# 53 Powerful Ideas All Teachers Should Know About

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### Students have limited attention

If you were to watch closely while someone scanned a radar screen or was involved in some other passive attention task, then you would see that they cannot do this indefinitely without losing concentration, and without their performance dropping off markedly. This may happen after only 10 or 15 minutes. People whose job requires this kind of passive attention need to take frequent short breaks or to engage in a different mental activity every so often, or they simply cannot maintain adequate levels of attention. It is not a matter of willpower but the way the brain seems to work.

There is much less, and less convincing, research on student attention during lectures than there is for air traffic controllers – presumably because the consequences matter a lot less! But what research there is suggests that passive attention in lectures – primarily listening and taking notes that record what is said or presented visually – is somewhat like watching a radar screen. After as little as 15 minutes performance drops off markedly. Physiological measures or arousal drop off. The proportion of units of information uttered by the lecturer that are recorded correctly in notes drop off alarmingly to a level that makes it seem hardly worth bothering taking notes at all. The proportion of questions that students can answer correctly, drawn from different parts of the lecture, show a rapid decline over the first 15 minutes, then a flattening off at a very low level of recall, with a final increase just before the end of the lecture. This is not a magical effect of improved performance after 55 minutes. If you shorten the lecture this increase happens just before the end no matter what the length of the lecture is. One study showed students a video of themselves as they sat in a lecture and used this as a prompt afterwards to ask students what they were thinking about at that point in the lecture. 20 minutes in to the lecture a frequent form of thinking was categorised as 'irrelevant thoughts' – such as wondering what to have for supper - with less than 5% of thoughts being about the content of the lecture.

I have had the experience of sitting entranced through a wonderfully engaging lecture and hardly noticed the hour pass, glued to every word throughout, in a cocoon of sustained concentration. Some lectures and lecturers can do that, for at least some of the audience some of the time. However this is not a common experience, for me or for anyone else, and for students sitting in one lecture after another it is rare. I have also found my mind wandering off after as few as 5 minutes into a lecture and have found myself falling asleep not long afterwards. I remember one lecture I was in as an undergraduate in which the person next to me woke up suddenly, knocking a pile of books noisily to the floor,

and this set off a chain reaction across the lecture theatre as it woke up others in a widening ripple of disruption, bringing the lecturer to an embarrassed halt. Data reported about human attention is always an average, across different people in different contexts. Some lecturers will manage better than 20 minutes attention much of the time for many students. And some will manage much less for most students, most of the time.

When I was first involved in teaching development in 1980 lectures were a central plank of almost every course and dominated students' experience. There was a formal proposal went to Oxford Polytechnic's Academic Board from the Education Faculty, based on research evidence about attention, that suggested all lecture timetable slots should be only 30 minutes, as any longer was largely a waste of time. The proposal got thrown out, but sparked a good deal of debate.

Instead of the logistical nightmare of students changing rooms every 30 minutes there are alternative strategies to ameliorate the otherwise relentless decline in attention and learning performance. The '30 minute lecture' slot' proposal gives us a clue. It assumes that if students get a short break after 30 minutes, during which they walk to another room and chat on the way, then their performance would be relatively high at the start of their next lecture, perhaps only 5 minutes later. And in fact this is exactly what the research evidence suggests happens. If you take a passive break, just stopping paying attention for a short time, then attention performance recovers to an extent (before dropping off again, of course). If that break is active, involving a new and different and engaging mental task of some kind, then the recovery is quicker and bigger and attention will be maintained afterwards for longer. In lectures this might involve asking students to tackle a short problem, or discuss a question in threes, or review their notes and ask any questions that arise from them - in fact almost anything other than more passive attention will help. The extent of recovery of attention performance is not total, and how long attention can be maintained afterwards is no better than before, and may well be less. But the gain in total performance (learning in this case) from taking an active break greatly exceeds the lost learning had the same amount of time been spent continuing to lecture while students were not attending. Two or three such active breaks in a one hour lecture, adding up to perhaps ten or fifteen minutes between them, ought to have a very positive impact on total learning.

In one sense this phenomenon simply reinforces the general principle that understanding and learning are generated by students constructing meaning themselves, not by teachers trying to convey meaning. During lectures teachers cannot guarantee that what students are doing is constructing meaning, so it helps to introduce periodic learning tasks that require such active construction.

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