

Getting brain cells working

Image from research by David Hay (King's College London).

How can we shift undergraduates away from simple reproduction of textbook knowledge?

In a recent paper in *Science Education*, David Hay and his co-workers at King's College London compared textbook images of a brain cell (A1 after Lewellys Barker, 1899; and A2 after an Italian anatomy textbook by Warwick & Williams, 1973) with drawings made by third-year undergraduates (B), PhD students and postdoctoral researchers (C), and laboratory leaders (D). Hay told us: 'The undergraduate drawings were invariably textbook copies, bearing little cultural relationship with the highly schematised and individual drawings of the laboratory leaders. The images produced by PhD students and postdoctoral researchers were not an intermediary stage; these image-types belonged to a separate class of "worker-type" productivity which was neither prefaced by textbook knowledge nor apparently developing towards leadership.'

Teaching interventions were designed to offer undergraduates an experience of life as a neuron cell. For example, the students were asked to perform an 'axon walk', responding to simple life history questions (like 'Have you ever died your hair') by walking different paths towards a target destination depending on whether the answer to each successive question was a 'yes' or 'no'.

This exercise of 'being' brain cells prompted a shift in the drawing stance of students. 'After these, several undergraduates produced brain cell images (E) that were indistinguishable from the signature image types drawn by laboratory leaders,' Hay said. 'This suggests to us that it is possible to shift students from the conceptual trough of knowledge reproduction into an arena of researcher-like experience, after which an exchange about scientific plausibility might occur between research leaders and their students.'

