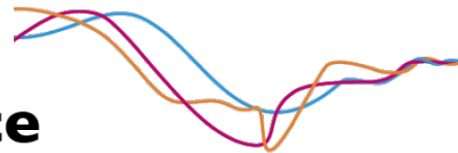


# Raising educational outcomes for individuals with special educational needs

Jo Van Herwegen, Thomas Masterman, Julie Dockrell, Rebecca Gordon, Chloe Marshall & Michael Thomas



**Centre for  
Educational  
Neuroscience**



#MetaSENse

Welcome and introduction By Professor Jo Van Herwegen

Amanda Allard Director of Council for Disabled Children

Meta-analysis Methods and Key Findings by Thomas Masterman

Interviews: Methods and key findings by Dr Catherine Antalek

Demonstration of MetaSENse toolkit by Professor Jo Van Herwegen

Key messages and recommendations by Professor Michael S.C. Thomas

Q&A facilitated by Dr Rebecca Gordon

Drinks reception

# Housekeeping



**Raising educational outcomes for students with Special Educational Needs and Disabilities**  
Jo Van Herwegen, Julie Dockrell, Michael S.C. Thomas, Chloe Marshall, Rebecca Gordon & Thomas Masterman  
July 2024

Students with Special Educational Needs and Disabilities (SEND) often have lower educational outcomes compared to their peers, necessitating additional support.

The current project examined the impact of targeted interventions to raise educational outcomes for students with SEND, the current practices used by educational practitioners, and existing barriers to implementing evidence-informed interventions.

The study comprised three phases:

**Phase 1** examined the existing research evidence base. It included a systematic review and meta-analysis of studies that used Randomised Controlled Trials and Quasi-Experimental Designs to evaluate the impact of targeted interventions for students with SEND aged four to 15.

The systematic review identified **467** global studies reporting on **1,758** outcomes, predominantly related to reading ( $n = 17,39$ ) with fewer studies focusing on:

- writing outcomes ( $n = 279$ )
- mathematical outcomes ( $n = 284$ )
- science outcomes ( $n = 29$ )
- and general attainment ( $n = 43$ )

The majority of studies were from the US and only **21** studies were from the UK.

**50%** of the studies focused on students with Dyslexia/Reading Difficulties and Dyscalculia/Mathematical Difficulties.

**Phase 2** involved talking to teachers. It identified current targeted intervention practices and how evidence is used in schools, and explored barriers to implementing effective practices through in-depth interviews with 33 educational professionals.

**Phase 3** included the co-construction of a toolkit, an online tool that allows educators to visualise the best-evidenced approaches for particular educational outcomes and SEN groups. The toolkit can inform educational decision making to select the best approaches.

The toolkit and MetaSENse searchable database can be accessed through this link and QR code.

#MetaSENse #IOE #NuffieldFoundation



# Amanda Allard



Amanda Allard  
Director

# Next steps to improve SEND provision across England

# What is CDC?

**Despite the number of slides I promise a quick overview:**

- **Strategic Reform Partner**
- **Special Education Consortium**
- **EY SEND**
- **Health Policy Influencing Group**
- **Information, Advice and Support Services Network**
- **Making Participation Work**
- **Research and Improvement for SEND Excellence**



## Resources

Welcome to the What Works in SEND resource hub. Everything stored within the effective practice, research and evaluation, or implementation toolkit has been referred into the What Works in SEND effective practice quality assurance framework or has been validated by our expert partners – you can find out more about our approaches in the About section in the menu above.



### Effective Practice

In this section you can see examples of emerging system level practice in SEND that is being developed in local areas

[Explore →](#)



### Research & Evaluation

In this section you can explore new research and evaluation being conducted by the programme as well as existing academic research, literature and models of system level practice in SEND

[Explore →](#)



### Evidence Store

In this section you can explore the most up-to-date evidence of what works at a system level to deliver excellent services for children and young people with SEND and their families

[Explore →](#)


### Developing ordinarily available provision in Portsmouth

A case study on Portsmouth's approach to developing ordinarily available provision.

Last updated: 28/03/2024

 Theme: Universal support

 Strength: Promising


 Breadth of Impact: Promising


### Increasing awareness and take-up of learning disability annual health checks for young people in Gateshead

A case study on Gateshead's approach to increase awareness and take-up of learning disability annual health checks for young people.

Last updated: 28/03/2024

 Theme: Targeted support

 Strength: Promising


 Breadth of Impact: Promising


### Developing a holistic approach to SEN support in the early years in Herefordshire

A case study outlining Herefordshire's approach to developing a holistic approach to SEN support in the early years.

Last updated: 28/03/2024

 Theme: Targeted support


 Strength: Promising


 Breadth of Impact: Promising


### Co-operation and assistance – sustaining strong strategic partnership working in Islington

A case study on Islington's approach to sustaining strong strategic partnership working.

Last updated: 28/03/2024

 Theme: Strategic partnership working/leadership and governance

 Strength: Good

 Breadth of Impact: Good

# Effective Practice case studies



# Enablers of improvement

## Why are we focusing on “enablers”?

- ❖ Parallels with other research projects in related areas (e.g., children’s services) – understand what is required for local systems and partners to establish and sustain effective approaches to supporting children, young people and families.
- ❖ Capture the key things that need to be in place at the foundations of local systems for any attempt to engage with and adapt lessons from best practice to be effective – and need constant refreshing and tending to. -


## What do we mean by “enablers” in this context?


- ✓ The non-negotiable essential “foundations” of an effective local SEND system.
- ✓ Features that need to be in place to support broader practice improvement initiatives and maximise the impact of learning from and adaptation of best practice in the local system.
- ✓ A summary of the evidence from the effective practice evidence framework and wider learning – to be kept updated as the framework develops.


### Young people's views concerning their voice in Education, Health and Care planning meetings: A participatory Q-study


The author explores the experiences of CYP described as having SEND participating in Education, Health and Care planning meetings. It focusses particularly on ideas around the voice of the child.

Last updated: 17/04/2024

 Theme: Co-productive working with young people and parent/carers

 Strength: Robust


 Breadth of Impact: Robust


 Status: Quality Assured


### Research into how local authorities are ensuring sufficient places and supporting vulnerable children


The authors explored the roles and responsibilities of local authorities, schools, trusts and other partners within local education systems with a survey, tested by "roundtables".

Last updated: 17/04/2024

 Theme: Processes and pathways

 Strength: Robust


 Breadth of Impact: Good


 Status: Referred


### Education, Health and Care plans: A qualitative investigation into service user experiences of the planning process


The authors explored factors influencing both user experiences of the process of getting an EHC plan during 2015 and the quality of the plans produced in this period.

Last updated: 17/04/2024

 Theme: Processes and pathways

 Strength: Robust

 Breadth of Impact: Robust


 Status: Quality Assured


### Ingredients for improving delivery of services for children with Special Educational Needs and Disabilities drawing on the experiences of the Delivering Better Outcomes Programme


This research focuses on local areas that had received improvement intervention from the Delivering Better Outcomes Together (DBOT) programme.

Last updated: 04/04/2024

 Theme: Processes and pathways

 Strength: Emerging

 Breadth of Impact: Emerging

 Status: Quality Assured

# Research: Primary and QA of Grey Literature

# Research areas to date

Systematic Review. Secondary research.  Delivered 04/2023	Leadership rapid review. Secondary research.  Delivered 11/2023		Co-production scoping review. Secondary research.  Due 04/2024		
	Quality assurance of grey literature.  Due 04/2024				
Recruitment and set up of primary research	Delivering Better Outcomes Together  Delivered Apr-23	Intervention primary research  Delivered 09/2023	Alternative provision primary research  Delivered 09/2023	Mid-level leadership primary research  Due 05/2024	Inclusive schools primary research  Due 05/2024

# Priority areas for 23/4

1. Co-production
2. To advance understanding of the principles that enable effective joint commissioning across local services:
  - a) To identify facilitators of effective joint commissioning
  - b) To identify barriers to effective joint commissioning
  - c) Explore and understand the journeys of local area SEND and AP Partnerships in developing joint commissioning;
  - d) To provide examples of best practice (both in terms of principles and models/programmes) demonstrating how/why they are effective and conditions for effective implementation
3. To gather information on the effectiveness of known models of service delivery, why they are effective and barriers to implementation. To identify other models of service delivery being used, gather information about their effectiveness, reasons for effectiveness and barriers to implementation;

# Why is SEND flavour of the year?

- **We have a system in which best practice is possible but it is hard work, it requires staff to go above and beyond. Accountability mechanisms are not set to SEND.**
- **The school inspection framework does not celebrate best practice around SEND. The Local Area inspection framework does judge the effectiveness of the provision from health partners but the improvement mechanisms that follow a poor inspection are all led by the DfE and fall on the local authority.**
- **We have a system which requires the othering of children rather than one which acknowledges different learning styles and processing skills. Which requires parent/carers with sufficient capacity to work out how to access support.**
- **We have a rising number of children reaching early years without the expected level of speech, language and communication development so no wonder local authorities don't think they have enough support.**

# Change Programme Delivery: Improvement Plan Commitments

## Improvement Plan Commitments

FOR DISABLED

### Enablers

#### Change Programme Partnerships

Lead LA

Partner LA

Partner LA

Partner LA

Strategic Education Representation  
(EY, Schools (all types), Post-16)

Strategic Health Representation  
(Integrated Care Boards)

Strategic Families Representation  
(PCF, other groups)

Individual LAs in CPP

Set Up

#### SEND & AP Partnership

Early Years

Schools (incl. special/AP)

Post-16

Health

Families

CSC

Publish

Local Area Inclusion Plan

Using Data Dashboard

### Ordinarily Available Provision

#### Ordinarily Available Provision

#### Mainstream Education Settings

Clear expectation of available support in all mainstream settings

Delivered Through

#### AP Three-Tier Service

Tier 1: Outreach Service into Mainstream

Tiers 2/3: Short- or Long-term interventions in AP Setting

Emphasis on remaining in/reintegrating into mainstream education

#### Early Language Support for Every Child

Community-based SLCN professionals

Early Identification and Intervention in Early Years and Primary Settings

Supported by take up of

#### Early Years and Post-16 Transitions

SAFE/AP Specialist Taskforces Models

Early Identification and Intervention Models

### EHC Plans

#### Reformed EHC Plan Process

Improve parental confidence in the EHC needs assessment process

Delivered Through

#### Multi-Agency Panels

Consistent approach to supporting local authority decision-making

#### Strengthened Mediation

Improving and testing the role of mediation

#### Standardised EHC Plan Format

Consistent approach to setting out need and provision in EHC Plans

#### (Advisory) Tailored Lists

Making informed placement decisions to improve support and outcomes

### Standards

#### National Standards

Delivering a nationally consistent system

#### Commissioning Reform

Delivering nationally consistent funding

# What is being promised:

**Too often our education and care systems do not meet the needs of all children, including those with Special Educational Needs and Disabilities (SEND). Labour will take a community-wide approach, improving inclusivity and expertise in mainstream schools, as well as ensuring special schools cater to those with the most complex needs. We will make sure admissions decisions account for the needs of communities and require all schools to co-operate with their local authority on school admissions, SEND inclusion, and place planning**

**Labour will transform our education system so that young people get the opportunities they deserve. We will expand our childcare and early-years system, drive up standards, modernise the school curriculum, reform assessment, and create higher-quality training and employment paths by empowering**

**A modern curriculum which is rich and broad, inclusive, and innovative. To capture this breadth, our review will consider the right balance of assessment methods whilst protecting the important role of examinations.**

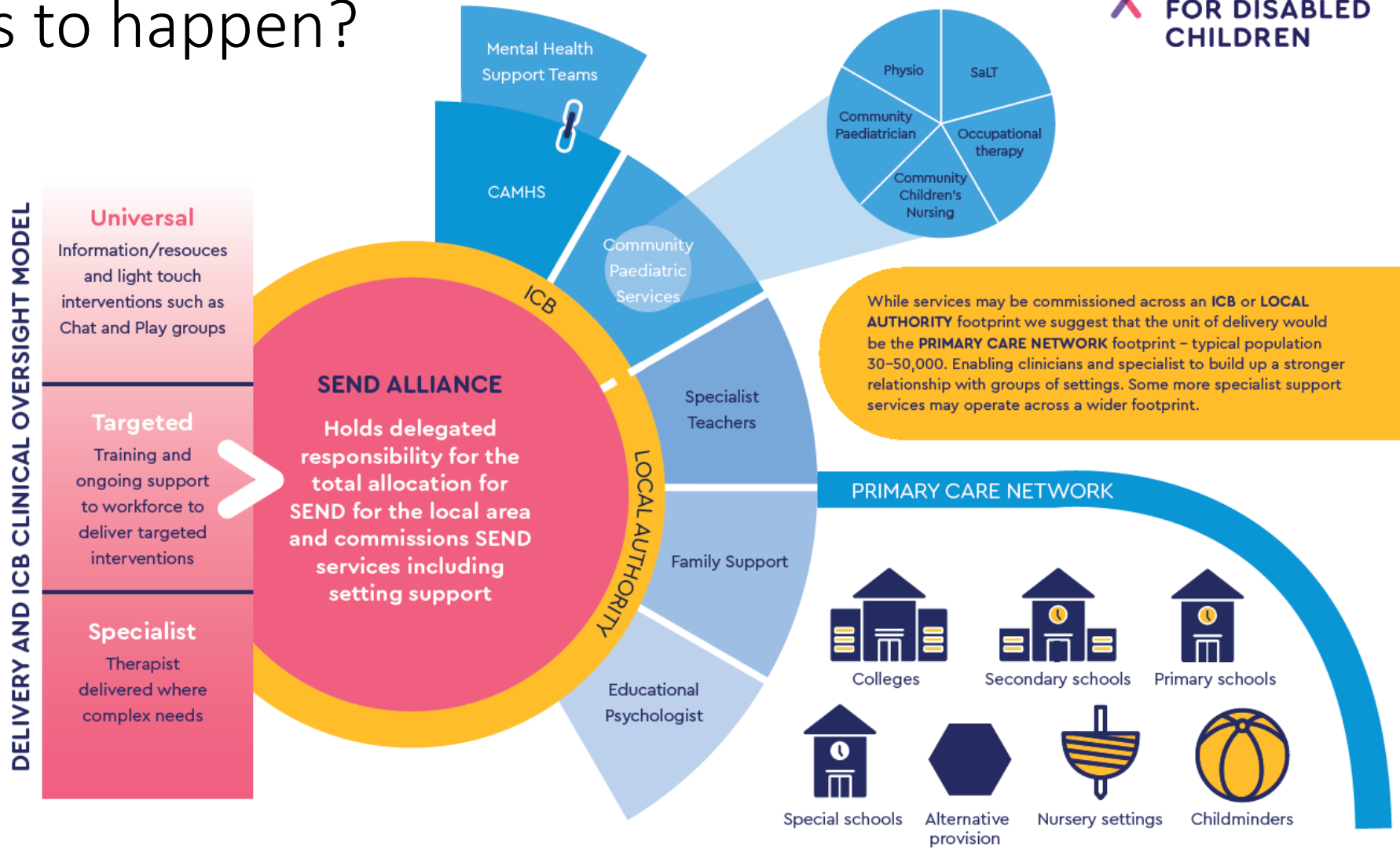
Enhance the inspection regime by replacing a single headline grade with a new report card system. Bring Multi-Academy Trusts into the inspection system and a new annual review of safeguarding, attendance, and off-rolling.

# What will happen?

- **A vision ✓**
- **A national framework/Standards ✓**
- **A more inclusive mainstream offer ✓**
- **Realigning powers and responsibilities ✓ ~**
- **A national workforce strategy ~**
- **Legislative change ~**



# What has to happen?



# MetaSENse project

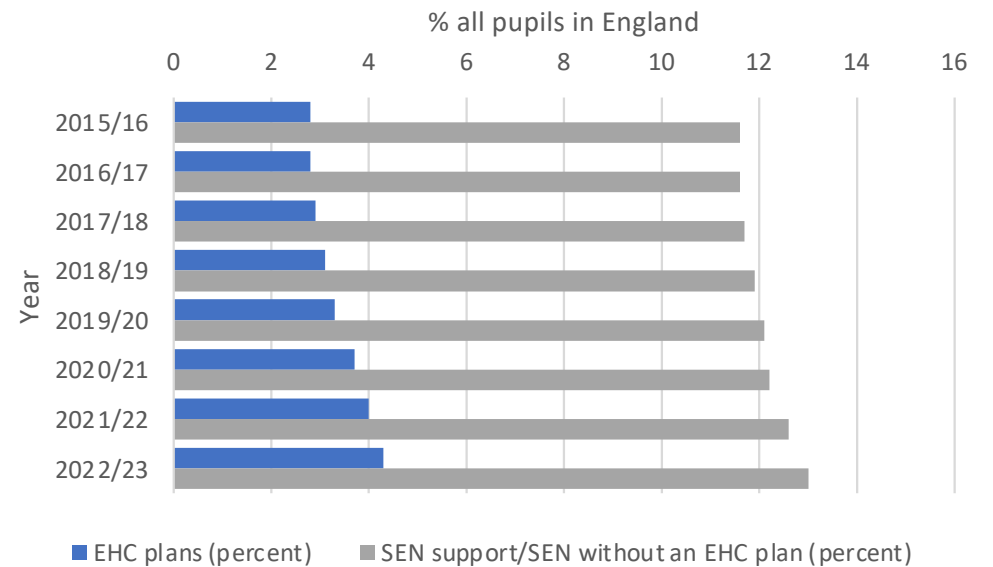
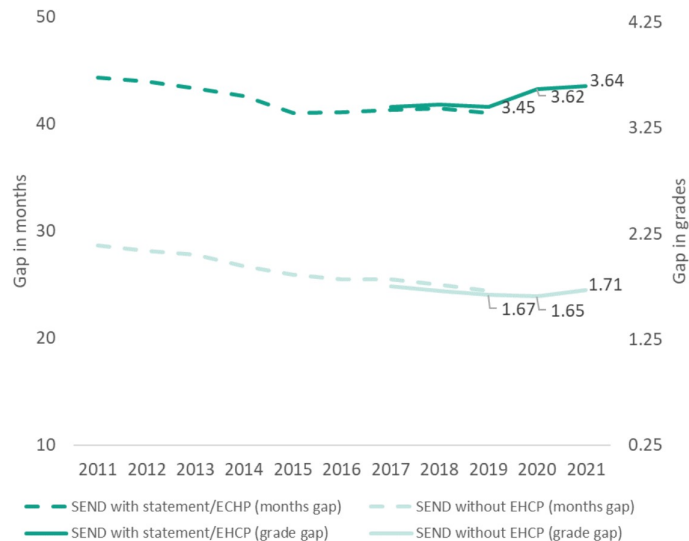


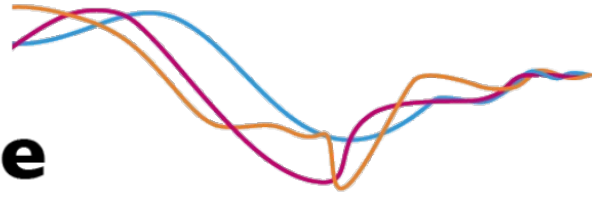
# What works for raising educational outcomes for students with SEND? - Context

Persistent attainment gap between pupils with SEND and typically developing peers (Education Policy Institute)

Increase in number of pupils with SEND in England (DfE)

Figure 1.19: Trends in the size of the secondary SEND gap in English and maths GCSE, 2011-2021





**Is the number of children  
with ADHD in UK schools  
increasing?**



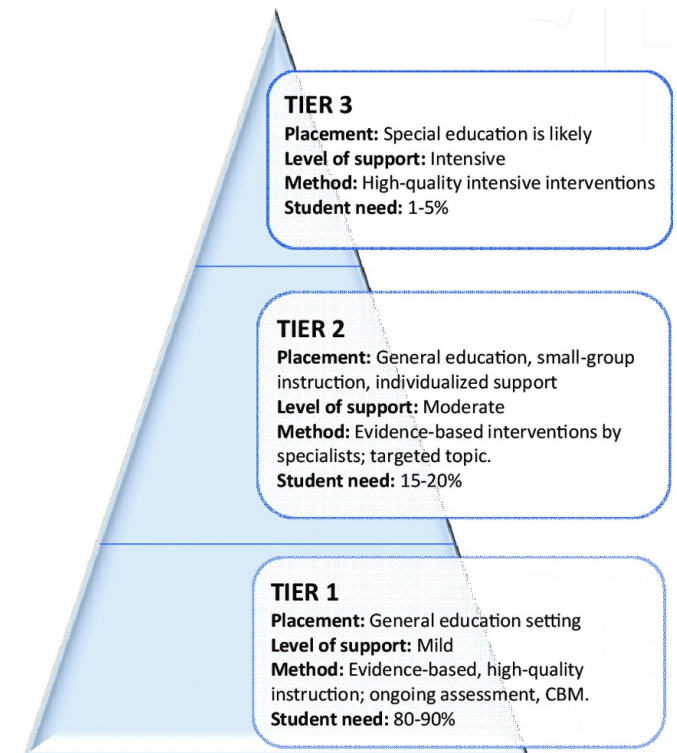
**Why has there been a rise in  
number of SEN children,  
especially in the early years?**



# What works for raising educational outcomes for students with SEND? – Existing Evidence

Current evidence base:

- Doesn't disentangle targeted interventions (Tier 2 & 3) from universal provision (Tier 1).
- Doesn't always focus explicitly on SEND alone (e.g., below average attainment)
- Doesn't look across different SEND needs (e.g., dyslexia AND speech language needs)



# Aims of the MetaSENse project

1) Examine what works to improve academic outcomes for pupils with SEND.

- Which targeted interventions work best to improve academic outcomes for which SEND groups?
- What intervention characteristics are associated with greater effectiveness, and for which SEND groups?

2) Identify any gaps in the research.

- What evidence is missing and for whom?
- Which types of new interventions should be developed, and for which SEND categories?

3) Identify methodological issues.

- Recommendations for future intervention evaluations.
- Identification of external validity issues in the existing literature.

4) How do educational professionals currently select which targeted interventions to use and what are current barriers to their implementation or provision of more effective strategies outlined in the meta-analysis?

## How we answer these aims

- Phase 1: Synthesise evidence of what works to raise educational outcomes for different students with SEND aged 4 to 25 in a systematic review followed by a meta-analysis
  - PRISMA guidelines
  - pre-registered on the Open Science Framework
- Phase 2: Identify barriers that educational professionals face in implementing the most effective practices indicated by the evidence through in-depth interviews.
- Phase 3: Develop a toolkit that can be used by practitioners and stakeholders

# Systematic Review & Meta-analysis





## Phase 1: systematic review and meta-analysis

- What do we mean by systematic?
- We searched of **8 databases** and **13 grey literature sources** (e.g., funding bodies, clearinghouses, and what works centres).
- **Databases included:** ERIC; WoS; Scopus; Education Database
- **Grey literature included:** EEF; WWC; Nuffield; Early Intervention Foundation; Blueprints for Healthy Youth Development

# Phase 1: systematic review and meta-analysis – Inclusion criteria

- Published between January 2000 and February 2023
- Focusing on pupils with SEND Aged 4-25 years
- Evaluated a targeted intervention approach using a taught element (either Tier 2 or Tier 3).
- Controlled trials only (i.e., RCT's or QED's - causality).
- No restriction on the *type of* control group (e.g., active control or teaching as usual) except for pharmacological treatment-based controls.

# Phase 1: systematic review and meta-analysis – Inclusion criteria

- Educational outcomes:
  - Reading, writing, and mathematics related outcomes as well as science.
  - General attainment (e.g. GCSE's, A-Levels, and equivalent international official examinations).
- Attitudinal or motivation-based outcomes (e.g., reading enjoyment) were **excluded**.
- Outcomes related to educational outcomes such as attendance, bullying, organisation etc. were **excluded**.

# Quality analysis of study

- Quality of included studies assessed using an amended version of the **Joanna Briggs Institute quality assessment tool**.

- RCT tool contained 12 items (e.g., randomisation, blinding, attrition etc.)

The following thresholds will be used to determine study quality as high, moderate, low:

JBI Revised RCT Tool –		Study Quality		
		Low Quality	Moderate Quality	High quality
<b>TOTAL SCORE THRESHOLDS</b>		<b>0-9</b>	<b>10-17</b>	<b>18-24</b>

- QED tool contained 10 items (matching, reliable measures etc.)

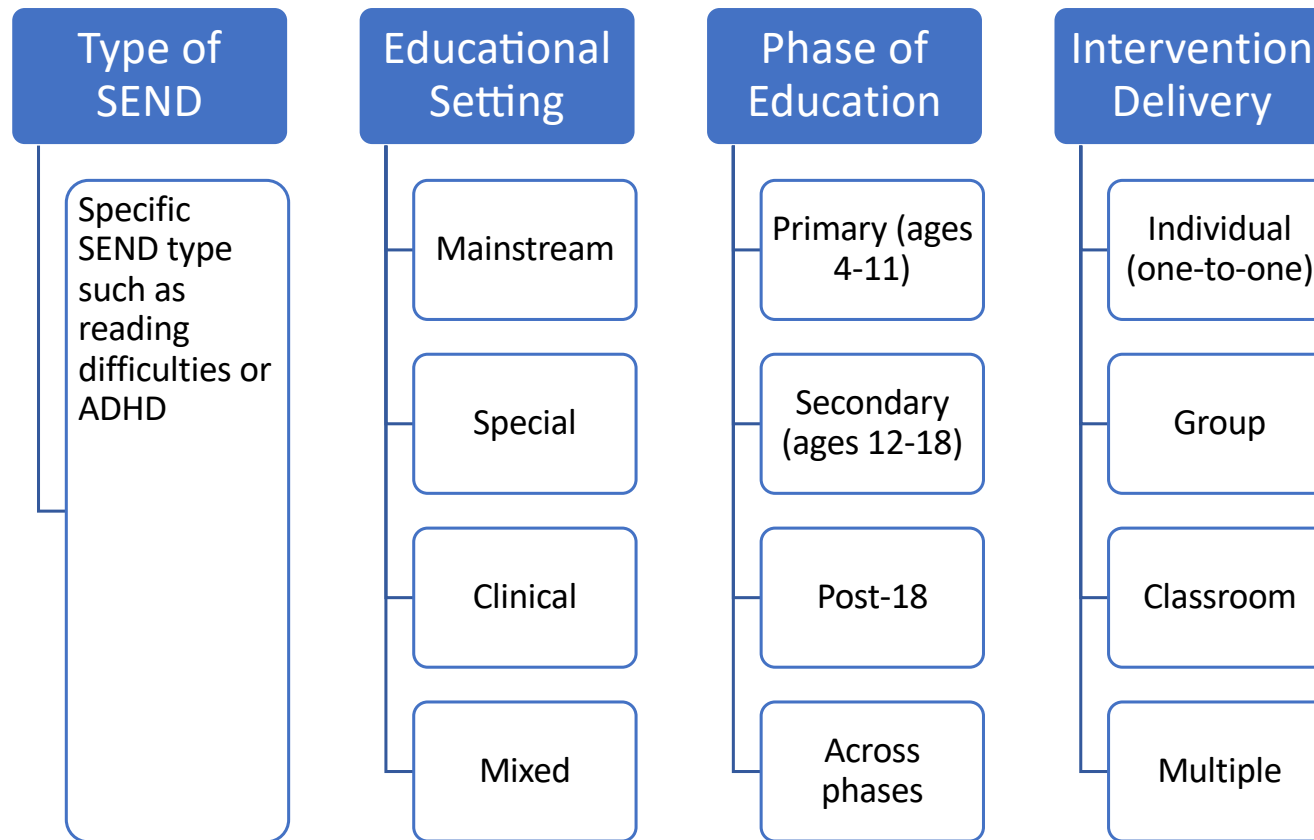
JBI QED Tool –		Study Quality		
		Low Quality	Moderate Quality	High quality
<b>TOTAL SCORE THRESHOLDS</b>		<b>0-8</b>	<b>9-15</b>	<b>16-20</b>

## Main findings: Meta-analysis (methodology)

.2	.5	.8
small	medium	large

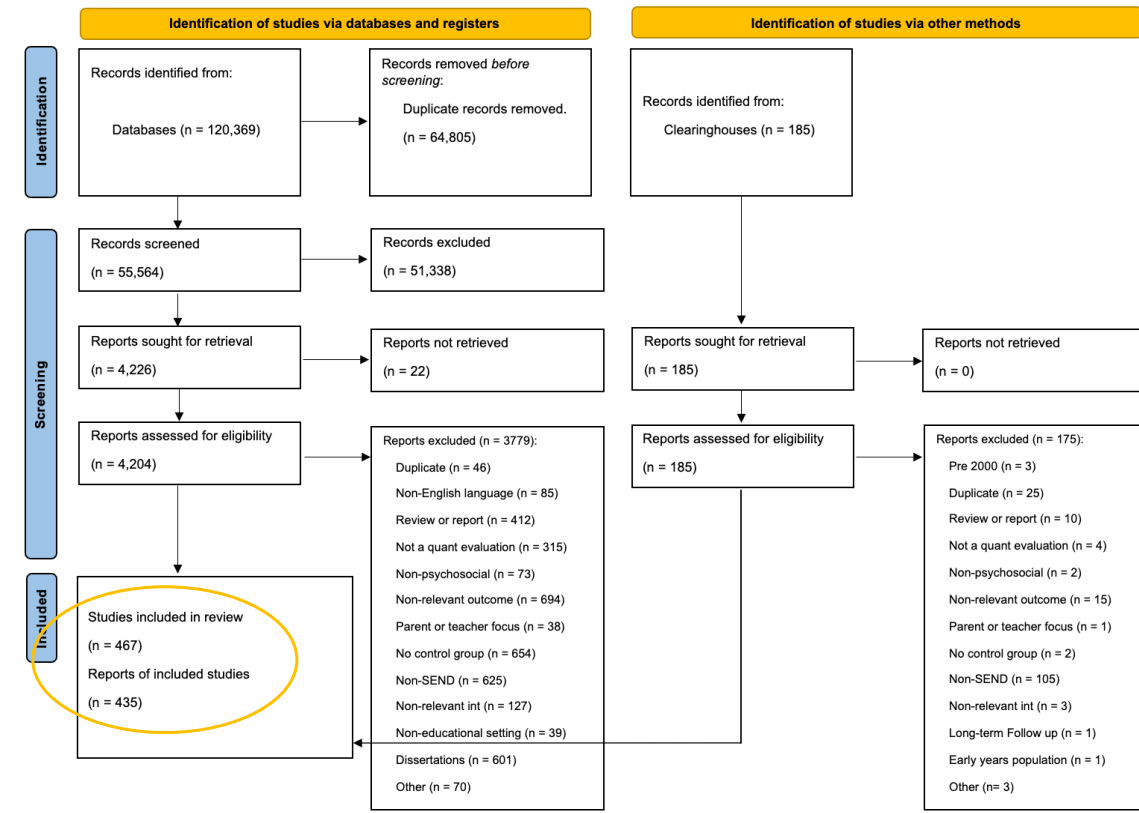
- Combine all results into one overall summary effect size.
- An effect size tells us the *magnitude* of difference between two groups.
- All outcomes converted to Hedge's G (SMD).
- **EEF Conversions to give a sense of how effect sizes translate into progress**

# Main findings: Meta-analysis (methodology)



# Phase 1: systematic review and meta-analysis – Screening

PRISMA flow diagram

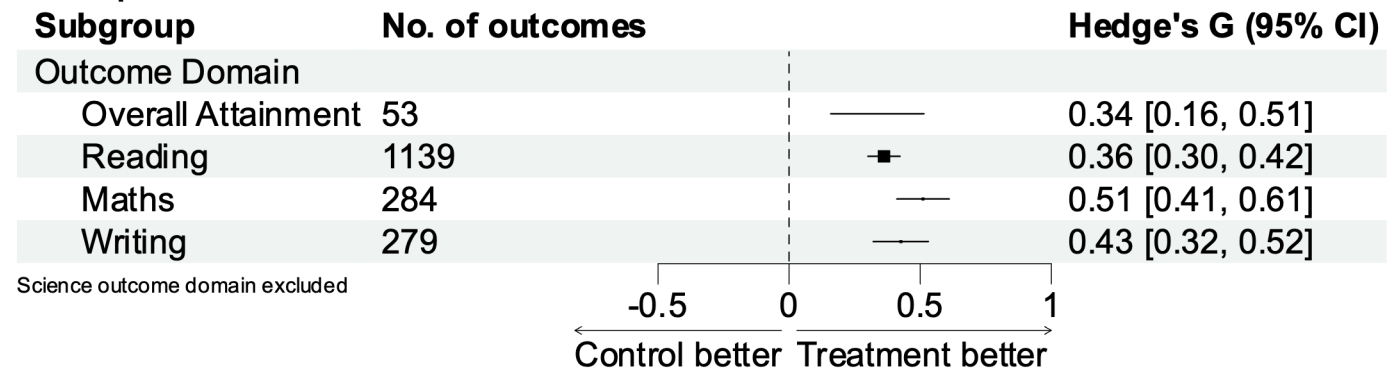


# Main findings: Aim 1 – What Works?

We find targeted interventions work for all outcome domains and work with moderate to large mean effects:

Overall effect:  $g = .44$  (equivalent to 5 months progress)

Forest plot of Outcome Domains

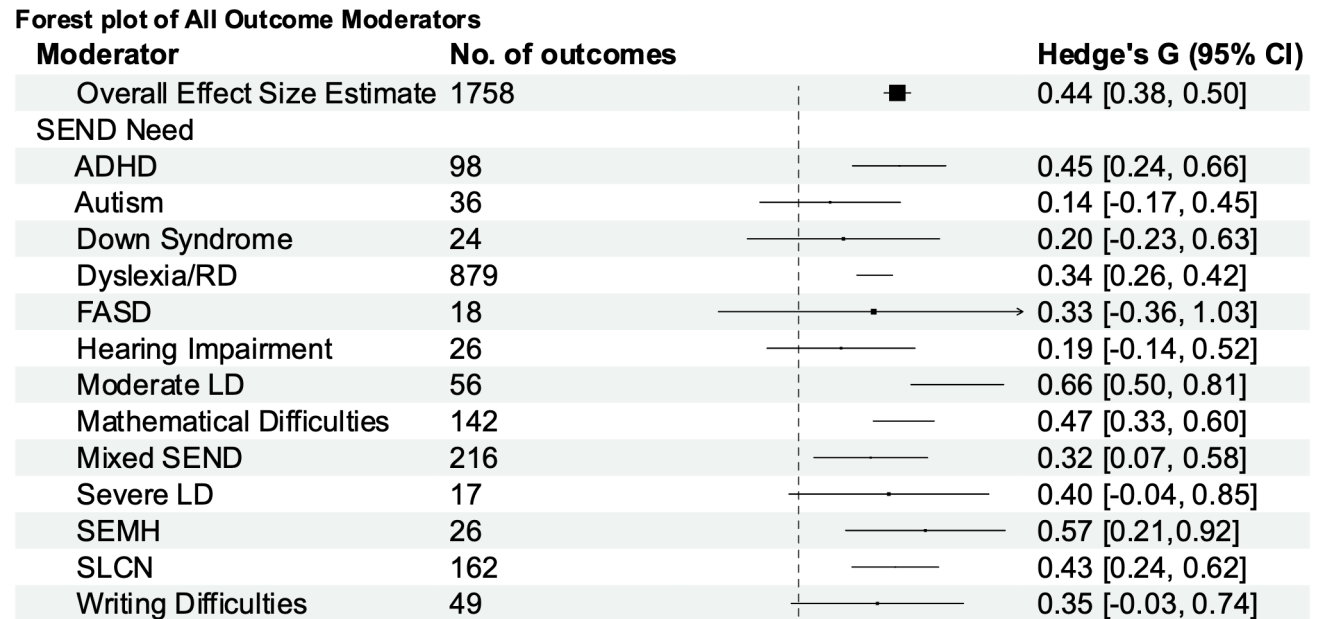




# Main findings: Aim 1 – What Works?

Generally positive findings for different SEND groups:

- Interventions work for specific learning difficulties (reading & mathematical difficulties)
- Evidence in favour of ADHD, MLD, SEMH, SLCN.
- Other SEND groups have less available evidence.



## Main findings: Aim 1 – What Works?

Impact of moderators varies by outcome domain:

- Phase of education matters for maths and writing but not for reading interventions ( maths = primary > across phases; writing = secondary > primary)
- Educational setting - evidence for significant effect for mainstream but not specialist, clinical, or mixed settings for maths outcomes – not for others.
- Group and individual delivery method did not differ in reading, mathematics.

# Main findings: Aim 2 – Gaps



Number of studies has increased but is low



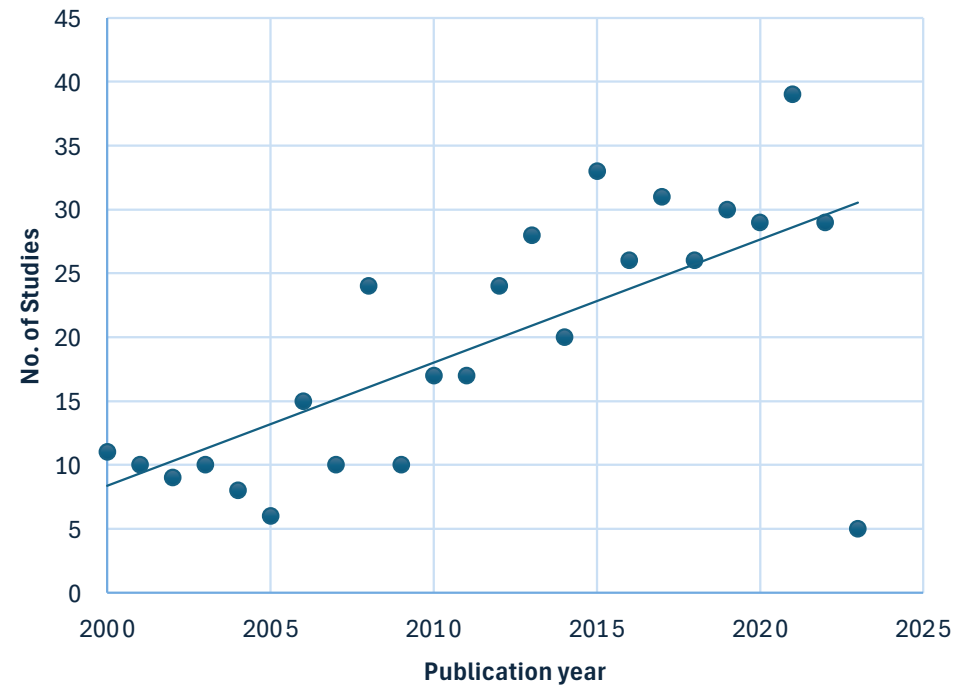
Studies drawn from 43 countries but mostly the USA (48%) with only 21 studies from UK



Most studies focus on primary school students (58%)



Similar proportion delivered in mainstream settings (58%)



# Main findings: Aim 2 – Gaps



Dyslexia & reading difficulties was the largest SEND type (40%)



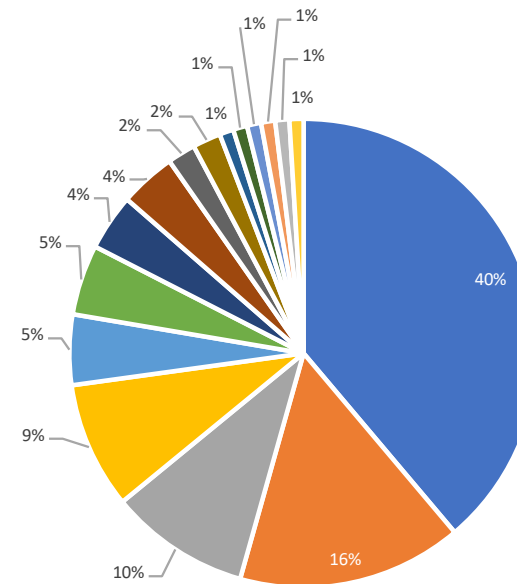
Half of all interventions delivered between 1 and 12 weeks



64% of included outcomes measured reading



Majority of studies (>50%) did not report demographic characteristics (e.g., SES, ethnicity)



## SEND groups included in review

- Dyslexia/ Reading Difficulties (40%)
- Mixed SEND (16%)
- Mathematical Difficulties (10%)
- Speech, Language, and Communication Needs (9%)
- ADHD (5%)
- Moderate Learning Difficulty (5%)
- Autism (4%)
- Hearing Impairment (4%)
- Social, Emotional, and Mental health (2%)
- Writing Difficulties (2%)
- Acquired Brain Injury (1%)
- Developmental Coordination Disorder (1%)
- Down Syndrome (1%)
- Fetal Alcohol Spectrum Disorder (1%)
- Severe Learning Difficulty (1%)
- Vision Impairment (1%)

## Main findings: Aim 3 - Study Quality

- **24.42%** of outcomes scores as 'High Quality' followed by **68.07%** moderate quality and **7.51%** low quality.
- Main issues related to not specifying how participants were randomised into the groups and how blinding of allocation was achieved.
- For both RCT and QeD studies there was a lack of intervention implementation/fidelity details
- Researchers need to better at communicating issues!.

# Conclusions

- Targeted interventions work and on average can lead to 5 months of additional learning progress.
- Interventions can work equally well in one-to-one and group settings and across ages.
- Research on improving outcomes for SEND to date is skewed: most studies focus on reading interventions, very little known about particular SEND groups other than dyslexia/ reading difficulties.
- Very few studies focus on what works in secondary school.
- Some promising interventions but larger UK based trials needed (most have less than 50 participants).

# Interviews: methodology and findings



## How we answer these aims

- Phase 1: Synthesise evidence of what works to raise educational outcomes for different students with SEND aged 4 to 25 in a systematic review followed by a meta-analysis
  - PRISMA guidelines
  - pre-registered on the Open Science Framework
- Phase 2: Identify barriers that educational professionals face in implementing the most effective practices indicated by the evidence through in-depth interviews.
- Phase 3: Develop a toolkit that can be used by practitioners and stakeholders



## A persistent research-practice gap remains

- Pegram et al. (2022) found that out of 138 different interventions used across 10 Welsh schools, 67% had no published research evidence to support them.
- Teacher recognise importance of research evidence but are not confident to engage with it (Coldwell et al., 2017).
- Seeing recent initiatives, has anything changed?

## Phase 2: Interview with educational professionals

- 32 participants (6 males)
- aged between 30-49
- average of 8.76 years of experience but ranging from 1 to 29 years.

<i>Phase/Type</i>	<i>Teacher/ SENCO (N)</i>	<i>Headteacher/Deputy (N)</i>	<i>Specialists (N)</i>
<b>Primary</b>			
<i>Mainstream</i>	3	2	3
<i>Special</i>	1	2	0
<i>Mainstream +SEND</i>	0	1	1
<b>Secondary</b>			
<i>Mainstream</i>	4	1	1
<i>Special</i>	5	1	0
<i>Mainstream +SEND</i>	3	0	0
<b>All Phases</b>			
<i>Mainstream</i>	1	0	0
<i>Special</i>	2	1	0
<i>Mainstream +SEND</i>	0	0	0
<b>Total</b>	19	8	5

## Methods

- Online interviews 35-45 minutes
- Interviewees were asked to reflect on:
  - The targeted intervention approaches they use to support for students with SEND
  - How they arrived at these approaches
  - What evidence they use to implement
  - How they monitored the effectiveness of the interventions, in terms of the assessment strategies they used but also when and how they reviewed which targeted approaches should be replaced.

Follow-up questions and probes were used to generate further explanation from participants.

# Three Themes Identified

**Theme 1: Exploring and Evaluating Evidence for Interventions**

*Defining 'evidence'*

*Navigating Sources of Evidence*

*Practical Considerations*

**Theme 2: Balancing Fidelity and Adaptation in Implementing Interventions**

*Students' Individual Needs*

*Significance of Training*

*Structural and Financial Considerations*

**Theme 3: Monitoring Effectiveness of Interventions**

*Assessment Strategies*

*Reflection and Review*

# Theme 1: Exploring and evaluating evidence for interventions

- Most practitioners acknowledged the importance of employing evidence-based interventions
- Inconsistent understanding of evidence
  - Peer-reviewed academic research VS.
  - Witnessing an intervention work

*“The interventions we use it’s a lot of **word of mouth**, and then **seeing if they work for us**, or if they don’t work for us.”*  
(TS\_1)

# Theme 1: Exploring and evaluating evidence for interventions

- Limited awareness of randomised control trials, the need for control groups, comparisons of interventions, or what kind of research designs can provide the most reliable evidence.
- Challenges related to accessing research evidence (Time, access and understanding)

*“I guess I look at **various sources**, but I don't have access to academic journals. So oftentimes it's either on their **website**... or else it's me just **searching** such and such with PDF at the end, hoping that scholarly article comes up.” (SL\_1)*

*“We don't really have a **control group** in our school, especially with our learning profile. You cannot compare one class to the next.” (SL\_5)*

## Theme 2: Balancing Fidelity and Adaptation in Implementing Interventions

- Interventions are often adapted to students' needs and teachers' existing knowledge
  - especially in special schools and
  - more experienced practitioners
- This flexibility often compromised fidelity to the original intervention.
- Cascade training approach
- High staff turn-over

*“because we had such a **high turnover** of teaching assistants, it was always not in our favour to really upskill them because the turnover was ridiculous. So, it was something that the teaching assistant could pick up really quickly and they could **administer without too much training.**” (TS\_11)*

*“What I do find is that there's generally quite **high fidelity at the beginning**, and then as they gain confidence or they realized that bits don't work, then they start to **adapt it** and they change it and change it and change it. And over time it **changes** so much it **loses all its power** because they're not following the original manual.” (SP\_6)*

## Theme 2: Balancing Fidelity and Adaptation in Implementing Interventions

- Flexibility Prioritised
  - **Secondary** < **Primary**
  - **Mainstream** < **Specialist**
- Manualised interventions requiring minimal training prioritised.
  - **Secondary** > **Primary**
  - **Mainstream** > **Specialist**

*“Yes, it's got to be **really straightforward** and **easy** for the teaching assistants to use because they **have no time.**” (TS\_4)*



## Theme 3: Monitoring Effectiveness of Interventions

- Most practitioners measure an intervention's effectiveness....
- But always clear what methods had been used (observations or anecdotal evidence)

*“It's very easy where you have got a program like Lexia, which gives you the reports of how much they've used the program, shows you exactly what their progress is from the baseline and from each month. Where we're not following a specific program, then it is looking at we do half termly assessments in class. So, it's looking at those assessments and speaking with the teacher as well and seeing what impact the support has had on the child in the classroom and that end of half term assessment.” (TS\_1)*

## Theme 3: Monitoring Effectiveness of Interventions

- In terms of reviewing which interventions to decommission or recommission, the monitoring and evaluation process was not systematic, relying instead on informal methods for gauging the impact of interventions.
- Although participants noted that interventions were frequently adapted, it was unclear whether these adaptations were consistently tracked and monitored.
  - Evaluation of the intervention's effectiveness did not take into account any adaptations made.

## Conclusions

- **Research evidence:** Barriers included access to research but also training to understand this evidence. All practitioners mentioned the need for a trusted source of research evidence.
- **Intervention approaches:** they welcomed approaches that could be implemented flexibly and adapted to the needs of the individual students, as well as those that require less training.
- Few **differences between the educational practitioners** but the ability for flexibility was greater for primary than for secondary school staff. Those developing policies and training as well as those designing interventions should consider these structural differences between primary and secondary educational settings.

# Introduction Toolkit



# Introduction Toolkit

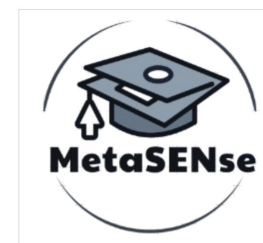


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**MetaSENse**



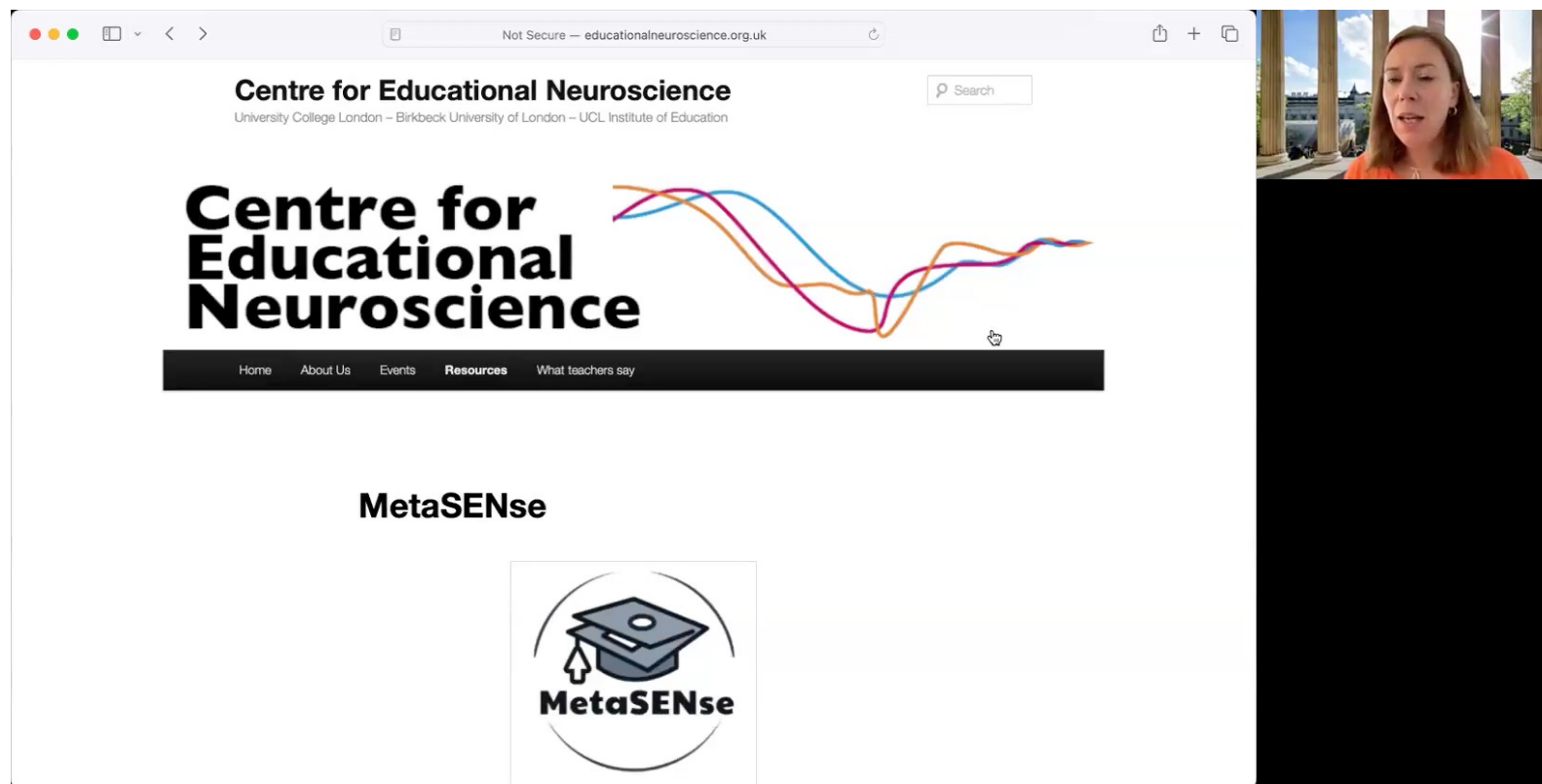
Raising educational outcomes for students with SEN and disabilities  
(MetaSENse)

<http://www.educationalneuroscience.org.uk/metasense/>

# What is on the toolkit?

1. MetaSENse report
2. MetaSENse infographic
3. MetaSENse outputs
4. Blogs
  - [What works for students with SEND](#)
  - [How to figure out what works in my classroom](#)
  - [What's a control group? Why do I need one?](#)
5. The MetaSENse database!

# What interventions can improve mathematical abilities in KS1

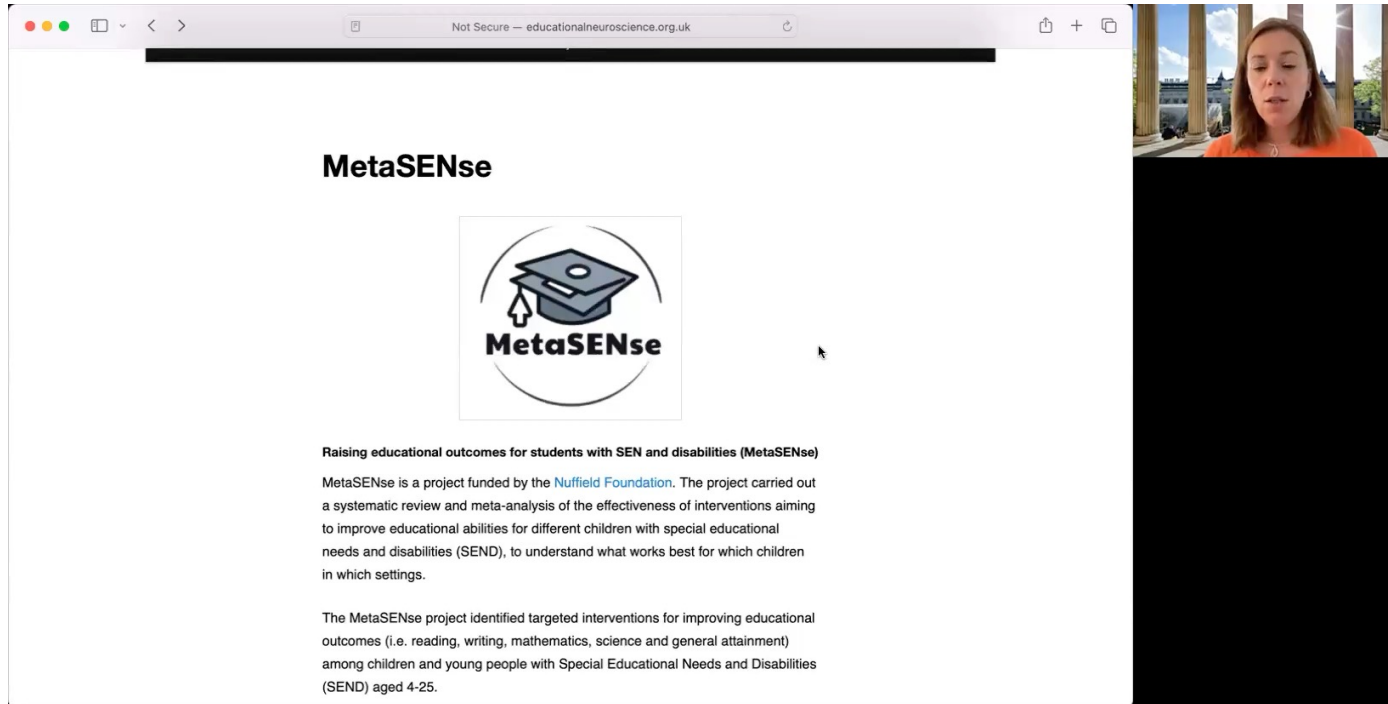


The screenshot shows a web browser window with the URL `educationalneuroscience.org.uk`. The page header includes the text "Centre for Educational Neuroscience" and "University College London – Birkbeck University of London – UCL Institute of Education". A search bar is visible in the top right. The main content area features the large text "Centre for Educational Neuroscience" next to a colorful, wavy line graphic. Below this is a navigation menu with links for "Home", "About Us", "Events", "Resources", and "What teachers say". The "Resources" link is highlighted. Further down, the text "MetaSENse" is displayed above a circular logo containing a graduation cap and a mouse cursor, with the text "MetaSENse" below it.



# How can I improve educational outcomes for students with ADHD?

1. )



The screenshot shows a web browser window with the URL `educationalneuroscience.org.uk`. The page title is "MetaSENse". The main content features a logo consisting of a graduation cap with a mouse cursor pointing at it, and the text "MetaSENse" below it. The text on the page describes the project as a systematic review and meta-analysis of interventions for students with Special Educational Needs and Disabilities (SEND), funded by the Nuffield Foundation. It mentions that the project identified targeted interventions for improving educational outcomes in reading, writing, mathematics, science, and general attainment for children and young people aged 4-25.

**MetaSENse**

**Raising educational outcomes for students with SEN and disabilities (MetaSENse)**

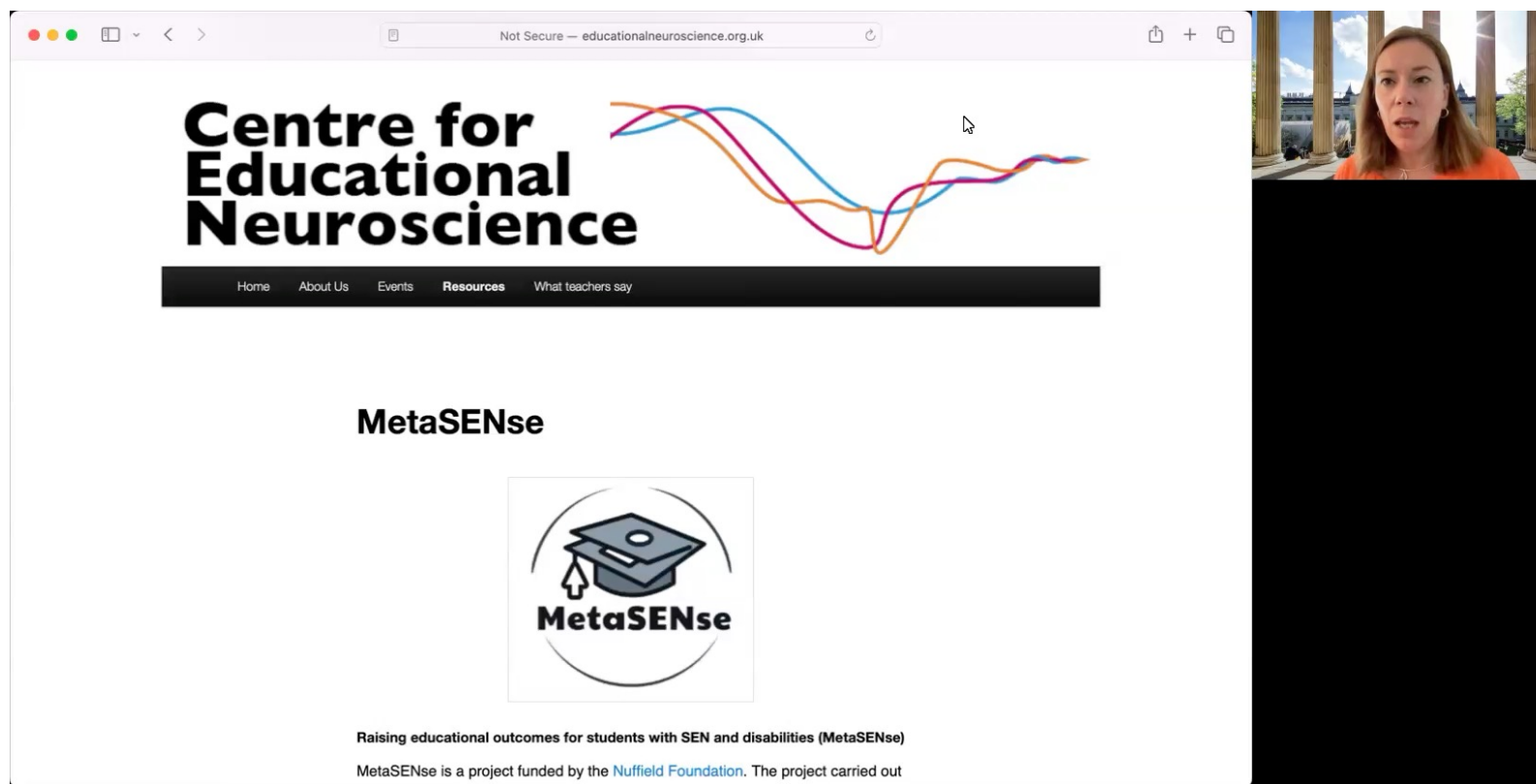
MetaSENse is a project funded by the [Nuffield Foundation](#). The project carried out a systematic review and meta-analysis of the effectiveness of interventions aiming to improve educational abilities for different children with special educational needs and disabilities (SEND), to understand what works best for which children in which settings.

The MetaSENse project identified targeted interventions for improving educational outcomes (i.e. reading, writing, mathematics, science and general attainment) among children and young people with Special Educational Needs and Disabilities (SEND) aged 4-25.





# Does Cogmed really work?



The screenshot shows a web browser window displaying the homepage of the Centre for Educational Neuroscience. The browser's address bar shows the URL `educationalneuroscience.org.uk`. The website header features the text "Centre for Educational Neuroscience" in a large, bold, black font, accompanied by a colorful, abstract line graphic. Below the header is a dark navigation bar with links for "Home", "About Us", "Events", "Resources", and "What teachers say". The main content area is titled "MetaSENse" and features a circular logo with a graduation cap and a mouse cursor icon, with the text "MetaSENse" below it. At the bottom of the page, there is a short paragraph of text: "Raising educational outcomes for students with SEN and disabilities (MetaSENse). MetaSENse is a project funded by the Nuffield Foundation. The project carried out". On the right side of the browser window, there is a video inset showing a woman with long brown hair, wearing an orange top, speaking in front of a background of classical architecture.

# Key findings and recommendations



# Key finding 1

Growing body of evidence

Targeted interventions can raise educational outcomes by an average of five months of progress compared to those receiving teaching-as-usual or active control interventions. There is evidence that some interventions can be effective.



## Key finding 2

The type of setting in which an intervention was delivered – mainstream or special – had no effect on reading or writing outcomes, but students in mainstream schools showed larger positive mathematical outcomes following an intervention than those in special schools.



Intervention effects did not vary according to delivery

If you have the choice between two interventions, then these factors will not play a role.



## Key finding 3

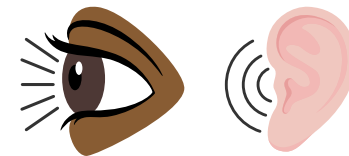
Interviews revealed that educational practitioners varied in their understanding of evidence-informed practice and how to go about it. Interviews also revealed practitioners experienced barriers in trying to implement interventions and that they had limited awareness of rigorous scientific methodologies such as the use of control groups and randomised controlled trials (that is, the methods that produce more robust evidence).

Practitioners would benefit from access to research (one stop) and research literacy training

## Key finding 4

Most research is on students with specific learning difficulties. In comparison, there is a relative lack of research on what works for students with intellectual disabilities, physical disabilities, and sensory disabilities such as vision and hearing impairments.

Research needs to be more targeted.



# Recommendations

1. Funders and academics should invest in a more balanced evidence base
2. There should be increased opportunities for collaboration between researchers and educational practitioners.
3. Policy makers and higher education providers should ensure that practitioners have more training in evaluating evidence related to interventions and what works in their classrooms.
4. Policy makers should establish a new national database on the outcomes of SEND interventions.

## Next steps & further research

1. Content analysis of effective interventions (what's the active ingredient)
2. Extend the database: secondary outcomes, longitudinal findings
3. Other outcomes – language, socioemotional, attendance / bullying



# Q&A



# Thank you!

- Duasha Aluthgamage, Rosie Casterton, Anson Chan, Claudia Civinini, Ruofei Du, Emma Fulford, Enkhzaya Ganzorig, Aaron Giuliano, Shiyu Ji, Isha Kala, Justine Kum, Shun Yan Kung, Jaimie Leung, Xiaoxuan Li, Feiying Na, Dr Roisin Perry, Alyssa Seriniyom, Huimin Shao, Dr Zahra Siddiqui, Hongjing Wang, Tiffany Wai, Peige Wang, Sophie Wong, Yiyang Xu, and Jintong Yan.
- Faye Howard & Sagarika Shapoor.
- The Advisory board included: Professor Lani Florian, Professor Alison O'Mara-Eves, Jonathan Kay, Vijita Patel, Dr Jeremy J. Monsen, Dr Erin Early, and Dr Aikaterini Kassavou.

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[Website: http://www.educationalneuroscience.org.uk/metasense/](http://www.educationalneuroscience.org.uk/metasense/)



## Your feedback



# Limitations

- Large review so we couldn't include all grey literature or carry out forward/backward citation chasing.
- We focus only on short term findings and excluded long-term or follow-up studies.
- Only controlled studies included, likely we miss some promising or early stages interventions or smaller pilot studies.
- Focus only on direct measures of educational outcomes not all outcomes that are likely to make a difference to achievement (e.g., working memory, organisation, motivation etc,)

# Main findings: Meta-analysis – Sensitivity Analyses

## Sensitivity analysis:

- No consistent findings for intervention implementor.
- Consistent significant findings that researcher created outcome measures resulted in larger effect sizes.
- No findings to support longer interventions being more effective
- No consistent findings to suggest smaller studies reported significantly larger effect sizes.
- Control group didn't moderate effect size (active vs BAU)

