

# Teaching is complex: Don't try to simplify what teachers do

September 23 2014, by Ian Mitchell

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There are no lab rats in education research, we have to develop new techniques in the classroom. Credit: AAP

Prominent educator Stephen Dinham [recently made some criticisms](#) of primary teaching, some of which I support, but some were too simplistic. His views on educational research and his criticisms of "process" versus product fail to acknowledge the complexity and nuances of developing skilled teaching.

## There are no "lab rats" in education research

In the 1960s and '70s, [educational research](#) into effective teaching was dominated by neat "scientific"-looking approaches imported from other areas of research. To test the effect of an approach such as "discovery learning" (where students "discover" ideas and answers for themselves rather than being told by a teacher), a treatment group – where the teacher used discovery learning - would be compared with a control group.

Differences in context and differences in the ways the [teachers](#) interpreted and enacted the approach being researched were seen as sources of error to be controlled by careful matching of the two sample sets. This seems neat, but, by around the end of the 70s, more sensitive research showed that the group of teachers who said they were using "approach A" varied in what they were doing.

While these differences were often subtle, they were extremely important. Hence conclusions that began with words such as "discovery learning does/does not ..." were often open to serious questioning.

Research shifted to explore the differences in what teachers were doing in ways that were more qualitative and ethnographic and that also reflected growing understandings of the subtlety and complexity of skilled teaching. Dinham's address does not reflect these crucial shifts in research on classrooms.

At one point, for example, Dinham argues for a "scientific" approach to education research that varies only one variable at a time and tests for the effect of this change. This works fine in science, but in classrooms different aspects of teaching are interdependent. It is often impossible to change one and assert that everything else was unchanged.

He also criticises teachers who experiment on their children with untested strategies. This is nonsense. Unlike medicine, there are no rats in education and any new approach must be tried with real students.



This is a pictogram of a novel about convict transportation. As they read the book, the students made decisions about what was important in each chapter and how to represent this. For example they decided that the convicts being kept very close together in the bottom of the boat was important; they knew nothing about aspects of rigging and decided that the crow's nest was important to include. The result is very dense because it reflects this metacognitive thinking.

In fact, protocols for teacher quality specify that good teachers are regularly exploring ways of improving what they do. The rapid and constant growth of technology is an obvious area where teachers need to

be experimenting constantly.

The above provides a context for Dinham's repeated criticism of "discovery learning" as having been found by research to be less effective than other approaches. There are two problems here.

First, a term like this has a 50-year history and is now used in many different ways by different people. You need to specify which definition you are using.

Second, this is an example of an area where teaching has not stood still. In the '60s, when discovery learning appeared, with students working in groups at their own pace, often with hands-on materials, it was assumed that if students were interested in the activities (they commonly were), then they would also be engaging with the questions and ideas behind these. But research showed that typically the students were not even aware that these questions and ideas existed.

Discovery learning needed to be enriched by approaches where students learnt to think about why they were doing an activity and what could be learnt from it; they needed to learn how to learn more effectively – to become more metacognitive. I have worked with hundreds of primary teachers and report that the phrase "minds on not just hands on" is widely understood and supported.

## **Learning how to learn is just as important as what you're learning**

This leads me to my second problem with Dinham's address. He criticises primary teachers for being unconcerned about any need to teach particular content, at least in subjects such as History or Science, and being more concerned with students being engaged in an active

learning "process". My current research is suggesting that, in Science, this can be true. However, Dinham trivialises "process" by failing to recognise that it is crucial to unpack how the students are learning.

He criticises a primary classroom where students were asked to research an aspect of Australian history by creating a digital animation of what they found. The teacher did not correct the students for having Captain Cook as leading the First Fleet when he was already dead at this time.

I agree that the teacher should have got the students to check their facts here, but the more important issue is the way the students were (or were not) processing and re-arranging information they had found. Were they merely drawing a pretty digital picture or were they reflecting on what was important in what they had read and thinking how to represent this?

This links back to whether or not the students had learnt how to learn – something Dinham derided. My (primary teacher) colleagues Jill Flack and Jo Osler spent years researching ways of improving the ways their students learn.

They were critical of just asking students to draw a picture about a book or story they had read; they might ask [students](#) to construct a "pictogram" where that picture had to reflect the key events and issues in the book. This required considerable analytical thought about what was important and then how to meaningfully represent this on one page. Superficially this might look like drawing a picture, but it required high levels of metacognition.

There is always room for improvement in teaching, but I strongly disagree with Dinham that "we need greater control over and surveillance of teachers".

Rather we need better structures - both to support and to learn from

teachers who are experimenting with better ways of stimulating effective learning. To me, some of Dinham's criticisms reflected thinking from earlier eras and were distant from much current good practice.

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