TEDS

SPRING 2011

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THE NEWSLETTER FROM TEDS [TWINS EARLY DEVELOPMENT STUDY]

Thank You!

2010 SAW THE LAUNCH OF THE LATEST large-scale TEDS study. So far, over a thousand members of TEDS have completed the 16-year web activities. Following feedback from the TEDS Ideas Panel (TIPs) we have added prize draws as a reward for all of your hard work on TEDS. Participants who took part in the web study received a prize draw entry for each activity they completed. The prizes available included iPads, iPods, and £50 and £25 iTunes vouchers. Pictured are some of the lucky winners with their prizes.

The 16-year study continues this summer for those of you born in 1995, and we will be holding four more prize draws. Please remember that the sooner you make a start on the activities, the more prize draws you will be entered for and the greater your chance of winning ●

Enter a prize draw!

We are running another prize draw this spring for everyone in TEDS, with the chance to win a state-of-the-art iPad 2.

One strand of our research looks at academic achievement and school environment. The Department for Education manages a database called the National Pupil Database, which contains information about the population's academic achievement and also data about the schools or colleges they attended. We would like to access this

data about members of TEDS as it would be a more efficient way of gathering large amounts of information that would inform our research – and save our members time.

Before doing this we need to know you are willing for us to access your data. Please return the enclosed postcard to let us know whether or not you give us consent to use this information. All data used by TEDS is stored on a secure server in accordance with the Data Protection Act 1998, and researchers only have access to this data in anonymised form. If you do not consent then we will not access your data, and this will not affect your future involvement with TEDS. All families who return postcards by **June 1st** will be entered into the prize draw, and the winning family will receive two iPads ●

TEDS - making a difference!

TEDS research shows policy makers why personalising education is important

Recent TEDS research was featured on the BBC website and received considerable media interest. These latest results on the genetics of education have major policy implications for the way in which schools are evaluated.

Schools in the UK have been formally evaluated since the 1990s. In 2002 a new measure, 'value added', was introduced to league tables as a measure of the progress students make between different stages of education. It measures each student's improvement, and so is a better indicator of school quality than exam grades as it is not influenced by differences in pupil intake between schools, for example in student background or genetic make-up.

Until now the assumption behind these measures was that changes in student performance over time must be explained by the quality of the school environment, but with your help we have been able to estimate how much of this measure of progress is due to nature (genes) or nurture (environment). We found that value added measures are affected not just by school environment but also substantially by genetic factors.

These findings do not imply that educational quality is unimportant: environmental factors were just as important as genetic factors. However the results do suggest that students bring genetic characteristics to the classroom that influence how well they will take advantage of the quality of education offered. In a classroom full of students being taught by the same teacher, some students will improve more than others, even though their educational environment at school is the same.

Future research will focus on identifying which characteristics allow

Lauren & Louise Tinsley - The Bolton News & Bury Times

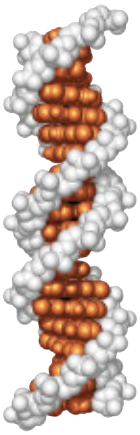
individuals to gain more from their educational environment – motivation, personality, determination and self-control are just some of the measures included in the 16-year study to help us understand what's going on in education and how we can encourage young people to get more out of their experiences.

TEDS' research is contributing towards important policy-changing implications in education. Taking a balanced perspective that recognises both genetic and environmental influences supports the trend towards personalising education to individuals' strengths, which we believe will be possible via interactive information technology.

The full research report is available at: http://dx.plos.org/10.1371/journal.pone.0016006

The human genome 10 years on: where are we now?

2011 marks a decade since the first human genome was sequenced and scientists are looking back on the immense progress made since then. Many believe that the era of personalised genomics could soon be upon us. Last year scientists attempted to use the entire DNA sequence of a healthy man's genome to estimate his risk of developing various diseases later in life, and to predict which medical treatments he would respond best to. As the technology gets cheaper, it may eventually become commonplace for genetic data to be added to medical records. Doctors could then use these data to help tailor healthcare to our specific needs.



Personalised genomics that improves people's lives is the ultimate aim of modern genetics. It is already possible to send DNA to a personalised genomics company and get information about your individual risks. These companies can analyse your genetic blueprint and tell you about the origins of your ancestors as well as how your genetic code relates to a range of traits.

However, the science behind this is not yet complete. Although we know a lot about rare disorders caused by a single gene (e.g. cystic fibrosis), other traits, like the ones we study in TEDS, are much more complicated. For these complex traits such as attention and memory, we cannot use genes alone to predict outcome because we know that environments are also important. Understanding how genes (and environments) affect complex human characteristics is difficult because each gene (or environment) only has a small effect, and there will be hundreds or perhaps thousands of genes involved.

That is why TEDS is so important: we contribute to the genetic data, but crucially also include measures of environmental influences and how these develop over time. It's only through continuing this research into the factors influencing a variety of traits that we will be able to benefit fully from the era of personalised genomics.

More information is available here: www.teds.ac.uk/genetics.html ●

Why are brothers and sisters so different?

One of the most important findings from twin studies comes from the simple question, why are brothers and sisters so different? Siblings grow up in the same family, go to the same schools, and live in the same area. Twins share the same womb and are the same age. Identical twins are even genetically identical! Yet siblings, including twins, are usually very different.

The answer to this puzzle was first pointed out by Robert Plomin, the Director of TEDS, in 1987. He summarised early research that led to the answer in a paper that has become a classic in psychology. Twin studies like TEDS take genetics into account when asking about environmental influences. Part of the reason why siblings are similar is down to sharing a genetic background. However, nurture and the environment also have a big effect on development.

It is primarily the environment that makes siblings different from one another. Professor Plomin named these environments 'non-shared' because they are not shared by siblings growing up in the same family. This finding overturned thinking about development from Freud onwards which had always assumed that what is important in development is shared experiences such as family and schools.

However, we know from TEDS and other research studies that families and schools do matter, so how can this fit with the finding that non-shared experiences are the most important? Research in TEDS has shown that the way these environments work is very different from the way everyone thought they worked: siblings can experience the same environment differently. For example, consider the influence of a family moving house. One individual might experience this positively because the house is bigger and they get to have their own room, whereas for their sibling this same environment could have a negative influence on them because they have moved away from their friends.

This is why in TEDS' questionnaires we ask about each individual's experience of events because the key issue is to identify these crucial non-shared experiences.

A 25-year follow-up commentary by Professor Plomin on progress towards understanding non-shared environment will be published in The International Journal of Epidemiology along with a reprint of the 1987 paper ●

TEDS - making a difference!

Special Projects

In addition to our large-scale web studies, we are running a number of smaller special projects which some of you may have already taken part in. One of them, the TEDS Family Study, is looking into the way teenagers' genes influence the relationships they have with other people, particularly their parents, siblings and friends. The study will run until March 2012 and will involve 650 TEDS families.

Hayden & Renuka Rawlins

TEDS have also linked up with TAMBA to learn more about the experience of being a twin. We are helping TAMBA collect some information on this topic. If you'd like to fill out a brief questionnaire about your experiences then let us know on teds-project@kcl.ac.uk or our freephone number 0800 317029.

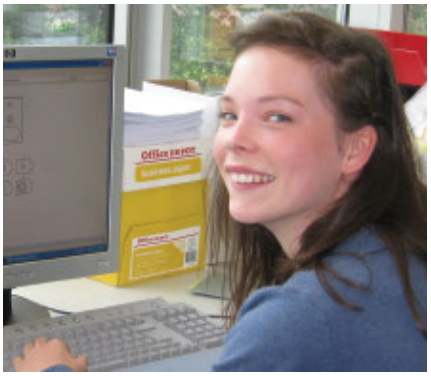
Another study underway is a pioneering study on biomarkers – physiological markers of stress, such as C-Reactive Protein and secretory Immunoglobulin A. We have been collecting saliva samples by post and will use these to understand the effects of stress on the immune system, as well as the role of genes and environments in this relationship.

Finally, we have just launched a study on wellbeing looking at whether its levels can be increased through internet-based interventions ●

Work Experience

In the summer of 2010 for the first time a member of TEDS, Lucy Decker, came to do three days work experience with us. This is what Lucy had to say of her time with us:

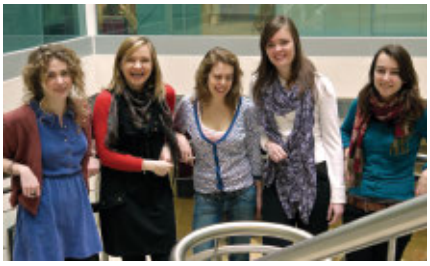
"Obviously, there are times in our lives where we teenagers cannot be bothered to fill out the questionnaires or web activities but realising how much the discoveries can help people is certainly enough motivation for me. As a twin, I have thoroughly enjoyed my work experience at TEDS. Understanding more about the day-to-day tasks, practices and motivation helps me realise how lucky I am to be a part of such exciting research."



To see Lucy's full report on her time at TEDS visit the news section of our website –www.teds.ac.uk/news.html ●

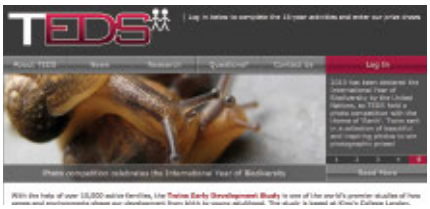
New Faces at TEDS

This year has been a time of change in the TEDS office. We have welcomed five new researchers - Claire, Beata, Kate, Machteld and Francesca ●



Keep in touch

Autumn 2010 saw the launch of our revamped, new look website. Please visit www.teds.ac.uk for news updates, details of our research and information about current projects.



Also don't forget to help us stay in touch with you by letting us know of any change in address, phone number or email address. You can call us free on 0800 317029, email us at teds-project@kcl.ac.uk or write to us at TEDS, PO83, FREEPOST LON7567, London, SE5 8AF.

We are always keen to hear your ideas and get feedback on what we do at TEDS. If you would like to be involved with the TEDS Ideas Panels (TIPs) or just have something to say please do not hesitate to get in touch on the above contact details ●

Keep an eye on our website, we'll be updating it as activities arise. You can also find answers to frequently asked questions about TEDS. Go to www.teds.ac.uk/questions.html to find out more.
Please don't hesitate to contact us by phone or by email if you have any further questions for us.