



Newsletter March 2020

**Kingston
University**
London

Foreword

Welcome to the third newsletter of the Developing Minds Lab. We have been busy organising a range of events and we enjoyed running a recent workshop about 'Developing mathematical abilities and creativity'. We are also hosting a networking event on the evening of 25th March and we still have some places available, for more information please click [here](#). Our popular Young Scientists Days will run in the Easter holidays on 16th and 17th April and you can book your child a place [here](#).

Our feature article is about raising awareness of Developmental Dyscalculia (difficulty learning mathematics) on pages 4-7. You and your child may also be interested in participating in some of our current research studies on pages 12-14.

We would also like to welcome two new members of the Developing Minds Lab at Kingston University- Dr Birsu Kandemirci who is a Developmental Psychology lecturer and Milani Pathmanathan who is in the first year of her PhD.

If you haven't yet done so, please 'like' our [Facebook page](#) so we can keep you informed about our research and future events.

Kind regards,

Dr Elisa Back
Director of the Developing Minds Lab
e.back@kingston.ac.uk



YOUNG SCIENTIST DAYS

We invite you and your children to come to Kingston University for half a day of fun and games. Come and see what developmental psychologists do to understand how children develop

For more information and to book please visit <https://www.kingston.ac.uk/YSD2020>

16TH & 17TH APRIL
4 TO 11 YEAR OLDS

Let's talk about Developmental Dyscalculia

Erica Ranzato

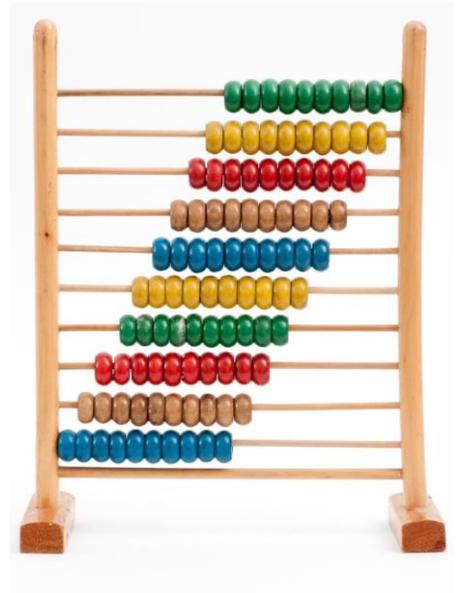
Mathematics is an important life skill. Research findings tell us that individuals with poor numeracy skills have poorer educational prospects, earn less, and are more likely to be unemployed, in trouble with the law and to be sick (Parsons and Bynner, 2005). Moreover, poor mathematical abilities affect not only the individual but bear an impact on the whole society. The accountancy firm KPMG estimated that the cost to the UK of poor mathematical abilities in terms of lost direct and indirect taxes, unemployment benefits, justice costs and additional educational costs was £2.4 billion per year (Gross et al., 2009).



There are many causes that can explain difficulties with mathematics. For example, a low intellectual level, attention difficulties, use of inadequate strategies, or limited numeracy learning experiences. One cause of poor mathematical abilities is developmental dyscalculia – from now on we will refer to it as dyscalculia. Dyscalculia is a learning difficulty with neurobiological origins that can persist into adulthood. At the heart of dyscalculia there is a difficulty with learning maths, despite an IQ within the typical range, that is not caused by difficulties experienced in formal education (such as prolonged absence from school through illness, etc) or other social settings. 4



Dyscalculia is a heterogeneous disability but, generally, people with dyscalculia experience difficulties with the most basic aspects of number processing and arithmetic. These learning difficulties manifest in different ways depending on the age of the person, and the setting – i.e., not only in the school environment but in their everyday life, for example, when they have to tell the time. In his book *More Trouble with Maths*, Steve Chinn lists 31 indicators/behaviours with the aim of providing a checklist that can be used by a teacher, a parent or an adult learner as a screening survey of mathematics learning difficulties and dyscalculia. Some of them are reported below:



- Find it difficult to “see” that 4 objects are 4 without counting
- Difficulties with counting (e.g. lack of one-to-one correspondence)
- Find it much harder to count backwards compared to counting forward
- Has difficulty retrieving addition facts from memory
- Counts all the numbers when adding
- Has poor skills with money
- Finds it difficult to write numbers which have zeros within them
- Finds estimating impossible
- When solving columnar operation does not line up columns of number properly
- Writes 51 for 15
- Struggles with mental arithmetic
- Learns multiplications facts, but then forgets them overnight
- Gets very anxious about doing any mathematics
- Shows inability to “see patterns” or generalize

In 2008, the UK Government Office for Science published a report as a result of the project “Mental Capital and Wellbeing: Making the most of ourselves in the 21st century” where the following recommendation was made:

“Because of its low profile but high impacts, [Dyscalculia’s] impact should be raised. Dyscalculia relates to numeracy and affects between 4-7% of children. It has a much lower profile than dyslexia but can also have substantial impacts: it can reduce lifetime earnings by £114,000 and reduce the probability of achieving five or more GCSEs (A-C) by 7-20 percentage points.”

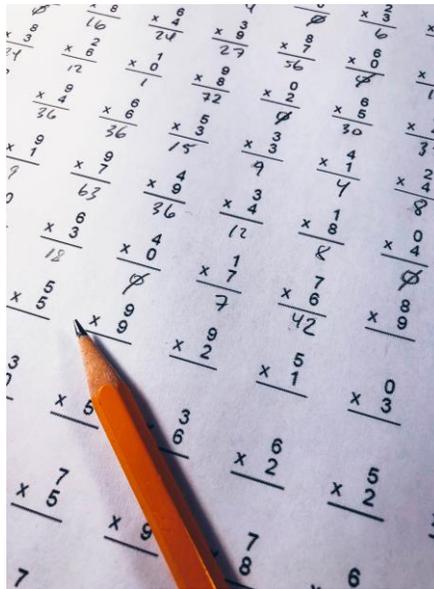
Dyscalculia does not have a high public profile such as other learning difficulties – e.g. dyslexia -, but since 2008 Dyscalculia and maths learning difficulties have received more attention (Butterworth, 2018). There are now helpful websites – you can find some listed in the references – and the British Dyslexia Association now recognise it as a separate learning difficulty from dyslexia and has started courses to qualify teachers in teaching learners with specific learning difficulties/dyscalculia. This accreditation enables teachers and practitioners to conduct informal, curriculum-based assessments and deliver specialist teaching programmes to learners up to 18 years of age.

My research focuses on mathematical learning and how mathematical abilities develop and vary in individuals with neurodevelopmental disorders – such as Autism Spectrum Disorders (ASD), Down Syndrome (DS) and William Syndrome (WS). In one of my studies I am looking into mathematical abilities of children with ASD and whether they differ from their neurotypical peers. I am also interested in the effects that home learning environment has on mathematical abilities in children with DS and WS. As part of my work I raise awareness of dyscalculia and other mathematical difficulties.

If you would like to know more, feel free to contact me at
e.ranzato@kingston.ac.uk

References:

- Butterworth, B. (2018). *Dyscalculia: from science to education*. Imprint Routledge
- Bynner J. & Parson, S. (2005). *Does numeracy matter?* London. Basic Skills Agency
- Chinn S. (2017). *More trouble with maths: a complete manual to identify and diagnose mathematical difficulties*. Second edition. Imprint Routledge.
- Gross J., Hudson, C., & Price, D. (2009). *The long term costs of numeracy difficulties*



Useful websites:

<https://www.bdadyslexia.org.uk/>

<http://www.ronitbird.com/dyscalculia/>

<https://www.smartickmethod.com/blog/education/psychology/dyscalculia-detected/>

Recent Study: Recognising microexpressions across varied intensities in typically developing children and children with Autism Spectrum Disorder.



Rashma Hirani is a PhD student (supervised by Dr Elisa Back). Her research has explored microexpression recognition within adults, adolescents and children. She has also looked at how well children and adolescents with ASD can accurately identify emotions presented in facial expressions.

This study looked at how the ability to accurately recognise emotions from facial expressions is affected when the intensity of the emotion shown is manipulated. We were mainly interested in looking at whether there were differences in this ability amongst typically developing children and children with ASD. The facial expressions used within the study were all microexpressions, these are facial expressions that occur briefly for a fraction of a second. This is an important factor to consider as microexpressions are a more realistic representation of the facial expressions that we encounter on a day to day basis. The use of these varying intensities could show where the difficulties for children with ASD could arise from.

Preliminary findings show differences between how accurately children with ASD can identify these microexpressions in comparison to typically developing children. This may help explain why individuals with ASD have difficulties interpreting the way someone is thinking and feeling using facial expressions in real life situations. There are also some similarities found between the two groups of children, as they both recognised emotions with greater intensities with more accuracy than those that were less intense expressions. Both these differences and similarities in the recognition of emotions informs us better about the development of this skill and consequently helps us to understand its effect on social communication within individuals with ASD.

If you have any questions you can contact Rashma: rashma.hirani@kingston.ac.uk

Meet the Researcher

by Erica Ranzato

As you may now know, Developing Minds 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.

We are very happy to tell you more about our newly joined lecturer Dr Birsu Kandemirci in an interview.

You are interested in a specific area of psychology that investigates social-cognitive development. Can you tell us what it is and how/why you got interested in it?

I am mainly interested in young children's social-cognitive development. Within this broad research area, I specifically focus on their cognitive abilities such as thinking creatively, and their social abilities such as understanding other individuals' perspectives. I find children's cognitive capabilities fascinating and researching how children gain such extraordinary abilities informs my understanding of developmental trajectory.



One of your research interests is creativity. Can you tell us a bit more about that?

I have always been interested in what triggers creative behaviour and how we recognise what is creative. My specific research interest is what makes children creative in their everyday activities such as telling stories or drawing.

What research project are you working on currently?

Currently I am working on a cross-cultural research between Turkish-speaking and English-speaking children. We are interested in their abilities to understand others' perspectives and how their linguistic abilities contribute to this social skill.



Can you give us an example of the impact of your research?

As part of our project, we conducted an intervention study in nurseries. We created an intervention programme which aimed to support children's language abilities and in this way scaffold their social skills. Witnessing the improvement in children's social skills at the end of the intervention made this research very valuable for me.



How did you decide to get into psychological research?

It is fair to say that the interest runs in the family. My dad was a psychological counsellor before he retired, and my sister is a Doctor of Psychology. Most of our family interactions included topics related to psychology.

Have you ever had any other jobs besides being an academic?

I taught beginner level Turkish to English-speakers and I was a drama teacher at a high school for a short time.

What is the best thing about being a scientist/researcher?

Being a researcher gives me the opportunity to seek for answers to the questions I have in my mind. As human beings we are all curious about the world and having the opportunity to find some answers to my questions is an amazing part of this role.

New member's short presentation:

Milani Pathmanathan
PhD student

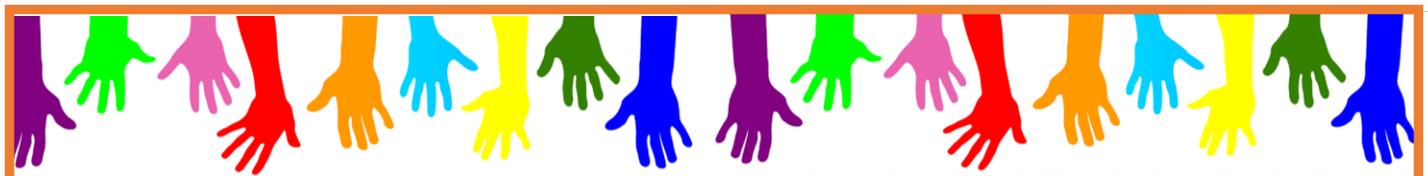
Supervisor: Dr Elisa Back



After completing my BSc in Psychology (UEL) and MSc in Clinical, Social and Cognitive Neuroscience (City, University of London), I spent two years working in Learning Support services with young adults with autism spectrum conditions (ASC); I became increasingly passionate about improving their quality of life. My work as part of a team which supported these individuals' further education and independence led me to my current research passion: how do we best support those with ASC once they leave these support services. This has become my main research interest and echoes the concerns of the ASC community and their families.



The factors affecting better outcomes in adulthood are still unclear, much of the current research focus on children and there is a sizable gap in the literature for adults with ASC -especially adult Theory of Mind (ToM). ToM refers to being aware of one's own mental processes as well as that of others and it is theorised that this is an area in which those with ASC may experience deficits. Therefore, investigating the strategies used to infer mental states, is believed to be beneficial to improve interventions in the future. However, research has mainly focused on abstract and non-naturalistic tasks which my research aims to remedy. The research I will be undertaking as part of my PhD focuses on real-life measures of Theory of Mind, which are a more realistic reflection of what individuals encounter day-to-day and mimic factors such as the environment, language and pace of real-world situations.



We need your help!

We are always grateful for any help in recruiting participants for our studies which aim to understand how minds develop.

Name of the Study: The social and academic inclusion of adolescents with and without visual impairments

Why is this important? There are not any studies which have focused on the quality of social relationships that adolescents with visual impairments develop with their teachers and closest friends in schools. Additionally, there are not any studies which have examined the impact of these relationships on students' academic inclusion. It is hoped that this research will provide useful information for schools and will help them to create new programs aimed at enhancing their students' inclusion.

Who can take part? Adolescents with or without visual impairments, aged 12-14 years, who attend mainstream schools and their favourite teachers/teaching assistants.

What does take part entail? Adolescents will be asked to answer some questions focused on the social relationships that they have developed with their favourite teacher/teaching assistant and closest friend in school. Teachers/teaching assistants, who are going to be nominated by their students as their favourite ones, will complete one questionnaire which includes questions regarding these students' academic inclusion.

Who to contact? Ifigeneia Manitsa: k1738620@kingston.ac.uk



Are you a parent or professional who works with children with autism or typically developing children?

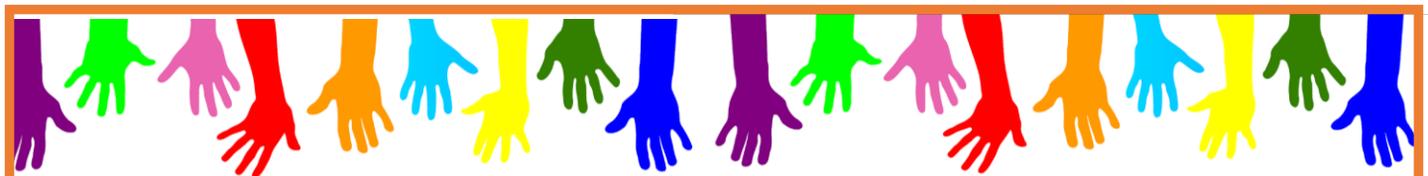
If so, please do take some time to participate in our survey about fidget toys. For further details please see below:

For parents:

http://kingston.eu.qualtrics.com/jfe/form/SV_ezJGTGRJLMGUqhL

For professionals:

http://kingston.eu.qualtrics.com/jfe/form/SV_4l1o8Mag625gma1



We need your help!

We are always grateful for any help in recruiting participants for our studies which aim to understand how minds develop.

Name of the Study:

Fidget Toys and Sensory Profiles: Examining the Impact on Attention and Learning in Typically Developing Children and Children with Autism Spectrum Disorder

Why is this important?

Atypical sensory processing is often reported in children with autism yet there is limited research in regards to the potential benefits of the use of sensory toys within educational settings. The aim of this research is to investigate the effectiveness of fidget toys and whether they can positively impact different areas of learning.

Who can take part?

Children aged 7-11 with an Autism Spectrum Disorder diagnosis and typically developing children.

What does taking part entail?

There will be a listening comprehension task where children will listen to short stories being read to them and will be required to answer a question about each story. There will also be a memory task where children will hear a series of digits and be asked to recall them. For half of the trials in each of the tasks, children will have access to a fidget toy. An IQ test will also be administered in order to match children with autism to typically developing children with a similar score. Three short questionnaires also need to be completed by a parent.

Who to contact?

Megan Roche: k1837072@kingston.ac.uk

Or

Dr Elisa Back: e.back@kingston.ac.uk

Recent Publications

Livanou, M., Singh, S. P., Liapi, F., & Furtado, V. (2020). Mapping transitional care pathways among young people discharged from adolescent forensic medium secure units in England. *Medicine, Science and the Law*, 60(1), 45–53. <https://doi.org/10.1177/0025802419887287>

Manitsa, I., Barlow-Brown, F. & Lyons, E. (2019). Self-concept of adolescents with visual impairments. *British Journal of Visual Impairment*. (E-pub ahead of print)

Samara, M., El Asam, A., Khadaroo, A. & Hammuda, S. (2019). Examining the psycho-social wellbeing of refugee children in the UK. *British Journal of Educational Psychology*. <https://doi.org/10.1111/bjep.12282>, ISSN (print) 0007-0998 (Epub Ahead of Print).

Samara, M., Foody, M., Göbel, K., Altawil, M. & Herbert Scheithauer (2019). Do cross-national and ethnic group bullying comparisons represent reality? Testing instruments for structural equivalence and structural isomorphism. *Frontiers in Psychology, section Educational Psychology*, 10, 1621. doi: 10.3389/fpsyg.2019.01621, ISSN (online) 1664-1078.

Simms, V, Karmiloff-Smith, A., **Ranzato, E.**, and Van Herwegen, J. (2019) Understanding Number Line Estimation in Williams Syndrome and Down Syndrome. *Journal of Autism Developmental Disorders* <https://doi.org/10.1007/s10803-019-04268-7>

Conferences

Back, E. & Hirani, R. Recognising microexpressions across varied time-frames in children with autism. Oral presentation at: *19th Seattle Club Conference*; London, U.K, 16 & 17th December 2019.

Livanou, M. Transitional pathways among young people discharged from forensic inpatient services in England: A retrospective national case note audit". Oral presentation at the *World Association of Social Psychiatry (WASP)* in Bucharest; October 2019.

Manitsa, I. The role of social inclusion in the self-esteem of adolescents with visual impairments. *Whitefield Academy Trust* [Invited Talk], 2019.

Ranzato, E. Home Numeracy Environment of children with Down syndrome. Oral presentation at *the Down Syndrome Research Forum*. London, September 16-17, 2019.

Funding

Manitsa, I. £10,000 PhD studentship, The National Lottery Community Fund & Sight for Surrey. How do specialist vision rehabilitation services impact the lives of children and adolescents with visual impairments? (2020-2021).

Samara, M., Marlow, N., Abdoh, G., & Alrefae, H. \$570,000. Qatar National Research Fund. Predicting school readiness amongst children in Qatar and the UK: Behavioural, psychological and health development. (2020- 2025).

Recent Events

The Eyes as a Window to the Mind

Dr Elisa Back

Dr Elisa Back showcased her latest eye-tracking research on inferring mental states from facial expressions in children with autism at Kingston University's Civic Reception last October. Elisa and Milani challenged visitors to guess the facial expression and they also invited them (including the Mayor of Kingston) to try out the mobile eye-tracking glasses.



Workshop: Developing Mathematical Abilities and Creativity

Erica Ranzato, Wendy Ross and Dr Birsu Kandemirci

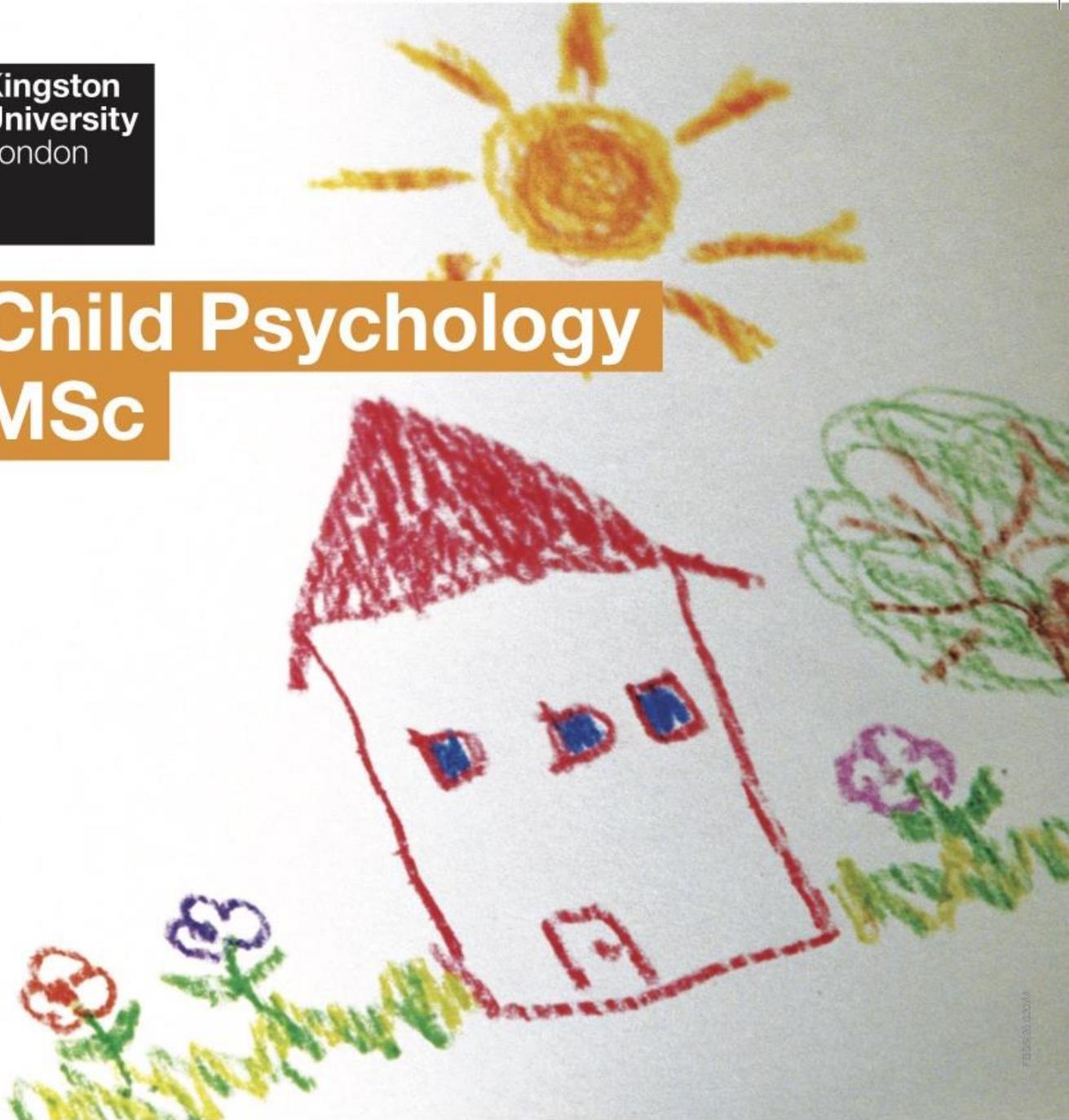
Developing Minds Lab hosted a workshop called 'Developing Mathematical Abilities and Creativity' on 22 January 2020.

Creativity is universally considered to be an essential part of the 21st century curriculum but many people are unsure what this means in practice. In this workshop we looked at some of the theory behind creativity and people who attended took part in practical exercises that aimed to support the development of creativity in the classroom.

In particular, the workshop focused on developing creativity beyond the subjects usually considered 'creative', such as mathematics.



Child Psychology MSc



This course offers an advanced study of developmental psychology which covers psychological theory and research as well as implications for practice.

This course is aimed at professionals (e.g., educators or clinicians) working with children and adolescents or for those of you who would like to start or promote a career working with children. It also provides an excellent foundation for pursuing a research career in child/developmental psychology.

Duration: **1 year full time, 2 years part time**
Course intake: **September**

Find out more today:
kingston.ac.uk/childpsychology or contact course
director **Dr Elisa Back** e.back@kingston.ac.uk

**MAKE
IT WORK**

Future Events

Developing Minds: Networking Launch Event

Developing Minds Lab have organised a networking event on 25th March 2020 to bring together professionals from a wide range of backgrounds who work with children and young people.

Click [here](#) to find out more.

Young Scientists Days 2020

We are excited to announce our 5th Young Scientists Days for children aged 4-11 on Thursday 16th and Friday 17th April, run by the Developing Minds Lab. We are inviting children and their parents for half a day of exciting research. This is a great chance to see what developmental psychologists do to understand how children develop.

Click [here](#) to find out more.

Group members

Academics

Dr Elisa Back

Dr Fiona Barlow-Brown

Dr Birsu Kandemirci

Dr Maria Livanou

Prof. Muthanna Samara

PhD Students

Rashma Hirani

Hayley Hunt

Ifigeneia Manitsa

Milani Pathmanathan

Erica Ranzato

Researchers

Rose Turner

Let us know if you have any questions. You can leave a comment on our [FB page](#)

Did you read our previous newsletter? You can find it [here](#)

Let us know what you would like to read in our next newsletter

Stay tuned: more updates and events will follow

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