

# FROM BRAIN RESEARCH TO DESIGN FOR LEARNING: CONNECTING NEUROSCIENCE TO EDUCATIONAL PRACTICE



PETER GOODYEAR  
*University of Sydney*

Professor Peter Goodyear is Professor of Education at the University of Sydney. He is the founding co-director of the Centre for Research on Computer-Supported Learning and Cognition (CoCo) and now also leads the University's Sciences and Technologies of Learning research network, a multi-faculty network involving over 80 academic staff and PhD students. Before moving to Australia in 2003, Peter was Professor of Educational Research and Head of the Department of Educational Research at Lancaster University in the UK. He has also held academic positions in London, Birmingham and Belfast. In 2008, Peter was awarded a Senior Fellowship of the Australian Learning and Teaching Council and in 2010 he became an Australian Research Council Laureate Fellow – the first and so far the only Laureate Fellow working in the field of education. His current program of research – the architecture of productive learning networks – aims to strengthen the use of 'designerly ways of thinking' in education. From 1993 to 2012 he was editor in chief of *Instructional Science*, an international journal of the learning sciences. His latest books are *Epistemic fluency and professional education: Innovation, knowledgeable action and working knowledge* (with Lina Markauskaite, Springer), *The handbook of design in educational technology* (with Rose Luckin and others, Routledge) and *The architecture of productive learning networks* (with Lucila Carvalho, Routledge).

## ABSTRACT

Many people who care deeply about the improvement of education believe that research ought to be able to provide some of the intellectual resources needed by practitioners and policy makers. Many people are also sceptical about the power and purpose of contemporary educational research and point to the chasms separating the producers and intended consumers of research on learning. In the last few decades, hopes have been raised, periodically, by the promise of a more scientific basis for educational theory and practice – whether through the use of computational modelling, randomised controlled trials or cognitive neuroscience. When people are anxious to find firmer ways of resolving recurrent, 'wicked' educational problems, it is not surprising if they try to push the science faster and further than it can reasonably go.

It is against this backdrop of unmet demand for robust answers that I want to examine some of the ways that educational practice can, and should, respond to insights emerging from brain research. I will develop three main arguments. First, that there are some particular areas of educational practice that offer a more congenial home for the application of research-based evidence about the brain, mind and learning – my example will be *design* for learning. Second, that brain research is inspiring some deep reconsideration of how we should conceive of *human competence* – such that a number of prevailing assumptions about assessment and curriculum will be severely tested. Third, that the increasingly complex networks of digital and other tools and resources, which are bound up in many productive human activities, also need to be understood, as part of any serious attempt to reconfigure assessment, curriculum or learning environments.