes.  
      e.g. In a survey completed by 81% of students registered for the manufacturing processes course, 35% reported not attending all the lectures. However, only 10% suggested that this was due to the podcast availability.*
    - Giving up  
      *Students give up, e.g. on completing homework/activities, or watching videos.*
    - Burned out/exhausted  
      *Students are exhausted as a result of their learning.*
    - Poor conduct  
      *Students misbehaving.  
      e.g. Higher instances of off-task behaviour were observed in the flipped classroom. Discussion with the teacher and class observations revealed instances of students listening to music on YouTube when the expectation was to be working.*
    - Unprepared  
      *Not being prepared for learning (e.g. live lesson) or assessment (e.g. exam).  
      e.g. in the first few days of the first week, there were several students unprepared for the class time and had difficulty in joining the group discussion and activities in class.*
    - Task incompletion  
      *Not completing work set by the teacher.  
      e.g. One of the biggest problems we have encountered is students not watching the video at home.*
  + Social disengagement
    - Social isolation  
      *Isolated due to covid restrictions, lockdown, school closure*
    - Decreased teacher-student interaction