

Neuroscience-informed teacher-led randomised controlled trials

What we are doing and why?



A key challenge facing neuroscience and education is how to translate evidence from the laboratory into the classroom (Dommett and Devonshire, 2010; Dommett et al., 2013). From the mid-nineteenth century, similar challenges faced the medical profession as it aspired to become a 'natural science' grounded in biology. Firstly, laboratories are not classrooms, just as the biological experiment is not clinical practice. Secondly, wide replication to control for pupil individual differences as well as school context will be necessary. Finally, and most importantly, writers have pointed to the 'democratic deficit' that exists in education research and its potential impact on attempts to establish 'what works' (Biesta, 2007). In contrast to medicine and healthcare where often it is serving clinicians who publish studies on clinical practice, in education few practitioner studies reach journals or get disseminated. Further, those researchers who do study or design pedagogy often no longer practice as teachers.

In a project funded by the Wellcome Trust, in partnership with Education Development Trust, teachers who have previously designed and implemented randomised controlled trials (see Churches; 2016; Churches, Higgins and Hall (in press); Churches and McAleavy, 2016), together with teachers with a psychology or neuroscience degree have come together to design

and deliver a series of replicated trial protocols. A total of 31 individual schools and Teaching School Alliances are involved in the project, including five EEF/IEE Research Schools. These schools are involving a wider number of schools to increase the sample sizes within some of the trials and replications. The project began with a protocol design day in October at which the teachers worked with neuroscientists Dr Eleanor Dommett (King's College, London) and Dr Ian Devonshire (Nottingham Medical School). The programme is led by Dr Richard Churches (Education Development Trust), who previously led Closing the Gap: Test and Learn - a Department for Education initiative in which (as part of the programme) 48 teachers received grants to complete practitioner-led randomised controlled trials and other forms of experimental research.

Over the next four months the teachers will implement their randomised controlled trials coming together again in February for an analysis, interpretation and write up day. They will then produce conference posters to support the dissemination of their findings. Upon completion of their studies, teachers will use EXCEL-based software to analyse their results. StatsWizard© automatically carries out assumption testing, tells the teacher which inferential test to use and produces the p-value and effect size.



Educational neuroscience brings together insights from education, neuroscience and psychology to enhance student learning. As we discover and understand more about how we learn, we can use this knowledge to guide teaching practices and help young people achieve more at school.

Dr Richard Churches has been an advanced skills teacher, senior manager in challenging inner-city schools, government adviser, education consultant and Lead Adviser for Education Reform and Evidence Based Practice at Education Development Trust. Richard has led many major government policy initiatives in England and across the world. His doctoral research was experimental and looked at areas of leadership associated with altered and hypnoidal states of consciousness.

Dr Eleanor Dommett is a Senior Lecturer in Biological Psychology and Neuroscience at the Institute of Psychology, Psychiatry and Neuroscience, part of King's College London. Her research focuses on models of Attention Deficit Hyperactivity Disorder and mechanisms of action of therapeutic drugs in this condition. She has conducted

research at Sheffield University, Oxford University and the Open University and has taught at a variety of institutions. She is currently teaching on the BSc Psychology at King's and has a special interest in technology-enhanced learning.

Dr Ian Devonshire is a neuroscientist and lecturer who has spearheaded a range of innovative, inter-disciplinary research projects involving universities, schools, private companies, charities, and the government. Ian has worked in research laboratories at the Universities of Oxford and Sheffield and is currently based at Nottingham University Medical School whilst also holding an associate lectureship at the Open University.

To find out more about the project or implement a parallel project in your school(s), contact: rchurches@educationdevelopmenttrust.com

Being able to work with Richard, Eleanor and Ian in person was fascinating from a neuroscientific perspective, but also enlightening in terms of what we could be doing with the relevant research as educators. I am excited to see what the collaboration between neuroscience and education will lead to in the future.

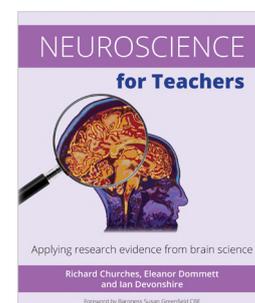
Rachel Cranwell, Harris Initial Teacher Education

A very exciting opportunity to continue to develop an evidence-base for interventions and practice within the education system. Coming from a background in biopsychology, I am incredibly keen and eager to see neuroscience research applied in education.

Daria Makarova, Swanshurst School

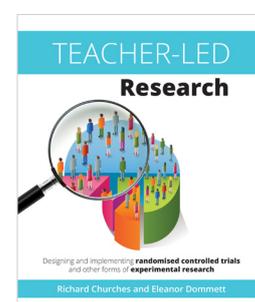


Participants are using books by Richard, Eleanor and Ian to support the design and implementation of their trials



"A major step forward in collaboration between neuroscience and education."
Baroness Susan Greenfield CBE

"Likely to become the definitive text on this topic for teachers."



Ian Menter, Emeritus Professor of Teacher Education, University of Oxford, former president, British Educational Research Association

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