Teachers learn about neuroscience

What are the key principles?

by Annie Brookman-Byrne
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Providing teachers with a basic understanding of neuroscience is just a small part of the educational neuroscience agenda. But what exactly do teachers need to know about the learning brain?

Teachers may be able to foster better learning in their students if they have some knowledge about the neuroscience of learning. With this belief in mind, a couple of teacher training programmes in the UK have started to implement lessons that cover broad principles of learning processes in the brain. As part of the University of Bristol’s initial teacher education, Professor Paul Howard-Jones and colleagues identified three broad categories of learning that they consider to be relevant to everyday teaching practice: engagement of the learner (being ready to learn); building knowledge and understanding; and consolidation of learning (when it becomes permanent).

Howard-Jones and his colleagues came up with these categories by first gathering teaching practices that education researchers consider effective. They then sought to explain, from a neuroscientific perspective, why those practices work. Their teacher training program includes these neuroscience explanations, and the brain regions involved in each of the identified categories. The rationale is that an understanding of the underlying mechanisms gives teachers extra opportunities to improve their practice. Teachers can use their enhanced knowledge of these categories to think about why different techniques they have tried in the classroom worked well or didn’t work well.

Kendra McMahon and Pete Etchells from Bath Spa University have taken a different approach in deciding what teachers might benefit from knowing about the science of learning. An interdisciplinary team is working together to design and trial resources that provide teachers with information about educational neuromyths (misinformation about how the brain learns). Here, the main aim is to ensure that teachers are able to critically analyse classroom programmes that claim to improve learning.

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McMahon and Etchells describe this as a ‘critical consumer stance’. The team are also considering how best to present learning sciences evidence to the teachers in their programme. They are aware that teachers in training will be in need of specific actions and ideas to try in the classroom,
in addition to an ability to spot neuromyths.

These initiatives are new, and they will need to be tested. We don’t yet know the best principles from neuroscience to help teachers. The evidence base will continue to change as we find out more about the mechanisms underlying teaching and learning, so the programmes will need to be updated over time.

But both of these approaches seek to empower teachers – the more teachers understand, the more they can analyse their own practice as well as information presented to them from elsewhere. While an understanding of neuroscience is not essential for teachers to be effective in the classroom, an appreciation of some simple concepts may help. Teachers who have the ability to reflect on their personal practice, and to take an informed scientific approach in evaluating educational claims, will be able to encourage the best learning in their students.

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