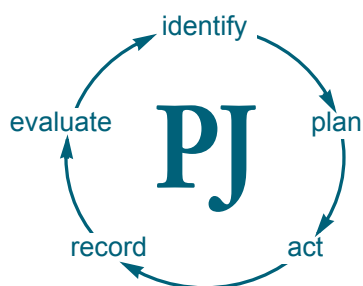


# TURN A DULL LECTURE INTO AN UNFORGETTABLE LEARNING EXPERIENCE

By Yvonne Perrie, PhD, MRPharmS

Winston Churchill said: "I am always ready to learn, but I do not always like being taught."

This article looks at ways to facilitate learning



## identify gaps in your knowledge

1. List three factors that underpin effective learning.
2. Describe two active learning techniques.
3. As a tutor, how can you implement active learning?

This article relates to the Royal Pharmaceutical Society's core competency of "training skills" and the teaching competency in the syllabus for academic pharmacy (see "Medicines, ethics and practice — a guide for pharmacists", number 26, July 2002, pp105–7). You should consider how it will be of value to your practice.

Nearly all pharmacists will, at one stage or another, assume the role of a tutor. The topics and circumstances will vary, from counselling patients on effective inhaler technique and training staff to use a new system, to teaching students about the roles of surfactants in drug formulation, but there is always one common goal: effective learning. That is to say the successful acquisition and application of knowledge and understanding.

A number of learning styles and models have been proposed to describe the way people learn (ie, activists, reflectors, theorists and pragmatists),<sup>1</sup> but implementing effective learning involves more than recognising different learning styles. Phil Race, the author of 'The lecturer's toolkit', demonstrates this by suggesting we think of something we have successfully learnt and then of how we achieved this.<sup>2</sup> Try this for yourself and compare your thoughts to responses collated by Race<sup>2</sup> (see Panel 1). Typically, few of us will attribute merely listening or reading about a topic as the key factor underpinning effective learning. The factors most commonly listed are practice and feedback, which allow us to make mistakes and learn from them.

Another ingredient of successful learning is motivation — it is difficult to teach someone who does not want to learn. However, rarely can we be enthusiastic about every subject and a driving force behind motivation is often the need to learn something rather than the desire to learn it. Few of us want to tackle the complexities of programming our videocassette recorder, for example, but unfortunately we may need to. Panel 2 lists other factors that motivate learning.

Attention and concentration can be influenced by various factors including the style of information delivery, the time of day and, probably most importantly, our interest in a topic. Unfortunately there is, in many cases, little a tutor can do about the

subject that must be addressed, but it is the tutor's responsibility to explain the relevance of a topic (eg, how a new ordering system works may not be seen as a highlight of everyone's day but using the new system could make life easier) and appear animated and enthusiastic about it, in order to generate a "want to learn" climate.

Jonathan Edwards, Olympic gold medallist, wrote in an article describing one of his schoolteachers as inspirational and a key motivational factor in his success: "An academic, deadpan approach does not work; it is so important when a teacher enthuses about a subject."<sup>3</sup> We may not all be Olympic medallists, but many of us will remember a teacher or lecturer who, in the course of their class, motivated our learning. Take a few moments to recollect how this person achieved this and identify how you could use this technique in your role as a tutor.

So during training or educational sessions, the responsibilities of the tutor are not only to convey correct and relevant information, but also to motivate and provide time for practice and positive feedback to allow us to learn from our mistakes. In short, tutors should create a climate for action and interaction. Further, by fostering student participation and facilitating student-student and student-tutor interface in a session, interest and energy levels can be boosted.

## PANEL 1: RECOGNISED FACTORS UNDERPINNING EFFECTIVE LEARNING

- Practice or repetition (hands-on experience")
- Trial and error (learning from mistakes)
- Help or feedback from others
- Enjoyment

## PANEL 2: FACTORS THAT MOTIVATE LEARNING

- Encouragement
- Need (eg, to pass examinations)
- Positive feedback
- Enjoyment of the topic
- Achievement of goals
- A good classroom or group atmosphere
- A competitive environment

## CREATING AN ACTIVE LEARNING ENVIRONMENT

It has been recognised in Johnstone's information process model for learning<sup>4</sup> that applying new knowledge allows data to be processed and stored in the long-term memory with feedback (eg, via tutor-student or student-student interaction) confirming or improving student understanding and confidence.

To achieve this, the student should be actively engaged in the educational session: he or she should be given the opportunity to

Dr Perrie is a lecturer in pharmaceuticals at Aston Pharmacy School, Aston University, Birmingham, and a member of the Institute for Learning and Teaching in Higher Education

**PANEL 3: ACTIVE LEARNING METHODS**

**Gapped hand-outs** Supporting hand-outs eliminate the dictation component of a course (which adds little to the learning process), but using hand-outs with gaps and asking students to summarise elements or complete graphs, tables or diagrams based on information they have been given is a useful way to involve them in the acquisition and understanding of new information.

**Quizzes** Intermittent short quizzes, based on information presented, are a useful way of actively involving students and providing practice and feedback.

**Snowballing** Snowballing starts with a simple task for an individual (eg, identifying a problem). Then working in pairs, a slightly more complex task is addressed (eg, suggesting strategies to resolve the problem) and, lastly, by forming larger groups (eg, four to six people) a more in-depth task (eg, assimilation or evaluation) is undertaken.

**Fish bowls** There are many variations on the “fish bowl” method. Generally, an issue with many viewpoints or potential solutions is raised. A few individuals who represent different viewpoints form a small group within a larger circle (fish bowl) comprising the rest of the class and only those in the small inner group surrounded by the fish bowl can express and defend their opinion. A process of substitution between fish bowl members and the inner circle is established (eg, when an inner group member’s points become repetitive). Another student can act as the substitution mediator.

**Brainstorming** Encouraging the group to call out potential problems or solutions to an issue and writing these on a flip-chart or overhead allows a variety of different ideas to be gathered. To encourage participation, rounds can be used (see text).

**Pair dialogues** Pair dialogues involve working on a short task in pairs and each student taking turns to present, without interruption, their views or solutions to their partner.

apply newly acquired knowledge and develop their skills, and the tutor should be permitted to address any gaps in understanding that come to light. Practice is a key to learning — you do not learn to ride a bicycle by reading a book on the mechanistic principles of human two-wheeled propulsion. During practice, both tutor and student must be able to detect when things go wrong and reflect on them so that errors or misunderstandings can be addressed and rectified.

In group situations, a variety of techniques (eg, debates, case studies and role-playing) can be adopted to help involve the learner in an educational session but, as recognised by Hurd,<sup>5</sup> some approaches are in more danger of going wrong than others. For example, even starting your session with a joke can be risky (your humour may not match that of the audience), therefore the choice of activity adopted should depend on the type and size of the audience and on the style (and bravado) of the tutor. Panel 3 describes some active learning methods.

It is likely that you have, at one stage or another, been subjected to one popular method known as “rounds”, a low risk, easily manageable exercise. Rounds involves each individual around the room offering in turn a view or comment on a given topic to the group. People commonly (or perhaps too commonly if you are a frequent course attendee) use rounds as valuable ice-breakers with group members being asked to give their name and say what they want to gain from the course. This can help to establish group interaction, participation and the objectives of the group. Other methods for ice-breaking and fostering interaction are listed in Panel 4. However, bear in mind that the technique chosen can set the tone for the session ahead and it is important that these methods are frequently refreshed to avoid the technique becoming stale.

Rounds can also be used as part of the winding-up of a session, when you can receive feedback from the students and gauge how

effective the learning process has been (eg, were there any areas of misinterpretation?). However, be sure you leave enough time to address adequately any problems raised or you could close your session with some poorly resolved issues.

It is worth noting that rounds can be daunting for less confident students, especially within larger groups. Also, within a large group rounds can get boring because answers become repetitive, so it can sometimes be helpful to ask individuals to write down their points on overhead acetates. This allows the tutor to collate them quickly and present all similar answers once. This way, all views can be presented quickly and shy students are helped to be involved.

**SMALL GROUP ACTIVITIES**

Small group teaching is commonly perceived as providing a more effective learning environment than the larger lecture style forum because there is greater scope for direct tutor-student interaction and more active learning methods can be managed easily in this setting. By dividing a large group into several smaller groups (ranging from pairs to groups of six or seven), teaching techniques better suited to small groups can be applied.

Careful selection of the group size is imperative and often depends on the overall size of the class, the facilities available and the desired task. Pairs are good for small tasks and can be useful when a stronger student can help a weaker one but, on the flip-side, small groups can fall foul of idle, domineering or absent members. As group size increases these problems decrease but the likelihood of a “passenger effect” increases,<sup>2</sup> with a group member withdrawing from the activity and hiding behind more productive members. Indeed the greatest risk associated with group work is non-participation.

“Buzz groups” can also be used to create student interaction and active learning.<sup>2</sup> These are small groups (two to four members ideally but larger numbers can be effective if managed stringently) that are given a short, timed task that involves them discussing an issue or solving a problem and then sharing their thoughts with the whole group using a flip-chart or overheads. Within this set-up the tutor’s role is as follows:

- Clearly define the task
- Let the groups know the time limit
- Suggest that each group selects a spokesperson to report its findings and a recorder to keep time

During the buzz session the tutor should also circulate, providing help and motivation where required. On occasions, groups can fragment or stray from their given topic and the presence of the tutor can help refocus the group on their task. When using buzz groups in a large class it can be beneficial to set groups different tasks to avoid repetitive reports and to maintain interest levels.

Writing a short paper such as a “minute paper” can also facilitate thinking skills and promote the learning of a topic.<sup>5</sup> For example,

**PANEL 4: ICE-BREAKERS**

- Ask people to work in pairs and introduce each other to the group
- Ask small groups to work out the answers to a quiz or a sheet of puzzles
- Ask people to introduce themselves to the group by sharing one thing that they hate
- Ask people to find three things they have in common
- Ask people to line up in order of birthdays, but without talking
- Ask everyone to give three facts about themselves, two true and one false — the others have to guess which is false
- Pass around some Smarties or M&Ms. After this, people have to say one thing about themselves for each sweet taken. You can also colour code, so yellow could be a cheerful thing and red could be an embarrassing thing
- Before the session, make up a list of descriptions (eg, can swim 10 lengths, can tap dance, has a cat, has been to Africa, etc) — the group must find one person for each of the descriptions



*Working in pairs prompts students to help each other with difficulties*

students are given a focused assignment to write in a short period (eg, between one and five minutes). This technique can rejuvenate the class when energy levels and concentration dwindle and can be a good source of feedback for the tutor, but with large numbers feedback can become difficult to manage.

#### LARGE GROUPS

Large group teaching in the form of lectures stems from times when there were few books and knowledge transfer involved taking notes from information read out to the group.<sup>2</sup> Nowadays, the ready availability of information in textbooks and other sources means that this traditional purpose no longer applies. However, the role of the lecture in pharmacy education remains important in that it allows face-to-face contact and interaction between the lecturer and large student groups. This interaction lets the tutor convey passion for a topic, identify and respond to the needs of the group, offer students feedback and encouragement, provide guidance through the wealth of information available on a topic and, most importantly, incorporate active learning. Indeed recent investigations conducted at the University of Georgia College of Pharmacy, United States, indicate that the final examination results of students who attended class regularly were about 9 per cent higher than those who attended less frequently suggesting, according to the authors, that lecture format education continues to be of benefit in pharmacy education.<sup>6</sup> However, it should be recognised that this may depend on how the lecture slot is used.

It is reported that the attention span of most people in a lecture is about 20 minutes.<sup>5,7</sup> Several techniques can be adopted in a large class to break up a conventional one-hour lecture into a series of

### action : practice points

1. Think of something you are good at and then how you became good at it. Compare your thoughts to representative responses summarised in Panel 1.
2. Do you remember a teacher or lecturer who, in the course of their class, motivated your learning? Take a few moments to recollect how this person achieved this and compare them with the factors in Panel 2 (p754). You should see some commonality between these and your own thoughts. Now identify which of these you can use in your role as a tutor.
3. In the next educational session where you are a tutor, try out a new active learning method.

### evaluate

How could your learning have been more effective?  
What will you do now and how will this be achieved?

bite-sized sessions that fit within our 20-minute window of concentration. However, careful planning is essential for successful large-group activities. Gapped hand-outs and quizzes can work well with large student numbers because they can easily and effectively involve the whole group. Another method that I have found to work well in large groups uses a three-stage approach: initially the students do a short multiple-choice quiz on their own; the pause technique<sup>4</sup> is then used, where students turn to someone near them to explain why their answer is correct; and lastly the students are asked to display their chosen option (eg, A, B or C) on a sheet of paper. This voting method is more effective than simply asking the students to raise their hands because it encourages full participation throughout the group. Furthermore, as a tutor you can quickly gauge responses and provide effective and directed feedback to individuals while involving the whole group. For variation you can ask the whole audience to stand up, then present a statement and ask those who think the statement is true (or false) to sit down. It is a good method to get a class going when energy levels are low, but if you feel getting the entire group to stand is too challenging, you can simply use thumbs up or down instead.

#### SUMMARY

Hurd<sup>5</sup> reminds us of an old Chinese proverb: "Tell me and I forget. Show me and I remember. Involve me and I understand." Active learning strategies are an effective and fun way to stimulate activity, interaction and learning. Although this article suggests a few easy-to-use techniques that can be applied to various extents in both small and large groups, many more suggestions and techniques are available.<sup>2,4,5,7-9</sup> I hope that these initial suggestions will provide a platform for variation, adaptation and incorporation into practice. The key to using active learning methods is to cultivate them, based on your own experiences both as a student and a tutor, to a level of risk and complexity at which both you and your students are comfortable. How you implement an active learning strategy is as important as the activities you choose, and these will improve with practice.

**ACKNOWLEDGEMENT** I gratefully acknowledge the peer review sessions and numerous corridor discussions between myself, Aston students and colleagues that have provided invaluable input and feedback on active learning techniques used in my courses.

#### REFERENCES

1. McGuire R. Find out about learning styles to learn and teach effectively. *Pharm J* 2001;267:53-4.
2. Race, P. The lecturer's toolkit (2nd ed). London: Kogan Page Ltd; 2001.
3. Edwards J. My best teacher. *TES*. 2001;(July 27):24.
4. Byers W. Using questions to promote active learning in lectures. *U Chem Ed* 2001;5:24-9.
5. Hurd PD. Active learning. *J Pharm Teaching*. 2000;7: 29-47.
6. Ruenitz PC. Large class student-centred pharmaceutical science instruction: is classroom attendance necessary? Does performance affect course assessment? *J Pharm Teaching*. 2000; 8:3-18.
7. Bonwell CC, Eison JA. Active learning: creating excitement in the classroom. ASHE-ERIC Higher Education Report No 1. Washington, DC: George Washington University School of Education and Human Development; 1991. p2.
8. Race P. 2000 tips for lecturers. London: Kogan Page Ltd; 2001.
9. Fry H, Ketteridge S, Marshall S. A handbook for teaching and learning in higher education — enhancing academic practice. London: Kogan Page Ltd;1999.