Teacher-Led Randomised Controlled Trials

How teachers are applying and researching the impact of brain science in the classroom
Areas of focus

1. Teacher-led randomised controlled trials

2. Grounding education theory in the biology of learning

3. Learning from the processes of Evidence Based Practice, Clinical Practice and Supervision in the health sector
Bridging the gap between evidence and classroom ‘clinical practice’: The potential of teacher-led randomised controlled trials to advance the science of learning

A key challenge facing researchers and educators is how to translate evidence from the laboratory and the classroom (Clements et al., 2013). From the mid-19th century, similar challenges have faced the medical profession as it struggles to implement ‘clinical science’ gained in biology, physiology and other clinical sciences, such as the biological explanatory models for the human body. However, with the advent of evidence-based medicine, the challenge is to connect evidence from the laboratory to the classroom. This is particularly true for teacher-led randomised controlled trials (RCTs) which, unlike other forms of educational intervention, can provide a rigorous test of the effectiveness of educational interventions. 

In a report commissioned by the Education Endowment Foundation, the authors argue that teacher-led RCTs can help to bridge the gap between evidence and classroom practice. The report highlights the potential of these trials to provide teachers with the evidence they need to make informed decisions about what works in the classroom. 

The report also argues that teacher-led RCTs can help to address some of the key challenges facing educational research, such as the lack of evidence-based practice in the classroom and the difficulty of translating research findings into practice.

The authors suggest that teacher-led RCTs can be an effective way to bridge the gap between evidence and classroom practice. However, they also caution that these trials should be used in conjunction with other methods of research, such as qualitative studies, to provide a more comprehensive understanding of the factors that influence learning.
The translation challenge

• A key challenge facing neuroscience and education is **how to translate evidence** from the laboratory into the classroom

• From the mid-nineteenth century, **similar challenges faced the medical profession** as it aspired to become a ‘natural science’ grounded in biology

• Today **medicine uses biology** in the same way that **architecture uses physics**—something similar could be possible in education
Bridging the gap

• **Laboratories are not classrooms**, just as the biological experiment is not clinical practice

• Wide **replication** to control for pupil **individual differences** as well as school context will be necessary

• A ‘**democratic deficit**’ exists in education research

• In medicine and healthcare, **serving clinicians** most frequently publish studies about 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
Three problems

1. Education and neuroscience have different goals
2. Translation across levels of research
3. Neuroscience does not usually look at application (i.e. is not applied research)

- Educational Neuroscience (Mind, Brain and Education, in US, aims to fill these gaps)

(From Impact (2018, (2): 65)
Neuroscience-informed teacher-led RCTs

- Project funded by the Wellcome Trust
- One of a number of projects, including the chance to chat to a scientist at [www.imascientist.org.uk](http://www.imascientist.org.uk)
- Teachers who previously designed and implemented randomised controlled trials - together with teachers with a psychology or neuroscience degree - came together with neuroscientists to design and deliver a series of trial protocols (with replications)
The first teacher experimental research conference (48 posters)

Closing the gap: test and learn

Research report
Winter 2016
Richard Churches – Education Development Trust (formerly CfBT Education Trust)
The between-participant design but many other designs are possible (even desirable)
The within-participant design

Random allocation to the order in which participants experience the conditions.
The schools and trials

- 31 individual schools and Teaching School Alliances
- Six EEF/IEE Research Schools
- 19 trials, including replications
- 4,000 pupils

Three levels of translation:
- Replication of previous findings in new contexts (e.g. retrieval practice)
- Testing of existing education pedagogy that appears to reflect evidence from the science of learning.
- Designed pedagogy
The ‘how to read a poster’ poster. . .and display
Next steps

• Teachers complete and analyse remaining **Wellcome Trust** funded trials (one has 900 pupils in a parallel replication)

• **Meta-analysis** of the findings across all the trials

• In March with the **Varkey Foundation** and 24 of their **Teacher Ambassadors** (top 50 in **Teacher Prize**), we also launched trials in a wide range of countries (including: Argentina, Australia, England, Canada, Chile, Columbia, England, India, Nigeria, Philippines, Sri Lanka)

• Then **replicate, replicate, replicate**!