Encouraging Active Learning In Lectures[*]

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Abstract

The passivity of students in lectures and large group teaching sessions has long been observed and criticised. In response some have argued for the abolition of this form of teaching. However, expansion in Higher Education, increases in student numbers and a desire to maintain face to face contact does seem to be a little at odds with this view. In fact, it seems that, for the foreseeable future, the lecture will remain a cornerstone of the tertiary education experience and many students will continue to spend considerable amounts of time sitting amongst, perhaps hundreds of, their classmates in a tiered lecture theatre, as an important part of their studies. The view expressed in this article is that most of the good things about lectures can be extended and expanded upon and most of the bad things can be reduced or erased by getting the students to play a more active and interactive role in the larger group teaching sessions they attend. Although this sounds a very simple idea the practice usually turns out to be a little more difficult to achieve. In particular, a simple thing such as introducing a quiz, or a discussion task, into a lecture actually challenges both learners' and lecturers' attitudes alike on three important questions:

• What are lectures for?

• What should good teachers do?

• What should good learners be doing?

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1. Introduction

The passivity of students in lectures and large group teaching sessions has long been observed and criticised (Butler 1992). In response some have argued for the abolition of this form of teaching (Woolcock 2009), claiming that the lecture is outmoded and no-longer fit for purpose in a modern HE/FE education system, indeed, that it is being replaced by smaller group teaching, blended learning and podcasted teacher inputs. However, expansion in Higher Education, increases in student numbers and a desire to maintain face to face contact does seem to be a little at odds with this view. It would appear that rather than 'getting rid' of large group teaching many Universities are building bigger and more technologically advanced lecture theatres. Most students will still spend considerable amounts of time sitting amongst, perhaps hundreds of, their classmates in a tiered lecture theatre, as an important part of their studies. The lecture remains a cornerstone of the tertiary education experience (Lammers & Murphy 2002).

Those in favour of the traditional lecture argue that it enables teachers to model ways of thinking in their disciplines, to tailor explanations to the needs and backgrounds of their students and to provide relevant examples from their professional/clinical practice, research and personal experience (Burgan 2006). However, even these positive individuals usually also acknowledge that the didactic nature of such teaching can encourage a surface and strategic approach in their students. Such an approach is typified by the common query, *'Will this be on the exam?'* and often leads to responses to exam questions that appear to simply 'regurgitate' particular lecture inputs. An additional teacher / lecturer concern arises from the difficulty in pitching material at the right level to meet the needs of an increasingly diverse student group. We worry that we are boring the most able or experienced students in our classes whilst at the same time baffling and overwhelming others.

From the student perspective lectures seem to be very efficient – an expert in the field has collected, selected and collated information and ideas that provide an informative narrative on the subject in question. Gaining such an overview would certainly take considerably longer to obtain if a 'novice in the field' were to be left to their own devices in the library or typing keywords into Google or Wikipedia. The expert in question may also be able to inject their enthusiasm and interest, bring the topic to life by lifting it off the page through their insight and experience. Then there is the help a lecture course provides by structuring learning, supporting effective study and time-management and facilitating a sense of being part of a learning community. Meeting fellow learners before and after the 'event' provides students with a ready opportunity to discuss and respond to the ideas and concepts highlighted in the class and clarify things that are not yet clear.

The view expressed in this article is that most of the good things about lectures can be extended and expanded upon and most of the bad things can be reduced or erased by getting the students to play a more active and interactive role in the larger group teaching sessions they attend. Although this sounds a very simple idea the practice usually turns out to be a little more difficult to achieve. After all students could be coming to lectures expecting that their

teacher will be doing all the talking, not them and may well feel that their participation is, at best, unnecessary or, at worst, undesirable. For example, if a student feels that the reason for going to lectures is to get a good set of lecture notes to revise from then you can see that asking them to chat to their a neighbour about something or getting them to answer a question or do some experiential learning task is all a bit of a waste of time isn't it? Therefore, a simple thing such as introducing a quiz, or a discussion task, into a lecture styled class actually challenges our learners' attitudes on three important questions:

- *What are lectures for?*

- *What should good teachers do?*

and crucially,

- *What should good learners be doing*?

No wonder it usually isn't quite so easy.

2. Arguments for including interactive elements in lectures

There are many reasons why teachers wish their students to be more engaged and participative in lectures and these do vary from discipline to discipline and the role of the lecture in the particular curriculum (Crowe & Pemberton 2000). For example, If the lecture is viewed as the place where students receive information that needs to be first understood and then remembered, then interactions can be seen as ways of supporting both of these goals. Interactions (setting questions or learners completing individual tasks) can be included as ways of helping students to comprehend complex issues and concepts in the first place. Interactions may also be used to help students consolidate their short term memories and later be more readily able to retrieve them from long term memory storage. By including tasks that require students to review information within half an hour of hearing about it (Broadbent 1970) and apply new knowledge, (during or) straight after lectures, researchers such as McQueen et al. (1994), reported in (Bligh 1998), have shown the long term value of asking students to undertake processing and rehearsal activities during and immediately after lectures. This may take the form of a short quiz or a quick review task that requires pairs of students to address the question, 'What are the three most important ideas presented in the lecture. Explain your reasons for choosing them'.

Alternatively if lectures are viewed as a place to stimulate, enthuse and motivate learners to want to go away and find out more then the research studies that focus on measuring levels of student interest during lectures are very relevant. For example Johnstone and Percival (1976) looked at the attention of students in 50 minute lectures and their work gave rise to the widely noted 'rule of thumb' that students begin to lose attention between 10 and 20 minutes into the lecture. Others have measured particular student traits such as note-taking activities (Scerbo et al. 1992), heart rates (Bligh 1998) and test results as ways of trying to measure levels of learner interest. Absolute results do vary significantly due the impact of the learning context and lecture environment. In general students attend in lectures better at the beginning of the week rather than at the end, in the morning better than in the afternoon, and in comfortable

physical environments, not too hot, not too cold and free from distracting background noise etc. However, the take home message from these studies tends to reinforce the message that:

> … a lecture of 20-30 minutes is long enough unless there is varied stimulation.

> Bligh (1998 p56)

However, the reality is that in many Universities and Colleges the teaching time-tables are frequently scheduled to run for one or even two hours' duration and so it does become very important to discuss the nature of what Bligh's 'stimulation' could be.

In simple terms lecturers have it in their power to vary stimulation in three domains; what students hear, what they see and what they do (Exley & Dennick 2009). So I will consider each of these in turn.

Firstly, when asked to consider experiences of being in 'the worst lecture you can remember' students and teachers alike commonly refer to the 'monotone lecturer' who was unable to vary the pitch and presentation of their spoken voice. The use of silences and pauses, lowering and increasing the tone of the voice, introducing lecturer debates and conversations or introducing taped recordings and music etc., are all ways we can affect and vary the auditory experience of our learners.

When secondly thinking about the visual stimulation of our students it is clear that advancements in technology have supplied a wide range of possibilities for us to consider. For example we can incorporate video and movie clips, use PowerPoint slides, diagrams and graphics, show pictures and photographs and link to the internet etc. Again disciplinary differences are very obvious – for example in the sciences, medicine and engineering subjects a lecture without visual aids would be a very rare experience. However in some Arts and Humanities lectures, it is more common to come across the purely oral tradition in the lecture, here visuals are often used much more sparingly. Using and integrating visuals in a lecture can provide a helpful reinforcement for the spoken word. However, for some learners (some non-native English speakers, those with hearing difficulties and those who are particularly visual in their learning style preferences) the use of visuals is more than a helpful addition and is a very important part of the communication itself.

Thirdly – varying what students do in a lecture – can be the most daunting and demanding for a teacher to consider. We take a risk when we loosen the grip of control and share some of the 'airtime' with our students. The bigger the class the greater this risk feels. We have to be very convinced that the potential benefit is really worth the effort of pushing at our comfort zones. However, many teachers remain firmly convinced that the effort is very worthwhile:

> They (students) will remember what they do in your lectures much better than what you tell them. Plan at least three things for them to do in any hour.

> (Race & Pickford 2007, p.77)

Race and Pickford go on to talk about the use of interactive windows to check understanding in lectures. This involves the teacher stopping their delivery and inserting an opportunity for the students to process and think over what has been imparted so far, which may involve working through a brief instructional task.

In addition to the view that interactions can aid students to better understand and remember presented information – interactions can also be seen as a way of adding breadth and depth to lectures. For example, asking students to first consider their own response to a 'buzz' question before going on to discuss it with a peer may result in students sharing different points of view or challenging each others' assumptions and 'first thoughts' on a topic. This is a very helpful approach when the subject matter isn't a set of facts to be learnt but ideas to be considered – where there isn't a right or wrong answer but an 'argued' position. It may also be extremely useful when your 'audience' of students have mixed backgrounds and experience, e.g., some have work or clinical experience that they can share with peers who don't. Thus leading to real peer supported learning and providing an immediate chance for learners to check out their understanding and perspective. Additionally if the teacher were to then ask for some response or feedback from the students s/he could gain much greater insight into their needs, interests, misconceptions etc. All of which give further scope to tailor the lecture to better match the students' level and abilities. However, it has to be recognised that actually getting a response back from students in a large lecture may be the most difficult of things to actually achieve. Ways that this can be done will be discussed a little later.

A common challenge for the modern lecturer is how to lecture to a class that includes students with a wide range in interest, ability and/or experience. Finding the level at which to pitch the lecture presentation is really difficult when you know that, goldilocks style, for some it will be 'too simple', for some 'too complex' and for the group in the middle, hopefully, 'just right'. Here again a craftily designed 'interaction' can enable all to participate at their appropriate level of engagement. For example, give a set of three related questions, one introductory, one intermediate and one more advanced, and give the students a few minutes to consider them in pairs. Alternatively set a straightforward, individual task that asks students to apply what you have just taught them – and then add a 'tricky' little critiquing or evaluating question that will provide an added challenge.

3. The practicalities

Managing in-class interactions requires thought and planning, especially as the class size increases. How to up-scale approaches that work brilliantly with 20 students is usually a matter of fine-tuning the detailed planning. For me this involves thinking about the answers to the following questions:

- Why do I want to include interaction in this lecture? What are the goals of the interaction? (To motivate, to apply ideas, to give feedback to the teacher etc.)

- How do I want the interaction to take place?

   – At what point(s) in the lecture? (Beginning, middle or end?)

- – How long will it take? (Two minutes or fifty minutes?)

- – Will the students work on their own or with others? (Solo, in pairs, in trios or small groups? It usually depends on the seating arrangement.)

- – Will all the students do the same activity? (e.g. Will half the class consider 'Why'? And the other half consider 'Why not'?)

- • Do I need to get feedback, or a response, from the students after the activity?

- – If 'yes' how can I encourage that response?

- – How will I use the feedback from the students? (Do I need to respond to it or integrate it into the rest of the lecture?)

My *top tip* in trying this for the first time would be consider incorporating the task or activity, as a set of instructions to the students, in a lecture handout. If class size makes this problematic, then at the very least present the task instructions on a slide or written on the board/flipchart. Giving the instructions both visually and orally helps to get students started more smoothly, provides clarity for all (Grace & Gravestock 2008, pp.79-94 Chapter 4) and helps them to keep focused and stay on-task.

4. Hearing back from the students

Speaking out, to answer or ask a question, in a large lecture is an incredibly daunting thing to do and it is really not very surprising that only the bravest and boldest souls would ever consider doing this (I certainly never did as a student!). So if we really do want to hear back from students in lectures it is very worthwhile thinking about some different ways of inviting this response. Again technology has come to our aid – the 'who wants to be a millionaire' style response handsets or 'clickers' are very effective in this regard (Exley & Dennick 2009). It is straightforward to embed multiple-choice questions within a projected PowerPoint slide and ask students to press buttons in order to 'vote' for their favoured response (Draper et al. 2002; Draper & Brown 2004). The computer software can rapidly process the class data and present it back in a variety of formats, e.g. pie-charts, bar graphs, tabulated data etc. The 'clicker' handsets look like mini-versions of television remote controls and work using similar technology, so are very simple to use. Researchers are now comparing the benefits of working with the handsets in different ways. For example, Nicol and Boyle (2003) have been investigating the impact on learners of two different methods of sequencing discussions – answering questions individually first then discussing with colleagues (Mazur sequence) versus having small group discussions first before asking individuals to vote (Dufresne sequence). There are of course a number of practical considerations – the cost of buying a set of keypads, how to hand them out and get them back at the end of the lecture, the additional time it takes to become familiar with the system and write questions etc. These factors may well inhibit some teachers who might be looking for other ways of encouraging interaction and communication in their lectures. A low cost alternative may be to make use of the technology most students have in their back pockets, i.e., their mobile phone. Jones and Marsden (2004) were some of the first to ask their students to respond to questions and send free-text

comments to them in lectures via standard SMS.

My personal favourite of the 'low-tech' options is to act as a 'roving reporter' and move around the lecture theatre as students are working on the task, collecting some of their views. It is the lecturer who then draws the task to an end by relaying some of these responses to the students. This avoids the need for students to speak out in the class but it does allow their 'voice' to be heard. I think it is important to credit the students whose comments I share with the group and I have often found that this approach starts a 'ball rolling' and that other students then seem more invited/encouraged to add further suggestions of their own.

5. Conclusion

There is no doubt that embracing an interactive style in lecturing is challenging for teachers and may, initially, fly in the face of student expectations. That said, I have certainly found it rewarding and continue to believe that it has benefits for the majority of learners in the majority of situations. Feedback from students and colleagues who have moved in this direction, also further convinces me that seeking to make lectures places of interaction, thinking and learning rather than transmission and note-taking will assure their place in the curricula of tomorrow. We will in fact have answered the question, "Why should students come to lectures when they can download the lecture notes and listen to the podcast?". The 'added-value' will be clear to everybody.

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