

This edition's spotlight

## Educational technology



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### Welcome to our CDLD Summer Newsletter!

Technology is a big part of our lives these days and impacts how we communicate or socialise, how we pay bills or book appointments with GPs as well as on educational outcomes and job prospects.

The CDLD lab have been involved in a number of projects that relate to technology and education which feature in this newsletter. We have even developed our own app and we welcome your help with the next step for the app. There are a number of new projects in the lab that might be of interest to many of you, as well as exciting updates of ongoing projects and new publications.

We also like to welcome a new visitor to the lab from Pakistan, Dr Mohammad Shakir, who will join us for 9 months.

I hope you enjoy our newsletter and have a lovely summer holiday!

Dr Jo Van Herwegen  
Lab director



## The use of educational technologies with students with special needs (SEND) in the UK

### The EdTech Strategy (DfE, 2019)

This is a twofold strategy, for education providers and the technology industry in the UK.

The UK government wants to support schools to use technology in ways that drive improvements in educational and technological outcomes

This strategy contains high-level principles and definition of EdTech; *'Education technology (EdTech) refers to the practice of using technology to support teaching and the effective day-to-day management of education institutions. It includes hardware (such as tablets, laptops or other digital devices), and digital resources, software and services that help aid teaching, meet specific needs, and help the daily running of education institutions.'*

There is a relatively limited focus on SEND.

### Research Aims

What do teachers know about EdTech and which training do they get for its use with SEND students?

How do schools implement EdTech?

What are teachers' beliefs around the value of EdTech for students with SEND?

### Methods

**Participants:** teachers in the UK from mainstream and special schools in primary and secondary settings (N=169)

**Instrument:** an online questionnaire was administered between spring 2020 and spring 2021

**Data analysis:** quantitative data were analysed using chi-square tests. Qualitative data were analysed using the thematic analysis technique



## The use of educational technologies with students with special needs (SEND) in the UK

### Key findings

- Only 14% of teachers are aware of the EdTech strategy.
- Less than 40% of teachers received a training about how to use EdTech with students with SEND. Nearly 2/3 would like to receive further training on how to better implement EdTech in their teaching practices and in their students' learning processes.
- Overall, the EdTech skills taught in the different settings are relatively similar, but there is a stronger focus on Coding and Programming in Mainstream schools & Primary settings.
- E-Safety is the TOP 1 Priority skill, whichever the setting.
- Schools are incorporating EdTech with different levels of consistency.
- The lack of resource is overall the main challenge. The lack of adapted technology for students accessing the curriculum at a low level is a concern in special schools.
- The pandemic has been associated with different outcomes, depending on the students' level of needs and family background. This is related with an increased attainment gap and a reduced well-being.





## The use of educational technologies with students with special needs (SEND) in the UK

The pandemic has triggered an increasing use of technology in the teaching practices and in the communication processes within schools and with the families.

### Discussion

Further training is needed on how to link technology with pedagogical practice and on important digital areas such as coding and programming.

Moderate differences were observed between Special vs Mainstream settings in teaching EdTech and in priorities. This might be due to the sample impact, as 98% participants have students with SEND.

Future studies should assess whether the changes which occurred during the pandemic will endure in the longer term.

### Reference

Department for Education. (2019). *Realising the potential of technology in education: A strategy for education providers and the technology industry*. Available at: <https://www.gov.uk/government/publications/realising-the-potential-of-technology-in-education>

### The Home Learning Environment of Primary School Children with Down Syndrome and Those with Williams Syndrome

Erica Ranzato, Andrew Tolmie, Jo Van Herwegen

#### Highlights

**Home learning environment** refers to all of the activities and opportunities provided by parents to support their child's overall academic success. It includes the frequency of home learning experiences, the availability of resources that promote learning, children's participation in the learning activities and parents' attitudes towards learning. Cross-cultural research on typically developing populations suggests that the home learning environment during early years has a pivotal role for the development of children's literacy skills (Senechal & LeFevre, 2014) and mathematical abilities (Mutaf-Yildiz et al., 2020).

The present study used a parental **web-based survey** to examine and compare, for the first time, the home learning environment of primary school children diagnosed with Down Syndrome (DS) (n = 35) and children diagnosed with Williams Syndrome (WS) (n = 24).

Our results showed that the home learning environment of children with DS and children with WS changed on the basis of the child's strengths and weaknesses, but that it was **not syndrome-specific**.

**Literacy-based activities** occurred more often than mathematics-based activities for both groups. This might be explained by the significantly higher level of positive attitudes of parents towards literacy than towards mathematics.

Overall, **numeracy-based activities** were similar across the two groups and were characterized by activities supporting different mathematical skills such as counting, arithmetic, and functional maths. The only exception found between the two groups was that parents of children with DS provided mathematics-based activities that support counting and number recognition more often than parents of children with WS. This might suggest that although parents of children with WS recognise the difficulties that their children have with mathematics, they might underestimate the difficulties that they have specifically with counting. Further studies should investigate if this is the case.

## Why Does This Matter?

These findings provide information that could inform the development of parental interventions aimed at improving parents' levels of confidence towards mathematics, and highlight opportunities to improve and support mathematics-based activities that occur at home. These findings could be used by school staff and other professionals working with the child and the family to support consistency between different settings and to support the child's development outside the home environment.

Full Article: Ranzato, E., Tolmie, A., & Van Herwegen, J. (2021). The Home Learning Environment of Primary School Children with Down Syndrome and Those with Williams Syndrome. *Brain Sciences*, 11(6), 733. doi: [10.3390/brainsci11060733](https://doi.org/10.3390/brainsci11060733)

## Including children with SEN in online learning

Some of the members of the CDLD lab have collaboratively put together a guidance paper that integrates key recommendations for providing best-practice to online learning for students with SEN together with members from the **European Association for Learning and Instruction (EARLI)**.

This guidance has been written for teachers and educational professionals of mainly primary and secondary schools who work with students with some kind of special educational need and includes best-evidence practice from research-based evidence.

The full document is freely available at the SIG15 web page (<https://www.earli.org/node/38>).

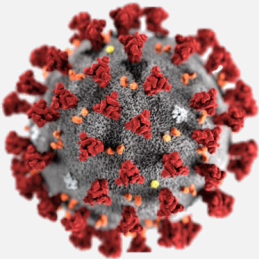
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For any questions email Jo Van Herwegen: [j.vanherwegen@ucl.ac.uk](mailto:j.vanherwegen@ucl.ac.uk)



## ***COPING19 project (Update)*** ***Hyelin Kye (project researcher)***



The COVID-19 pandemic was announced by the World Health Organization in early March 2020. As the enormity of the impact started becoming clear in March 2020 Jo Van Herwegen and colleagues created a questionnaire concerning **the Impact of COVID-19 on Individuals with Special Education Needs (SEN)** and their families. By Special Needs, we mean people who have intellectual difficulties and need support with their condition which includes (but not limited to) Autism Spectrum Disorder, ADHD, Down Syndrome, Intellectual Disability (not-otherwise specified), Williams Syndrome and other rare genetic diseases.

With the onset of a second and third lockdown since Covid hit the UK in January 2021, researchers at UCL led by Dr. Jo Van Herwegen have continued their study of the effects of the pandemic on families of children with SEN. The aim of the current study is to unpick the effects of a prolonged pandemic on these families, in terms of the amount of anxiety and types of worries experienced. Participants were recruited through an online questionnaire (replicated from the questionnaire used for the first study), and data is currently being analysed and compared against results from our first cohort study (Sideropoulos et al., 2021).

Results from the present study will inform practitioners, parents, educators and policymakers of the potential long-term effects of the global pandemic on families of children with SEN, as well as inform them of who is most vulnerable, to then come up with strategies for safeguarding.

For more information, please contact: [j.vanherwegen@ucl.ac.uk](mailto:j.vanherwegen@ucl.ac.uk).



## ***Can Maths Apps Add Value to Learning?***

Dr Erin Early (project researcher)

The research project 'Can Maths Apps Add Value to Learning?' funded by the Nuffield Foundation, is completing a systematic review and content analysis into educational maths apps for children aged 4-7 years in educational and home settings. We are finalising the systematic review of the project which has identified over 40 eligible studies for inclusion. The project team, led by Dr Laura Outhwaite, are also evaluating the educational maths apps identified in the systematic review through a content analysis. The content analysis is examining the maths content and the design features of the identified apps, where eligible.

We will be creating an accessible website that will include a database of all the maths apps reviewed in this study. This website will help parents, teachers, and policy makers when deciding which maths apps to use with their children. The website will be live in January 2022.

You can read more about the project here:

<https://www.nuffieldfoundation.org/project/can-maths-apps-add-value-to-learning>.



## ***Maths@Home app for parents***

Dr Jo Van Herwegen, Eric Ranzato, Dr Laura Outhwaite

During the first COVID-19 lockdown, the CDLD lab shared via social media a wide range of easy to access games for children aged 2-6 years and their families. These games known as the 'Maths@Home' games are designed based on the latest research evidence on play-based learning in early maths.

We have developed a **prototype** of our 'Maths@Home' app! The feedback we have received has been very positive.

We are currently looking for partners (companies, charities, NGOs) to further develop the app and we will soon launch a short video to show the app. If you are interested, please contact [j.vanherwegen@ucl.ac.uk](mailto:j.vanherwegen@ucl.ac.uk)

## ***FunExpected Maths***

### **Zahra Siddiqui**

Zahra is a PhD student at CDLD looking at the development of mathematical abilities in young children, with a focus on the use of educational maths apps to aid development. Zahra's current project involves analysing back-end metadata from the educational app Funexpected Maths. Zahra aims to understand children's interaction with different maths games and factors that influence their interaction with the app. The project is currently in planning stages and data analysis will commence in the coming weeks.

If you would like to hear more about this project you can contact Zahra at [zahra.siddiqui.18@ucl.ac.uk](mailto:zahra.siddiqui.18@ucl.ac.uk) or on her twitter [@ZahraSiddiqui95](https://twitter.com/ZahraSiddiqui95)

## ***AIMS: An Intervention for Motor Skills in Autistic children***

### **Tugce Cetiner**

Tugce joined the CDLD lab in December 2019. She is doing a PhD that focuses on developing a sensorimotor based early childhood intervention program that can be implemented in the homes of families of young autistic children aged 3-6 years. Tugce finished her first project, a systematic literature review, and is currently developing an online survey with parents who have young children. This survey will help her in designing a sensorimotor-based early intervention program. After designing the program, she will do a focus group with parents and take parents' opinions about the program. In the next stage of her PhD she will develop and evaluate a sensorimotor-based early intervention program that can be implemented in schools as well as in the home environment.

If you would like to hear more about this project, please email Tugce on: [tugce.cetiner.19@ucl.ac.uk](mailto:tugce.cetiner.19@ucl.ac.uk)

## ***Effective teaching strategies for pupils with speech, language and communication needs in mainstream mathematics classrooms***

**Helen Williams**

This project explores the difficulties faced by 5-6 year old pupils with a speech language and communication need (SLCN) in mainstream primary schools when whole class approaches to teaching mathematics occur. The project will interview teachers to find out what strategies they use when planning and teaching mathematics for pupils with a SLCN, look at children's work and the typical errors they make, as well as working with a selection of typically developing children and those with SLCN on maths tasks, to see the difficulties encountered and strategies used to solve maths problems.

5 schools have been recruited with 30 children taking part in the one-to-one work. The majority of the data collection will be completed by the end of July 2021 with findings disseminated in 2022.

Please contact [h.williams.16@ucl.ac.uk](mailto:h.williams.16@ucl.ac.uk) if you are a teacher and would be interested in being interviewed about effective practice for pupils with a SLCN.

## ***Mathematical development in neurodevelopmental disorders***

**Erica Ranzato**

Erica Ranzato joined the CDLD lab in 2017. She is a part-time PhD student and her research focuses on mathematical abilities of children with developmental disorders, such as Down syndrome (DS), Williams syndrome (WS) and Autism Spectrum Disorders. Erica has recently published a paper on the home learning environment of children with DS and WS and she is currently working on a systematic review on mathematics performance in the autistic population.

You can contact Erica at [e.ranzato@ucl.ac.uk](mailto:e.ranzato@ucl.ac.uk)

## ***New Educational Guidelines for Williams Syndrome***

**Dr Jo Van Herwegen, Dr Fionnuala Tynan and Hyelin Kye (project researcher)**

Member of the lab have co-created new evidence-based educational guidelines for Williams syndrome with parents, educators and young people with WS based upon input gathering via surveys and focus groups. 33 educators (including teachers and Learning Support Assistants (LSAs) or Teaching Assistants TAs) who were teaching a child with WS completed a short survey using Qualtrics software.

The survey included 30 open- and closed questions on how they obtained information about WS, which information they needed and in what kind of format. A total of 6 one-hour focus groups were held virtually via the online platform Microsoft teams:

- 2 focus groups with teachers and TAs/LSAs (n= 11)
- 2 focus groups with parents (n= 9)
- 2 focus groups with children with Williams syndrome (n= 6)

Based on the input from the survey and focus groups as well as most recent literature on development in WS, these educational guidelines provide a holistic picture of children with WS in the classroom.

These guidelines will soon be available from the Williams syndrome Foundation UK's website.



## **WILLIAMS SYNDROME: GUIDELINES FOR EDUCATORS**

By Fionnuala Tynan, Hyelin Kye & Jo Van Herwegen



These guidelines were created for the Williams Syndrome Foundation, UK (charity numbers: 281014 (England & Wales) and SC049897 (Scotland)). For more information about the WSF see:

# Meet the Team!



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.

## Academic Staff

Dr Jo Van Herwegen  
Dr Laura Outhwaite

## PhD students

Tugce Cetiner  
Kerry Murphy  
Erica Ranzato  
Zahra Siddiqui  
Helen Williams  
Hui Xiong

## Researchers

Hyelin Kye  
Dr Erin Early  
Camilla Mendizabal

## Affiliates & Visitors

Dr Petri Partanen  
Dr Muhammad Shakir

For more information about us or to apply to become a volunteer researcher, please see: <https://www.ucl.ac.uk/ioe/departments-and-centres/departments/psychology-and-human-development/child-development-and-learning-difficulties-lab>

## Muhammad Shakir



My Name is Muhammad Shakir. I am a graduate of Islamia University of Bahawalpur, Pakistan, I took up Education as a career after majoring in Education. I have completed my PhD in Education in 2013 and working now as Associate Professor in Department of Educational Training, Faculty of Education, The Islamia University of Bahawalpur.

During my research career, I have been engaged in various funded projects in the area of National Professional Standards for Teaching, Teacher Evaluation System, Early Childhood Education, Curriculum Planning and Development, Minimum Quality Standards, Literacy Practices and Child Developmental Issues, Research and Development (R&D) and Civic Engagement in Pakistan.

Currently, I am Visiting International Scholar/Postdoc Researcher at CDLD Lab in Department of Psychology and Human Development, UCL-Institute of Education, UK. I choose to conduct research at UCL-Institute of Education as it is ranked as one of the world's best universities in the Education sector which offers an innovative learning experience, and its teaching system is designed to encourage students to actively participate in debates, lectures, seminars to expand their knowledge and research skills. I am glad I made this choice as the quality of the facilities and technology within the institution just make me wish all universities back in my home country could reach this standard.

I have joined the CDLD Team in February 2021 and working on research project together with the supervision of Dr. Jo Van Herwegen on civic literacy. This project provides important insights into ways to help early-aged students in Pakistan to develop their literacy skills to foster critical thinking, and to encourage their civic engagement-locally and globally. Further, this research highlighting the need of critical yet undermined psychosocial dilemma of the Pakistani Society. Despite the need to deliberate on the early grade literacy and its associated long-term impact on an individual, there has been very little debate about this phenomenon in Pakistan.

## Muhammad Shakir

I am really enjoying every aspect of my life in UCL, both in academic and extra-curricular spheres. I also had an opportunity to assist in the Inclusive and Supportive Education Conference (ISEC) 2021 team (as volunteer) which enable me to strike a great balance between my work and free time, and affording me great experiences and the chance to interact new people.



Minaret of Pakistan called Minar-E-Pakistan

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







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>



To stay up-to-date with our events follow us on Twitter @CDLDlab



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