



# This edition's spotlight Awareness of Developmental Dyscalculia and Mathematical Difficulties Toolkit

## ADD UP

Awareness of Dyscalculia and Mathematical Learning Difficulties Toolkit

Winter is here!

### In this issue:

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A warm welcome to our latest newsletter from the CDLD lab!

We are very excited to announce updates on ongoing projects (we have two new intervention studies that require participants), funding we have received for new projects, and we can announce our latest toolkit on dyscalculia! So have a quick look inside and find out more about our work.

I also want to use this opportunity to say a massive thank you to all participants (parents, children, teachers, educational professionals etc.) that have taken part in our research and all of you who have helped with disseminating our research.

From everybody at CDLD a happy Christmas and all the best for 2023!

All the best,  
Jo  
Dr Jo Van Herwegen  
Lab director CDLD

**Dyscalculia has been less well researched in comparison to other learning difficulties**  
How can we help?

A significant proportion of individuals have mathematical learning difficulties (up to 22%) and up to 6% of children in primary schools have dyscalculia!

The development of foundational mathematical skills and concepts may be delayed in people who suffer from developmental dyscalculia (or dyscalculia for short). It may also be difficult for them to acquire more advanced mathematical facts and procedures later in life. These difficulties cannot be explained by general underlying ability in the below average range or other developmental disorders.

Recent further research has been conducted in this field and a number of new trials have evaluated mathematical interventions for children who have dyscalculia and mathematical difficulties, demonstrating they are beneficial. The results of these studies are likely to provide further insight into the causes of dyscalculia and how we can provide the best possible support for these children.

You can read more about dyscalculia in the blogs we have written:

<https://blogs.ucl.ac.uk/cld/2020/10/08/cld/>

and our article in the Conversation:

<https://theconversation.com/dyscalculia-how-to-support-your-child-if-they-have-mathematical-learning-difficulties-194304>

## The Toolkit

Our toolkit is designed to raise awareness of dyscalculia and mathematical learning and difficulties and help teachers and parents to identify dyscalculia. This toolkit was co-created with teachers and includes:

- Red Flags for Dyscalculia
- Overview of Dyscalculia screeners and checklists
- How to get a diagnosis for dyscalculia?
- Top tips for supporting students with dyscalculia

More information can be found here –

<https://www.ucl.ac.uk/ioe/departments-and-centres/departments/psychology-and-human-development/child-development-and-learning-difficulties-lab/add>

# ADD UP

Awareness of Dyscalculia and Mathematical Learning Difficulties Toolkit



IOE – FACULTY OF  
EDUCATION AND SOCIETY

## Awareness of Developmental Dyscalculia and Mathematical Difficulties toolkit

Our FREE toolkit is designed to raise awareness and support the identification of Dyscalculia and mathematical learning difficulties.

This toolkit was co-created by researchers at UCL and teachers and will provide information on how to access and provide support for children with Dyscalculia; as well as signposting opportunities to learn more through our short courses, presentations and blogs.

The toolkit provides:

- Red flags for Dyscalculia
- Overview of Dyscalculia screeners and checklists
- How to get a diagnosis for Dyscalculia?
  - In primary school
  - In secondary school
- Top tips for supporting students with Dyscalculia



For more information on our toolkit and our short courses, please visit our [ADD UP](https://www.ucl.ac.uk/ioe/departments-and-centres/departments/psychology-and-human-development/child-development-and-learning-difficulties-lab/awareness-developmental-dyscalculia-and-mathematical-difficulties-toolkit-add) webpage:

<https://www.ucl.ac.uk/ioe/departments-and-centres/departments/psychology-and-human-development/child-development-and-learning-difficulties-lab/awareness-developmental-dyscalculia-and-mathematical-difficulties-toolkit-add>

# New Projects

## **MeaSENse: Raising educational outcomes for pupils with SEN and disabilities**

Thomas Masterman & Jo Van Herwegen (PI)

with collaborators; Michael Thomas, Chloe Marshall, Julie Dockrell, Rebecca Gordon.

(Funded by Nuffield Foundation)

This project will investigate different interventions to support the learning of pupils with special education needs and disabilities.

The number of pupils identified as having Special Education Needs and Disabilities (SEND) has been steadily rising. In 2020/21, national statistics showed that 12% of pupils in mainstream classrooms had SEND. The SEND code of practice divides pupils with SEND into four categories of primary needs:

- communication and interaction
- cognition and learning
- social, emotional, and mental health difficulties
- and physical and/or sensory needs.

However, it is unclear which interventions work best with different needs, contexts (mainstream or specialist schools), or phases of education.

To address this knowledge gap, the research team will conduct a systematic review aimed at synthesising existing evidence on the effectiveness of different interventions. Subsequently, conducting a meta-analysis on effect sizes for the different interventions and how these are mediated by the type of SEND need, educational context, phase of education, study outcomes, and characteristics. In-depth interviews with education professionals will focus on how targeted interventions are currently used and barriers to implementing the types of effective strategies outlined in the meta-analysis.

You can read more about this project and the aimed outcomes here:

<https://www.nuffieldfoundation.org/project/raising-educational-outcomes-for-pupils-with-sen-and-disabilities>

# Current Study Updates

## Home Maths Experience (HoME) Intervention Study: Improving mathematical abilities in children with Down syndrome and Williams syndrome

Unta ([unta.taiwo.14@ucl.ac.uk](mailto:unta.taiwo.14@ucl.ac.uk))

Since the start of the new academic year, Unta has focused her attention on the design of an intervention study, which will look at improving mathematical outcomes for children with Down syndrome and those with Williams syndrome. Good mathematical abilities are important for daily life skills and independence. Currently there are very few intervention studies which investigate the impact of maths programmes on learning outcomes for those with Down syndrome and Williams syndrome. This intervention involves parents to deliver very short foundational maths games in the home environment over two 5-week blocks. Evidence from previous research (Van Herwegen et al., 2018) has shown that these games improved maths outcomes for children with mathematical learning difficulties. The instructions for each game are easy to follow and there are accessible online short video demonstrations. Each game is designed to be flexible to family dynamics, so games might be adapted to include siblings or other relatives. These carefully designed activities can be played around the dinner table, whilst having a bath, walking to school, or getting ready for bed. Each programme will involve a degree of multi-sensory activities for engagement that tap into tactile, auditory and visual senses.

### Participants required!

We are looking for **parents of children with Down syndrome or Williams syndrome aged between 5-11 years to take part in this intervention study**. This intervention will be starting in the new year. If you are interested taking part in this study and would like more information, please get in touch with Unta ([unta.taiwo.14@ucl.ac.uk](mailto:unta.taiwo.14@ucl.ac.uk)).



Van Herwegen, J., Costa, H. M., Nicholson, B., & Donlan, C. (2018). Improving number abilities in low achieving preschoolers: Symbolic versus non-symbolic training programs. *Research in Developmental Disabilities*, 77, 1–11. <https://doi.org/10.1016/j.ridd.2018.03.011>

# Current Study Updates

## Motor skill development, physical activity, and mental wellbeing in children with special educational needs

Dr Daniel Clowes is a new member of the research team in the CDLD lab. As part of his research, he is interested in motor skill development, physical activity levels, and wellbeing in autistic children, and children with Williams syndrome and Down syndrome. For the current study, Daniel is looking for volunteer parents and/or caregivers and their **autistic children, and children with Williams syndrome and Down syndrome, aged between 7 and 16 years old to complete a short survey (15-20 minutes).**

Should you decide to take part, you will be asked some general questions about yourself and your child, and then a series of questions which will allow us to better understand motor skill development, physical activity, and mental wellbeing in children with special educational needs. Many of the questions are multiple choice and are relatively easy to complete.

If you are interested in taking part, or would like to find out some more information, please follow this link (<https://bit.ly/3OF3AO4>) or scan the QR code below with your smartphone. Once you do so, you will be presented with a participant information sheet outlining the project and a consent form to complete if you would like to take part, and then the survey will begin. Please feel free to email Daniel ([d.clowes@ucl.ac.uk](mailto:d.clowes@ucl.ac.uk)) if you have any additional questions.



# Current Study Updates

## **AIMS: Autism Intervention for Motor Skills**

[tugce.cetiner.19@ucl.ac.uk](mailto:tugce.cetiner.19@ucl.ac.uk)

Tugce Cetiner developed an early intervention program to support the handwriting abilities of autistic children.

### **Now we are recruiting!**

If you live in London and your child is aged 4 and 5-years-old with an autism diagnosis, we would love to hear from you! All you have to do is 10 minutes of daily activities for 6 weeks. We will send you the workbook to complete with your child, and we will provide you with videos to show you what to do. We look forward to hearing from you!

Please contact Tugce for more details or if you have any questions.

## **Meta-review of mathematical interventions.**

[zahra.siddiqui.18@ucl.ac.uk](mailto:zahra.siddiqui.18@ucl.ac.uk)

Zahra Siddiqui is now in the third year of her PhD, funded by UBEL DTP and Funexpected Maths.

Currently, Zahra is working on a meta-review of mathematical interventions. She is using this data to create theoretical pathways of mathematical development for children in the early years (3-7-years-old). This study will inform how educational apps can provide better pathways of game play that can better support children's mathematical development.

Zahra is also working on using big data from educational maths app Funexpected to understand the development of different mathematical abilities longitudinally. She is using machine learning and big data analysis techniques.

# Current Study Updates

## **How do secondary schools in England promote and support autistic students' mental health**

Seyda Cetintas ([seyda.cetintas.21@ucl.ac.uk](mailto:seyda.cetintas.21@ucl.ac.uk))

As part of her PhD project, she initially aims to better understand the experiences and support needs of Senior Leadership Team (SLT) members in mainstream secondary schools and local educational authorities (LEAs) in promoting and supporting the mental health of all students, with a particular focus on autistic students. She aims to explore how SLT members understand their roles, how they promote and support the well-being of autistic and non-autistic students, and what they perceive as facilitating factors and barriers to actualising mental health promotion and support. She is planning to conduct individual interviews with SLT members working in mainstream secondary schools and LEAs in England. Now, she is preparing for the interview schedule and ethics application with collaborative work with an advisory group of experts. Once she received her ethical approval from IOE Ethics Committee, she will start to advertise her research. She is planning to start her recruitment process soon and she will be kindly inviting SLT members to take part in her research.



# Conferences

## UNESCO



The UCL IOE was honoured to host a 2-day event around “The International Science and Evidence based Education Assessment by UNESCO’s Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP). The ISEEA was the first major review for over 20 years of global education and how it can help meet the UNESCO Sustainable Development Goals. This report was compiled by an interdisciplinary team of more than 300 experts from 45 countries including policy makers, education professionals and academics. Organised by Dr Jo Van Herwegen, the event involved a round table discussion and workshop about “Reimagining education”.

UCL IOE hosted a round table discussion on the importance of social and emotional learning (SEL) in schools. The round table discussion was discussed how best to implement SEL into the curriculum, and to ensure the concepts of SEL are clear, translatable and culturally relevant for all children. The round table was also able to highlight key issues and challenges in personalising SEL for all children, and how to address these challenges.

You can read more about the UNESCO report here:

<https://mgiep.unesco.org/iseeareport>

And you can read more about the IOE’s involvement here:

<https://www.ucl.ac.uk/ioe/news/2022/nov/ioe-and-unesco-examine-how-education-will-support-human-flourishing-future>

# Conferences

## Earli Sig 15 – JURE Best Presentation Award

This year Earli's Sig 15 conference was held in Ghent Belgium, September 22-23rd 2022 and focused on the influence of contextual factors on the learning and development of children with special educational needs. Research presented at the conference covered the impact of parental involvement, teacher and child interactions, peer influences, the school climate, societal and policy trends amongst a range of wider contextual factors.

I was fortunate enough to be selected to present my research '**Parental involvement interventions and the outcomes of children with special educational needs: A systematic review**' as an individual paper presentation. The conference fostered a forum for innovative rhetoric on key contextual components that influence child development. The Q&A session, following the presentation, enabled me to engage with thought provoking considerations for my systematic review and future research .

Attending an academic conference as a PhD student was incredibly beneficial. Not only was I able to network with fellow researchers, but this opportunity enabled me to gain a deeper insight on the impact of research and how to ensure that research is ethical, meaningful and benefits wider society. I was also able to connect with researchers conducting research in similar fields which has broadened my understanding on how I can further develop my research. I would encourage all PhD students to attend academic conferences but also to maximise the impact of their attendance by networking with researchers in similar fields as well as those conducting research in fields not connected to their research area. I would also recommend attending presentations that are similar to future research PhD students are hoping to conduct, by doing this I was able to ascertain potential barriers and good practice for my upcoming research projects.

Throughout the two days of presentations, posters, and symposiums, a series of judges were deliberating winners for the JURE Best Poster Award and JURE Best Presentation Award. It was a great privilege to be named the **winner of the JURE Best Presentation Award** for my research presentation.

Thank you to Earli Sig 15 for a memorable conference and I am already looking forward to the next one.

**Hannah Hamid**  
PhD student



CDLD Newsletter Winter 2022

# Who are we?

Founded in 2014, the CDLD unit is a research group consisting of academics, PhD students and researchers with a broad range of interests and expertise in how children learn and develop.

## Lab director:

Dr Jo Van Herwegen

## Deputy director:

Dr Laura Outhwaite

## Researchers

Dr Daniel Clowes

Dr Thomas Masterman

## Affiliates

Dr Erin Early

Dr Petri Partanen

Dr Afaf Manzoor

Dr Muhammad Shakir

## Lab Coordinator

Aira Ansara

## PhD-students

Tugce Cetiner

Seyda Cetintas

Hannah Hamid

Erica Ranzato

Zahra Siddiqui

Vassillis Sideropolous

Unta Taiwo

Helen Williams

Stella Xu

## Research Students

Neal Zhang

Jamie Leung

For more information about us or to apply to become a volunteer researcher, please see email [j.vanherwegen@ucl.ac.uk](mailto:j.vanherwegen@ucl.ac.uk)

# Meet the researcher!

## Stella Xu

My name is Stella Xu, and I am a 1<sup>st</sup> year PhD student in the Department of Psychology and Human Development, at IOE, UCL's Faculty of Education and Society. I started my PhD three months ago and my project is funded by the Bloomsbury Colleges Studentship.



Before starting my PhD, I volunteered with the Hungarian Williams Syndrome Association, where I assisted SEN teachers with music and physical therapy. Following that, my master's dissertation looked at the pragmatic language abilities (use of appropriate communication in social situations) of children with Williams syndrome, in comparison to typically developing children.

My PhD with Dr Jo Van Herwegen and Professor Michael Thomas focuses on the longitudinal mathematical development of children with Williams syndrome. During the PhD I am going to use secondary data to analyse general cognitive and mathematical abilities of children with Williams syndrome. Next year I am hoping to collect new data from children with Williams syndrome to add to the existing database. Alongside that, I am also interested best practice related to longitudinal studies.

# Meet the researcher!

## Daniel Clowes

My name is Daniel Clowes and I am a postdoctoral researcher at the Department of Psychology & Human Development at IOE, UCL's Faculty of Education and Society. I have recently joined the Child Development and Learning Difficulties (CDLD) lab on a project to examine motor skill development, physical activity, and mental well-being in special educational needs.



My academic background lies in psychology, I completed my PhD examining sensorimotor planning and control in autistic children and adults. I am interested in how we plan and control our movements, such as picking up and placing objects (like picking up a cup to take a drink, or a crayon to draw), and how we interact with one another, particularly in children with special educational needs. My current project allows me to use my expertise and understanding to examine the motor system in not only autistic children, but children with Down syndrome and Williams syndrome as well. I am excited to learn from the vast experience of members of the CDLD lab, and I look forward to meeting potential participants very soon!

# Meet the researcher!

## Thomas Masterman

My name is Thomas Masterman, I am a research fellow at the Department of Psychology & Human Development at the IOE. I have recently joined the Child Development and Learning Difficulties (CDLD) lab working on the Nuffield funded 'MetaSENse' project, a systematic review and meta-analysis aiming to identify the best-evidenced practices and interventions to raise educational outcomes in pupils with SEND. I joined the CDLD from the Early Intervention Foundation, a member of the UK's What Works Network, where I worked to synthesise, translate, and promote the use of evidence and best practice to support positive outcomes for children and young people. My work focused in particular on developing and supporting the use of the Early Intervention Foundation's collection of evidence-based intervention programmes, the EIF Guidebook.



My research interests include the use of quantitative methods to synthesise evidence, such as systematic reviews and meta-analyses, and in working to ensure that research can be used in practice by identifying barriers to engagement and overcoming these.

# Thanks for reading!



Do you have any questions about our activities? Or any questions about children's development you would like some answer to?

or are you interested in any CPD events for staff at your school or organization? Then please contact Jo on [j.vanherwegen@ucl.ac.uk](mailto:j.vanherwegen@ucl.ac.uk)

At CDLD we work together with a number of other UCL based labs and centres.

- Centre for Educational Neuroscience (CEN): <http://www.educationalneuroscience.org.uk/>
- Centre for research in Autism and Education (CRAE): <http://crae.ioe.ac.uk/>
- Centre for Language, Literacy and Numeracy: Research & Practice (LL&NRP): <https://www.ucl.ac.uk/ioe/departments-and-centres/centres/centre-language-literacy-and-numeracy-research-practice>

twitter 

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<https://www.facebook.com/CDLD-Unit-Research-Group-238269226640000/>

Read out blog: <https://blogs.ucl.ac.uk/cld/>