



# TEDS NEWS

2006



TWINS' EARLY DEVELOPMENT STUDY

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## 5 MORE YEARS!... WE DID IT!



In our last newsletter, we mentioned that we were waiting to hear whether the Medical Research Council (MRC) would fund TEDS for another 5 years. We are pleased to announce that we have won the award. This new award means that TEDS will be supported for a total of 15 years by the MRC with one of their largest grants - testimony to the importance of TEDS! Here is what the MRC Board said about TEDS: '... an exciting proposal that would maintain and exploit an enormously valuable sample for psychiatric and psychological research.'

In addition, TEDS has also recently received two other new grants that make use of the DNA that has been collected. One is from the Wellcome Trust to do a DNA study of general learning abilities and disabilities. The other is from the US National Institute of Child Health and Human Development to do a DNA study of reading ability and disability. These two studies apply the gene chips that we mentioned in the last newsletter which make it possible to look at hundreds of thousands of bits of DNA in one go in a few hours. This research is part of a new way of thinking about genetic influences on complex traits like learning abilities and disabilities. Instead of looking for one or two genes that cause problems, we are looking for many tiny needles in the DNA haystack. This can only be done with very large studies of which TEDS is one of the largest.

## TEDS New Look!



We are very pleased to launch our new logo and new-look website. Over the years our logo has grown with us and now we hope that we've found one to keep for the long run. We have spent a lot of time trying hard to get this right, so we hope you like it too!

Our initial thoughts were to find a logo with a more grown-up feel. We wanted something to illustrate a sense of togetherness and an ongoing cycle. We came up with some initial designs, which we then circulated around our entire team for comments. This was the trickiest stage; everyone

had different bits that they liked or didn't like. Some of you may find the colour choice a little strange, but these colours were selected by groups of teenagers as their favourite combinations. So here you will see our new logo for the first time. For the next little while, we plan to use it alongside our first logo with the babies; we have come a long way!

# TEDS Twins Unravel the Mystery of Learning Maths

## *What have we learned so far?*

A lot of our recent research has looked at maths abilities, based on the activities on the web, but also on what your teachers told us about you. We found that many of the genes that affect maths abilities are also likely to be influencing other academic abilities. We received the same message from the answers you gave us, and from your teachers - so they really do know about you!

Some of our maths research has also been mentioned in the national press; on Sunday 7th August 2005 TEDS maths results were discussed in the

Observer. This article said that data from over 6000 TEDS twins showed that there are some things about your school and home environments that are very important in making you all different from each other – even identical twins growing up in the same family and going to the same school! Your DNA is also involved in how well you do in all your different subjects at school. These results have inspired future work which will use the DNA samples that some of you have kindly agreed to give us, to look for some of the many genes that influence maths and also other abilities.

There will not just be one gene for maths and another for English, but a whole group of genes that work together. We have learned so much about these abilities with your help, and hope that we will be able to use this information to help other children to learn.



## 21ST CENTURY RESEARCH!

Using the fantastic data from the first web-based TEDS activities our researchers have been looking at Maths, English and other abilities in finer detail than was possible with teacher ratings. After the success of the web-based activities that some of you took part in when you were 10, we will be asking some of you to take part in some new activities when you are 12. We are very interested to find out how different influences change as you get older. Using the internet means we can keep in touch with you as you grow up, and even with those of you who have moved to different countries!

Thanks to everyone who sent us their comments last time: we've tried really hard to make the new activities more fun than ever, with new bonus games for you to try out! Thank you so much for helping us – we can't find out anything without you, and your parents and teachers.



# *TEDS takes a look at how brains work*



*Elliot and Joel helping us with one of the imaging studies*

In last year's newsletter we told you that we are collaborating with people in the newly-built Centre for Neuroimaging Sciences, King's College London. Brain scans are time-consuming and expensive, so this is an activity that we are inviting only a few of you to do.

We have now started a few brain imaging studies. The first one looked at how children's brains process maths problems. We have now completed this study and have begun the laborious process of analysing the scans which contain millions of bits of information. So far, it looks as if children's brains deal with maths problems differently from adult brains. We want to look at the data in detail to see if some of the information we have gathered will help us to think about interventions for children who have difficulties in learning maths.

We have two other brain imaging studies going at the moment. One looks at the brain activity of twins with attention problems. Another is trying to study how the brain responds to emotional stimuli and how this brain reactivity may relate to individual differences in behaviour.

All the brain imaging findings are so-called "basic science", but our hope is that this research will inform practical approaches such as treatment of behavioural problems in the long run. Thank you for taking part.

## **DNA**

There have been new and exciting developments in the techniques we use to study the DNA you have provided. In the last newsletter we told you it was possible to measure 100,000 bits of DNA on a 'gene chip' in one go in a few hours. This number has now been increased to 500,000 - meaning that for the first time we can study all the DNA in the genome, this will hopefully provide lots more

information at the genetic level. We would also like to thank all the TEDS families who have helped us with the resampling of DNA. Due to the techniques involved in DNA analysis, it is necessary for us to replenish our stocks from time to time. So, a big thank you from the TEDS team, because without your continuing support we could not plan future studies in this exciting area of research.



*Elly trying out the 12 year web activities*

## **TEDS 10-Year Web Activities**

Thank you very much to all of you who took part in our 10-year web-based activities this year: we are very pleased that so many of you were keen to take part. Putting our activities on the Internet allows us to get to your information straight away - so already our researchers are working on it! We really enjoyed hearing what you thought, and as requested by many, we are working on some more web-based activities for you to take part in for our 12-year study. We have already had some of the older siblings of the TEDS families to try them out for us.



# We have three new PhD students this year. . .

**O**liver: I'm interested in the different types of school learning activities and what is shared between them. For example, what are the links between how we solve puzzles and the way we use words when we're growing up? When you do the activities on the website, one of the things you're helping us to look at is how genes and the environment work together to affect how we develop the ability to learn.



**C**laire: I have a twin brother, and I've always been interested in twins. The great thing about twins is that we are useful in helping researchers to learn more about people. So for example twins allow us to study what makes people differ on some things but be very similar on others. I am particularly interested in studying how you are getting on at school. And how much your success at school is due to different factors as you get older.

**C**harles came to TEDS from Dublin, Ireland, via Greenwich where he earned an MSc in Human Genetics. He has been a research worker with TEDS for 1 1/2 years and has recently started working for his PhD part time. His research interests include DNA methodologies and using DNA pooling to look at lots of genes all of which may have a small effect on development and which may together contribute to a particular disorder.



In April 2005 the TEDS office took on a challenge – mailing out our newsletter to all 12,000 TEDS families. It took six members of the TEDS team three weeks to finish the mailing and we all suffered from paper cuts! This is our largest mail-out yet, and you can see from the picture that the TEDS office was overflowing with envelopes!

Check out our web-site at [www.teds.ac.uk](http://www.teds.ac.uk) and learn more about what we have found out with your help. We also have links to various web-sites that might be useful or interesting to you.

It is very important to us that we stay in touch with you. Please let us know if you have changed your address or phone number by filling in this slip and returning it to us at our FREEPOST address

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✂ Have you changed your address or phone number?

Your name..... the children's names..... & .....

Your new address.....  
.....

Postcode.....Telephone.....