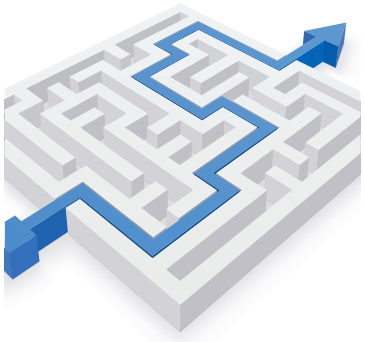
Five common misconceptions about learning

They feel right, but are they? Greg Ashman debunks the myths.

1. NOVICES SHOULD EMULATE EXPERTS

Experts have a vast amount of content knowledge that enables them to perform differently. It is easy to underestimate the scale of this. A key finding of cognitive science is that experts and novices benefit from quite different types of instruction. Novices benefit from complex ideas being broken down into smaller steps and then having these steps explicitly taught. Experts learn better by solving more open-ended problems and conducting investigations.



2. META-COGNITION IS A SHORTCUT TO EXPERTISE

It would be great if we could find a way to develop expertise without students having to learn and practise all of the boring stuff. Perhaps we could teach general strategies which can be used in a range of situations. This way, we could teach students 'how to learn' and they can apply this to anything they need to learn in the future. The evidence suggests that some strategies can be explicitly taught to students and confer an advantage. However, they tend to provide a one-off boost which continued drilling doesn't seem to improve on very much.

3. EDUCATION MUST BE PERSONALISED

Imagine a tour operator running trips to Greece. Of course, the tour operator needs to take account of where people are travelling from so that she can organise planes. But she still has to get them to Greece. It would be a poor tour operator who told people not to bother going there and to go for a walk around their home town instead. Students need to be able to read, write and do basic mathematics. These are functional skills that society demands and that are often most effectively taught through whole-class, interactive teaching. Reading comprehension requires a large amount of general knowledge and not just knowledge that is of personal interest to a particular student.

4. YOU UNDERSTAND CONCEPTS BETTER IF YOU DISCOVER THEM FOR YOURSELF

In one seminal study, students were randomly divided into two groups. The first group were explicitly taught the scientific principle of controlling variables. The second group were given investigations to complete in which they had to figure this out for themselves. Fewer students in the second condition learnt the principle. However, those that did learn it were no better than students from the first group at evaluating science fair posters. There was no advantage to discovery.

5. KNOWLEDGE-BASED EDUCATION IS BORING

Educationalists often suggest alternatives to fact learning. In a recent book, David Perkins made the case for tasks where students engage in, "Project-based learning in mathematics or science, which, for instance, might ask students to model traffic flow in their neighbourhood or predict water needs in their community over the next twenty years." Set against this, a whole-class discussion of the extinction of the dinosaurs or the battle of El Alamein or whether Macbeth is a misogynistic play all seem positively in-tune with teenagers' interests.

This article is based on a 'Filling The Pail' blog post: https://gregashman.wordpress.com/2015/05/16/five-common-misconceptions-about-learning/. You can read a much more detailed discussion of these ideas in the ebook, Ouroboros, which is available via the Filling The Pail blog.