



TEDS NEWS

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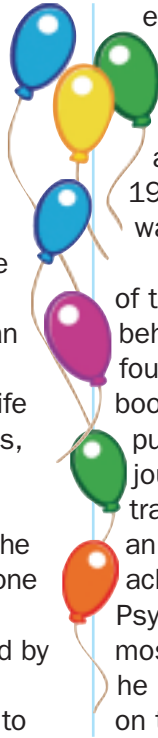
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Happy Birthday TEDS!

Our Leader!

As part of our 10-year anniversary issue, we thought you might like to know a bit more about the founder and director of TEDS, Professor Robert Plomin. Professor Plomin is a world expert in the study of twins. His first twin study was published more than 30 years ago and his studies include twins throughout the life span – infants, children, adults, and a study of all the twins in Sweden over 80 years old.

Professor Plomin came to the UK from the USA in 1994 as one of the first distinguished 'Research Professors' awarded by the Medical Research Council (MRC). His scientific goal was to



establish a large UK twin study that would focus on the development of learning abilities and disabilities and adjustment. TEDS was born in 1995 when a major research grant was awarded to him by the MRC.

Professor Plomin is the author of the classic textbook on behavioural genetics, now in its fourth edition, as well as 15 other books and more than 500 papers published in scientific books and journals. In May 2005, he will travel to Los Angeles to receive an award for lifetime scientific achievement from the American Psychological Society, which is the most recent of many awards that he has received for his research on twins.



Why was the TEDS project started?

Are you a good skateboarder but terrible at maths? Do you like reading but loathe art lessons? You might like being outside, doing sports or having adventures, whilst other people like being inside reading or drawing. Are you sociable or shy? At TEDS we are interested in the question of what makes people different from each other. A related question is why some people have problems in particular areas and others do not? You probably know lots of children who do well at some subjects at school, but really struggle with other things. Or you might know some children who have such trouble paying attention that it becomes very difficult for them to learn. Lots of scientists at universities around the world are trying to understand the causes of these problems, and to come up with ways to try and help. TEDS is one of the biggest projects in the world that is dedicated to studying the causes of the differences between people, including problems with learning and behaviour. We all have plenty of ideas, but we need to test these ideas scientifically, with the data that you provide us with.



Stephen & Thomas age 10 months



Twins help us learn about everyone!

TEDS children are twins (and their brothers and sisters). It is very important for us to study lots of twins because this lets us look at how genes and environments affect people's learning and behaviour. Some twins (often called identical twins) have exactly the same genes as each other, while other twins (fraternal twins) share about half of their genes. If two children who are identical twins are very similar to each other (for example, they might both be excellent artists), but two children who are fraternal twins are not so similar (one is a good artist, and the other one is not),

then we can be pretty sure that genes are important for being good – or bad! – at art. Of course we can't be sure of anything from one or two examples – we need to have information from many (thousands of!) twin pairs, which is why TEDS is so big!

This is the first piece in the puzzle of why people develop differently; there are many more pieces that we need to find before we fully understand differences between people and can use this information to help people who are having problems. TEDS twins are helping us to find that first piece!

How are YOU helping?

You and your family are the first and most important part of our research! Without all of the booklets and interviews and games you have completed, TEDS research would not exist. Here's an example. We want to find out why some children have trouble learning to read. When they were seven years old, we asked lots of the children in TEDS to read a list of words to us over the phone. Because everyone is different, some children read the word list very fast, others quite slowly, and most were in-between. We then analysed all these thousands of pieces of information using special statistical models. This showed us that differences in reading speed, at least when children are seven, mostly comes from the genes passed on by their parents. Reading is just one example. At TEDS, we are studying lots of different things, and for some of them genes aren't nearly as important: instead, things in the environment seem to matter more, and for other things, genes and environments are equally important. Finally, it is important to remember that for most things, genes and environment work together to make us who we are.

Although we've still got plenty of work to do, we've already learned a lot. And it's all thanks to you, the TEDS families! We couldn't have done it without all the help you've given us over the last 10 years – you've been brilliant, so

THANK YOU VERY MUCH!

What are genes?

What are environments?

Genetic Influences are: In short, your biological make up. They contain all the instructions your body needs to grow and develop. However, the effect of your genes can be hugely influenced by your environment. For example, if both of your parents are tall, the genes they pass on to you mean that you are likely to be tall too. However, if you lived in a situation where you had very little food, this environmental influence could cause you to be short, even if you have tall parents.

Environmental influences are: family, school, friends, books you read, films you watch, food you eat, catching chickenpox when you were 5, the town you live in – and other things such as hormonal influences during pregnancy.

www.teds.ac.uk



The Future

It's been an incredible 10 years in TEDS and we are looking forward to the next 10 years! TEDS received one of the largest research grants funded by the Medical Research Council (MRC) in 1995 and again in 2000. We are waiting to hear in a few months whether the MRC will fund another 5 years of TEDS.

We have some exciting plans that, with your help, will make TEDS the most important project of its kind in the world. As mentioned, we have begun using the internet to obtain information from some of you at 10 years. This has been so successful that we plan to ask everyone to participate using the internet at 12 and 14 years. Even if you aren't able to use the internet now, all the forecasts indicate that in a year or two nearly all British families will have access to the internet – and will need to use internet because so much of what we do will be done that way. For TEDS, the type of information that can be obtained via the internet is so much better than what we could do with the booklets that we have used in previous years. The goal will be to understand development during adolescence and how it relates to all of the other information you have provided at earlier ages.

The second major direction for TEDS is to make use of the data that you have already given by studying DNA, which is what genes are made of. About 75% of TEDS twins have contributed DNA and we are now using this DNA to find some of the specific genes responsible for the genetic effects that we have found in TEDS. We have developed new techniques for finding genes even when there are many genes involved. This may be more than you wanted to know but we are very excited about this technique and have to tell you at least a little bit about it. With something called a 'gene chip' the size of a postage stamp (see the photo), it is now possible to measure 100,000 bits of DNA in one go in a few hours. However, these are very expensive 'postage stamps' – each one costs about £1000 and you can only use it once! So, if we use one 'gene chip' for each person in TEDS, this would cost tens of millions of pounds. What we have done for the first time is to 'pool' DNA from lots of twins and then just use a single gene chip to measure the DNA of that group. By comparing certain groups we can see if the groups differ in their DNA. Instead of costing many millions of pounds, our approach costs only a few thousand pounds, which means that we can study many things. And that is our plan: to use this revolutionary approach to find genes related to the information that you have provided during the past 10 years.



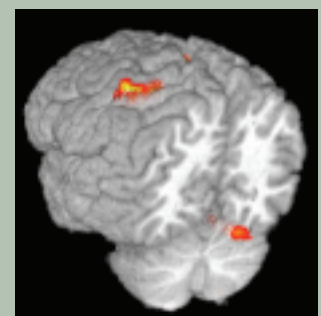
Stephen & Thomas age 10 years



TEDS takes a look at how brains work

We want to increase our understanding of the genes/environment behaviour relationship by looking at brains. Brain development is influenced by genetic input and environmental experiences. TEDS is now 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 will invite only some of you to do. We will give you stacks of information if you are invited to take part and it is entirely up to you to decide if you want to be included. The exciting thing about brain scanning is that we can look at how brains react when they are solving different problems or looking at different kinds of pictures.





TEDs new Web Activities a success!

Last spring we invited a number of you to take part in our first ever web based activities. You were logging in at home, school, in the library and a couple of you even tried from their hotels on holiday abroad! Thank you very much to everyone who took part and gave us valuable information and feedback. We'll use your comments to make it even better next time. We asked some of the children who took part to tell us what they thought, they said...

"Really fun"

"It got you thinking"

"Good graphics"

"Different"

"Exciting"

"The bonus games were wicked"

"Interesting"

"Bright and Colourful"

It wasn't just the children who liked it; the activities inspired a few emails from parents too...

"It's very interactive, kids enjoyed it, and it's equally educative" Shakirat Akinleye

"Many thanks for this very interesting study; it has helped me to be more aware of the twins' education and growth. The site looks very child friendly and stimulating" Alan Myers.

"I love the website – really colourful and attractive" Maire Harding.

Lots of you have said that you're looking forward to taking part in web based activities again. We also look forward to hearing from those of you who try them out for the first time this year.

A Bonus from the 10 Year Web based activities!

The bonus games that were part of our 10 year web based activities last spring were a big hit. Those of you who were invited to take part in spring 2004 can now use your passwords to access the bonus games at www.teds.ac.uk We hope that all of you taking part this spring will enjoy them too!

Don't forget to stay in touch! If you move, or if you have any questions or queries, please do not hesitate to contact us. We are always happy to hear from you. Our freephone number is 0800 317 029 and speak to Tricia (*Project Co-ordinator*), Jane (*Web Co-ordinator*) and Andy (*Data Manager*)



or write to us at our Freepost address TEDS Research Centre, Freepost LON7567, London SE5 8YZ. Or you can also email us at teds@iop.kcl.ac.uk.

Check out our web site at 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.

