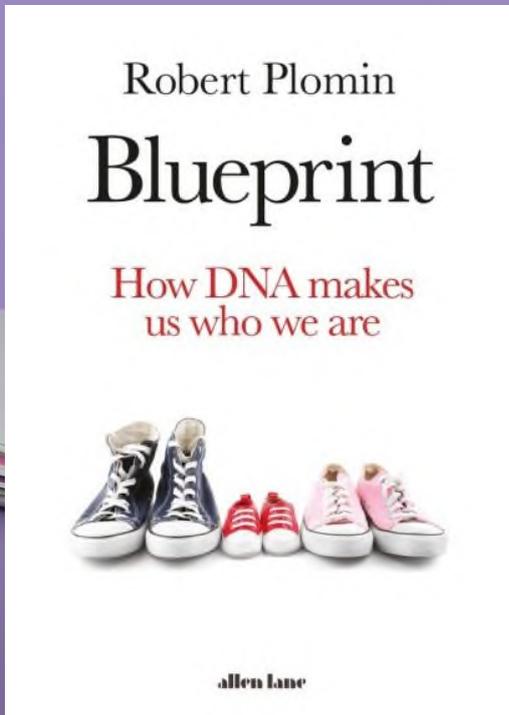


YOUR NEWSLETTER FROM THE TWINS EARLY DEVELOPMENT STUDY



BLUEPRINT

TEDS RESEARCH COMES TO LIFE
(and all of our lives!)



65
PRESS ARTICLES



7
RADIO & PODCAST INTERVIEWS



9
EVENTS & TV APPEARANCES



Evening Standard.



The Observer



'Mind-blowing ... It is a hugely important book ... His story is crucial'
Matt Ridley, The Times

'A game-changer'
Katie Law, Evening Standard, Books of the Year

'Plomin writes with authority about the ongoing genomic revolution that will unquestionably transform our lives and society'
Steven Mithen, Guardian

'You can't read the book without seeing the world afresh'
Andrew Anthony, Observer

'A challenging and thought-provoking new book'
Daily Mail



TEDS DIRECTOR, PROFESSOR ROBERT PLOMIN



The book mentioned in last year's newsletter, *Blueprint: How DNA Makes Us Who We Are*, was published in October 2018 by Allen Lane/Penguin. Written by TEDS Director, Professor Robert Plomin, it features TEDS research and has generated an amazing amount of attention in the media. *Blueprint* has featured in all the national newspapers, as well as on TV and radio, online media, and in public events.

One of our favourite interviews was with Stephen Sackur on his BBC programme, *HARDtalk*: http://bit.ly/hard_talk. *Blueprint* tells the story of how twin research like TEDS has shown that who we are as individuals – our personality, our mental health and illness, and our cognitive abilities and disabilities – is mostly due to DNA differences inherited in that first cell with which we began life.

What's new is the DNA revolution. TEDS has been at the cutting edge of this revolution because, 20 years ago, 14,000 TEDS twins generously donated their DNA for research. The DNA revolution is making it possible to read DNA to predict problems and promise. TEDS is a world leader in this research. Using TEDS DNA, we have created a DNA score that is the most powerful predictor of any trait to date. The trait is school achievement, an area that TEDS has pioneered in terms of genetic research.

For example, the DNA score predicts 15 percent of the differences between individuals in their GCSE results. This work was featured in the 25 January 2019 issue of the most influential educational publication, *Times Educational Supplement (TES)*: http://bit.ly/Plomin_TES. *Blueprint* shows that these developments have sweeping implications not only for education but also for how we think about who we are as individuals.



Congrats!

TEDS PhD GRADUATES



After four fun-filled years working at TEDS, Emily finished her PhD in October of last year. Emily first joined the TEDS team as a Research Assistant in 2014, before starting a PhD in 2015, looking at the genetic and environmental influences on educational achievement in secondary school and higher education.

She was recently awarded one of the Elsevier Outstanding Thesis Prizes and is extremely grateful to all the many thousands of TEDS twins who made her research possible! Since leaving TEDS, Emily has joined UCL's Institute of Education as a Research Fellow. She continues to look at school-wide predictors of individual academic achievement, such as Ofsted ratings of schools.

Ziada joined the TEDS team as a Research Assistant in 2014 and one year later started her PhD. Over the following three years she investigated how genetic factors contribute to the environments that young adults select across the many domains of their lives.



"During my PhD I have had many incredible opportunities, such as meeting a few of you when I took part in the making of the TEDS film, discussing our research with teachers and students and even sharing our findings live on the news! Not only did I acquire skills in my PhD, I had two sons! After I return from maternity leave, I will work as a postdoctoral fellow at TEDS where I will investigate within family differences in social outcomes."

NEW TO TEDS!

Gemma and Tom joined the TEDS team in September 2018 as Research Assistants. They have been assisting with current TEDS research projects, and help to keep the study running on a day-to-day basis, including answering some of your emails!

Tom has an MSc in Developmental and Educational Psychology from University College London. He is interested in how specific environmental experiences in childhood and adolescence increase (or decrease) one's risk of later mental illness, and how these experiences interplay with one's genetic propensities. Tom greatly enjoys music and travelling the world, as this presents great opportunities to go hiking!

TOM SPARGO



Gemma has a Masters in Psychological Research from Stellenbosch University in South Africa. She is interested in how genetic research can improve educational outcomes among children from low socioeconomic backgrounds. Gemma is a keen marathon runner, and she enjoys cooking and photography in her free time!

GEMMA SPICKERNELL



TEDS TWINS...IF YOU ARE NOW A PARENT - WOULD YOU LIKE YOUR CHILDREN TO BE INVOLVED IN OUR RESEARCH AS THEY GROW UP?

If you have a child who is not yet part of the Children of TEDS (CoTEDS) project, or if you are expecting a baby, you can register them to take part by completing our online form here: <https://goo.gl/Cr7Kxy> OR contact us using the details below.

More than 400 children of TEDS twins have been registered in CoTEDS so far. Many of these children have been part of CoTEDS since they were born. We are always looking forward to welcoming new families to the project, so please do let us know if you'd like to join! In 2017 we started inviting all TEDS twins who have a one-year-old child to complete our first questionnaire.

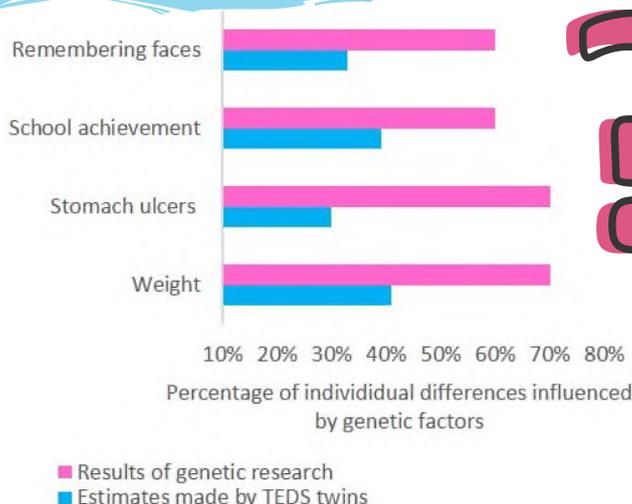
This year we launched our second questionnaire, for all TEDS twins with a two-year-old child. As part of our two-year assessment, we are asking twins to play three short games with their child. These are the same games that the TEDS twins played with their parents when they were two! We're also sending our two-year-olds a CoTEDS art set to thank them for taking part.

Thank you to all the busy parents who have registered and contributed to CoTEDS so far. We hope that your children can be involved in our research for as long as you have been!

Email: coteds-project@kcl.ac.uk
Website: www.teds.ac.uk/co-teds
Facebook: www.facebook.com/CoTEDSProject
Twitter: @Co_TEDS



YOUR GUESSES AS TO HOW MUCH THESE TRAITS ARE INFLUENCED BY DNA!



**DR KAILI RIMFELD AWARDED
PRESTIGIOUS SIR HENRY
WELLCOME FELLOWSHIP**



Kaili did her PhD in TEDS, and has continued with TEDS as a postdoctoral researcher. Over the past 7 years, her research has contributed to scientific understanding about the factors which shape individual differences in educational achievement at the end of compulsory education and beyond.

Kaili will soon begin research funded by her Sir Henry Wellcome fellowship grant. She will investigate links between educational experiences and mental health, while controlling for the inherited DNA differences between people.

This research is sorely needed. Completing education can be very stressful to children, requiring them to take multiple exams and cope with an increasingly competitive educational climate. Around three children in every classroom have mental health problems, and children's top concern is often stress and anxiety related to school work. Educational experiences could affect children's mental health during childhood and in later life.

Kaili's research will help to improve understanding of how stressful school experiences might affect mental health, and will be useful in designing interventions that make a real difference - watch this space!

SCIENCE NEWS!

**PREDICTING
INDIVIDUAL
OUTCOMES WITH
DNA**



**PARENTS NOT THE
'FULL STORY' IN INFLUENCING
A CHILD'S WEIGHT**

1

Thanks to recent advances in genomics research, a personalised score, called a polygenic score, can be calculated to indicate an individual's genetic predisposition towards a certain trait. This score is calculated by looking at the unique composition of the genetic variants associated with the trait in question and occurring across the genome. These scores can indicate one's genetic liability towards a variety of traits ranging from height and BMI to cognitive abilities and educational outcomes.

They can be applied in many exciting contexts, and we have already used them in various TEDS studies; two of these are described below.

A recent TEDS study challenged the idea that a child's weight largely reflects the way their parents feed them. It is thought that restricting food causes weight gain because children overeat when the restriction is no longer in place, while pressuring a child to finish everything on the plate is thought to provoke anxiety in children with low appetites and make it more difficult to gain weight.

We found that parents feeding practices respond to their children's natural body weight, which is largely genetically influenced. Using polygenic scores, we found that children who were genetically predisposed towards lower weight had parents who put more pressure on them to eat, while children predisposed to greater weight had parents who tried to get them to eat less. This was even true within families of non-identical twins who differed in their genetic predisposition: parents tried to get the twin predisposed toward greater weight to eat less and tried to get the twin predisposed toward lower weight to eat more.

This suggests parents' feeding practices are influenced by their child's genetics, but does not mean that parental feeding is completely driven by their child's weight.

**VARIABILITY IN
INTELLIGENCE & EDUCATIONAL
ACHIEVEMENT**

2

In a recent TEDS study, we created polygenic scores for intelligence and educational achievement (GCSE results). Using these scores alone, we were able to detect ~10% and ~15% of the variability in intelligence and educational achievement in the population.



For intelligence, an average difference of 15 IQ points was shown between individuals with the top and bottom 10% of polygenic scores. For educational achievement, there was a 2-grade difference between the average achievement of those with the highest (average 'A') and lowest (average 'C') 10% of polygenic scores. We also showed that there is no difference between girls and boys in their genetic propensity to both intelligence and educational achievement.

Our findings showed that polygenic scores for educational attainment and intelligence are currently the most powerful predictors in the behavioural sciences, able to account for differences more than family background can! Despite this, one should remember that polygenic scores show general propensities within populations, and not one's destiny.

**YOUR DATA
FROM TEDS-21**

8%

VEGETARIAN
OR
VEGAN

15%

LIVE WITH A
PARTNER

18%

DIAGNOSED WITH
ANXIETY/
DEPRESSION

4%

COMPETED IN
SPORT
AT NATIONAL
LEVEL

24%

BELIEVE IN A
DIVINE BEING

WHO SHARED THEIR BABY PICTURES FOR TV? STAY TUNED FOR DETAILS ON THE UPCOMING NETFLIX FILM!



TEDS ON TV!

Look out for the anxiety documentary, presented by British Bake Off Winner, Nadiya Hussain, on BBC One in May

ROSA CHEESMAN

Like you, I am a TEDS twin, and I have participated in the study all my life. The topic I am focusing on for my PhD is the nature-nurture of anxiety, and how it is passed down in families. Due to my growing knowledge about anxiety genetics, and my role as the in-house twin, I was asked to appear in a BBC documentary about anxiety, presented by Nadiya Hussain. Nadiya has suffered with anxiety and panic attacks from early childhood. While striking and serious, this early onset for anxiety is the norm – the average is only 11 years old. Also, the prevalence of anxiety is high, at up to 24%.

It was nerve-racking to have to crystallise all I've been learning into neat sound-bites (and to not say 'um', and to avoid looking directly into the camera...). For example, the first thing Nadiya wanted to know was 'is there an anxiety gene?'. My response was that, thanks to TEDS, we know that genes collectively have a sizeable influence on anxiety (it's about 40% nature, 60% nurture), but this doesn't mean that the genetic basis is simple, or that there is just one major gene. There are thousands of genetic variations that ever-so-slightly increase your chance, and these act in combination with environments to lead to anxiety. Not such a punchy answer! But overall, the interview went ok, and it was really exciting to talk to her, and to be part of a film showcasing what TEDS has achieved.



Nadiya Hussain is doing a lot of good drawing upon her personal experiences and celebrity status to spread information and remove stigma about anxiety.



TEDS ON TWITTER!

YOU SAID IT BEST!



Procrastination at 2am this morning meant I filled in my @TedsProject Survey #twins .. it's a #twinthing :D @abbythesmall

Kind of weird to be discussing the methodological reasons for using twins in studies in class today having been a participant in @TedsProject studies all my life @Phil Swatton

Being a twin born in 1994-6 is the best because you can meet any random fellow twin and suddenly you're part of some secret society because you're both part of @TedsProject @Yvonne_KP

TEDS TWINS 10 YEAR CHALLENGE YOUR PICS FROM NOW VS. 10 YEARS AGO!

