

5 How to be a table instructor

—Ian Harris, Robert D Fox

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6 How to give a lecture

—KokSun Khong, Lisa Hadfield-Law

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5 How to be a table instructor

1 Introduction

Although the knowledge gained from lectures and discussions underpin the development of skills needed in the operating room, it is the hands-on experience with the equipment that results in success.

- ■ **The table instructor serves as coach, mentor, and facilitator of learning as course participants strive to master the processes and tools of surgery. He is the first line of contact for the course participants during the practical demonstrations.**

It is unlikely that any course participant would be able to perform and understand the practical exercises (practicals) with only the video demonstration and supervisor's comments. It is the table instructor's role to see that the participant understands the concepts and is able to perform the tasks that are put forward, and that they carry that knowledge with them back to the operating room.

The role of the table instructor is to supervise activity at one table during practical demonstrations. A table will usually have between four and eight participants and, if the number is large and manpower allows, there may be two table instructors per table. The table instructor is usually a surgeon with some experience using the equipment and techniques being demonstrated. The techniques will vary depending on the type of course.

The central value of the table instruction is the opportunity it presents for learners to integrate experience with cognition. Adult learners depend on experience for learning; experiences they have had in the past and experiences they have while learning in the present [1, 2]. The ability to remember and apply what was learned at the program depends on the extent to which the information can be associated with past experiences—and therefore dependably stored in the memory—and the extent to which it can be translated reliably into practice behavior.

- ■ **It is the experience at the table, coaching by the table instructor, and reflective interaction that characterizes this kind of the learning experience that transforms learning into actions at the point of care.**

The practical demonstrations and attempts at practice are important parts of any course. They require careful planning and good communication and coordination between the practical director and the table instructors, and good communication between the table instructors and the course participants.

Just as experience with the processes, techniques, and equipment allow course participants to store and recall information from their long-term memory, interaction and feedback at the table assure better practices upon return to their regular practices [3]. Interaction allows the course participants to see the interrelationship

between actions and interpret and evaluate their performance based on feedback [4]. Interaction—particularly among participants—also provides emotional support during the trial and error needed to refine skills. Finally, interaction provides for self-assessment of knowledge and skills so that limits are identified and future self-directed learning is guided and directed. Clearly, learning will be facilitated more effectively with targeted and constructive interaction of course participants among themselves and with the table instructor.

This chapter will cover the responsibilities of the table instructor before, during, and after the course. Interspersed are explanations as to why this is important and how it affects learning and change.

At the conclusion of this chapter, the reader should be able to:

- Facilitate learning of critical concepts and surgical skills by participants.
- Supervise the hands-on instruction provided during the practical exercises with the equipment.
- Link current learning objectives to learners' past experiences to facilitate remembering of concepts and skills.
- Assist learners to be able to apply what they learn back to their practice environment.
- Facilitate interaction among learners and between faculty and participants.
- Assist learners to set goals for future self-directed learning efforts.

2 Before the course

The main tasks of the table instructor before the course are directed towards:

- Familiarization.
- Growing comfortable with the process.
- Preparing for the teaching/learning transaction.

One should be familiar with the surgical equipment and procedures of the practical, but also with the video presentation and supervisors' plans for the practical.

2.1 Familiarization with the surgical procedures

It is likely that you will be familiar with the type of procedures being demonstrated, eg, femoral nailing, but it will be helpful if you examined your own technique before getting to the course. Many people can perform intramedullary nailing with little effort (and hopefully good results) but may not be conscious of each step they are taking and will, therefore, not be able to communicate that to others. This is because your knowledge may be tacit, known to you in a way that allows you to use it but not known explicitly. Schön [5] refers to this as knowledge and skills that are embedded in actions rather than consciously thought through.

- ■ **The challenge of the expert table instructor is to make their implicit knowledge explicit so that it can be transmitted to course participants.**

Also, many surgeons pick up various habits along the way that may or may not be useful. Depending on your equipment and facilities, you may have adapted previously taught techniques over time. These techniques may vary from that being taught in the practical, and may in fact be poor techniques. Regardless of their usefulness, introducing them to participants who are unfamiliar with the basic principles of the procedure may be harmful or even contradictory to the technique being demonstrated. At best, they may confuse the participant.

■ ■ **Making tacit knowledge and skills explicit allows for examination, reflection, and refinements before you attempt to transmit them to the course participants at your table.**

The best way to grow familiar with the techniques being demonstrated at the table is to refer to the AO textbook covering the topic, eg, the “AO Principles of Fracture Management”. Use this to self-audit and self-correct before you face course participants at your table. The video to be used during the practical should also be viewed prior to the course. This may be difficult if they are not at hand. In North America videos can be viewed through the eRoom system. In many countries CD-ROMs of the practical exercises are distributed to faculty members with the precourse material. If you have difficulty in obtaining a video you can contact AO International or the local representative of the industrial partner. At present, the Internet is a variable resource: watching streamed videos is time consuming and the presence of firewalls often makes it impossible. The opening of the AO portal in 2005 may improve this situation.

2.2 Familiarization with the surgical equipment

The equipment and implants used at your institution may differ from those used in the practicals. You may use a completely different system or a different version of the same system. If you usually use a different system from the one being demonstrated, you will need to view and lay your hands on the right equipment. If it is not available at your institution, your local AO or industrial partner representative should be able to arrange for you to spend some time familiarizing yourself with the equipment.

If you are using the same equipment, it is likely that the equipment used during the demonstrations will vary in some way. This is due to updates in some equipment, as well as international variations. The equipment should match that seen in the instructional video, but to be on the safe side, this should be confirmed.

2.3 Connection with the course chairman

The course program will usually undergo several revisions before being finalized. You should make sure that you have the final version of the course program and check the topics, dates, times, and directors of the practicals to which you are assigned. Also take note of any communication from the course chairman. The educational work that happens at the table is part of an overall plan. Knowledge of that plan can help you foster the integration of learning from other venues with the practice you are facilitating at the table. When planning your travel, make sure that you arrive in time for the precourse meeting.

3 At the precourse

All of the faculty members (including practical directors and table instructors) should be at the precourse meeting. It is helpful to get acquainted with members of the faculty and other demonstrators. This will make any discussion necessary during the course much easier.

During the precourse meeting, each practical exercise will be discussed and the practical director will outline the learning objectives and the timetable for the practicals. If you are not provided with a handout of the practical outlines, then you should take notes during the discussion.

Preview the workstations and find out how many participants and table instructors will be at each table. You can also get an idea of how much room there will be, what your view of the video will be, and where the practical director will be based.

If you have not already done so, it may be helpful to preview the videos at this time but time will be limited, and this is best done prior to arriving at the course. You may also be able to preview the instruments, bones, and implants that will be used.

4 During the course

4.1 Get to know the participants at your table

Before the practical commences there are usually a few minutes, when the course participants are at the table before the session starts. This is the time to start to get to know them. You are their first point of contact throughout the practical exercises and familiarization will improve communication at the table and also make the process more enjoyable for you and the participants. Introductions and name tags are useful. Asking questions about their background as well as allowing them to talk will also make it easier for them to ask questions later, and it will provide you with valuable information regarding their level of knowledge and experience with the techniques being taught.

One of the most useful outcomes of preliminary contact is to allow for an informal needs assessment. This is especially important since needs and motivation are intertwined [6].

■ ■ **Learning needs may be thought of as the discrepancy between what is and what ought to be. This discrepancy creates a sense of unease when it is large enough. The unease, essentially a low-grade anxiety, generates a drive to reduce the discrepancy between what is and what ought to be. Although this discrepancy may be real or perceived, it is the perception of the discrepancy that charges motivation.**

Thus, if you can identify and assist the course participants to identify areas of discrepancy between what is

and what ought to be, you can increase their attention and motivation to learn essential knowledge and skills. On the other hand, if you identify areas where they experience little discrepancy between where they are and where they ought to be, these areas may not receive the attention they may deserve. This is particularly important when their perception that they are where they ought to be is incorrect or their perception of where they are is incorrect.

■ ■ **The feedback and interaction you foster at the table can correct misperceptions and cause the unmotivated to become motivated to learn [7].**

Not only will interaction with course participants make it easier for them to ask questions and for you to teach them, but they will be more likely to ask questions if they are comfortable with you. Many participants at courses feel overwhelmed or embarrassed and will not ask questions. This limits their understanding of the topic and makes the experience less satisfying. You can foster openness among course participants by not only getting to know them, but also showing them you are approachable. Comments such as “There is no such thing as a stupid question”, or “If there are any points that you don’t understand, please put up your hand straight away and let me know” will make it more comfortable for them to ask questions.

Adults are oriented to problems and are self-directed by nature. Most of what physicians learn reflects this orientation to independence and preference for learning around practical problems rather than concepts [8]. Engage your course participants on this basis, and they will not only increase their knowledge retention but also enhance their sensation of the “AO spirit”.

4.2 Reinforce the demonstration

The practicals are usually run in segments. For example, a 12-minute video on intramedullary nailing may be broken up into five segments (chunks): entry point creation and guide wire insertion, reaming, nail insertion, nail locking, and nail extraction. After each segment of the video, the practical director may add some comments before the participants start. It is useful for the table instructor to spend 1 or 2 minutes going over what the course participants are to do during that segment, to reinforce the steps and to ensure that each of the steps and the principles involved are understood (Fig 5-1). This is best done at the beginning, because once the air-powered drills start, communication is usually limited to surgeon pairs, rather than the whole table, due to the noise of the drills.



Fig 5-1 It is of utmost importance that the table instructor explains the steps shown in the video and discuss the principles involved before the course participants start with the hands-on exercise.



Fig 5-2a–b Controlled supervision during the exercise is important—but do not step in too early, let the course participants discover their own mistakes. Coach them in a way that they are able to retrieve the stored knowledge and skill later in their operating room.

4.3 Controlled supervision

Schön [5] encourages teachers to act as coaches, encouraging learners to gain experience while being prepared to direct their reflective processes as they learn. Once the course participants begin, watch for any technical errors or any participants who cannot proceed and may need help. However, you must avoid the temptation to step in too early and do the exercise for them, or to quickly tell them the correct way and then move on. It is very helpful for the course participants to discover their own mistakes, so comments such as “Where do you think you may have gone wrong here?” or “How could you have done that differently?” may be used. Allow them to “discover” the right way of doing things as much as possible as this will provide better retention (Fig 5-2).

■ ■ Practice is a fundamental principle of learning.

Practice is a fundamental principle of learning. It is essential to memory. You are teaching a skill that must be stored in memory so your ability to make the most of the practice time at the table is critical to success. Remember that learning is cyclical and interactive. Kolb [9] described learning as a dialectical process moving from having a “concrete experience” drawing “reflective observations” about the experience, making an “abstract conceptualization” for storing and retrieving information, and active experimentation with the new competency. Coach them with this cycle in mind. Interact with them in a way that helps them to store this knowledge and skill for retrieval later, in their own operating theater.

4.4 Maintain control over the timing

The practical exercises need to run to a tight schedule (**Fig 5-3**). This will be partly the responsibility of the practical director, but for each segment, you will need to make sure your group is able to complete their tasks on time. Don't spend too long talking to them, and if they are too slow, you may need to help them through some of the time-consuming steps so that they are prepared for the next segment.

Conversely, don't let any of the course participants go too far ahead. It is usual for some of the surgeons to be faster than the others, but if one pair goes too far ahead, they may find that they have used an incorrect technique. In any case, it may cause frustration amongst the slower surgeons.



Fig 5-3 In order to keep time control, it is very helpful to have the running time displayed on screen during the exercise.

4.5 Ensure participant comprehension

Participants may find themselves mimicking the procedures on the video and end up with a good result, but will not understand the concepts behind the procedure. This can be elaborated during the group discussion between presentation of the video and the hands-on for each segment, but, if in doubt, a question like “Do you understand why we did it this way?” may be quite revealing. As mentioned earlier, guided reflection about their experience is an excellent way to help them get it right and understand why [10].

There is often a break at the end of each practical, so the course participants should be asked if they understood the session or if they have any questions at the end of the session. They may feel more comfortable asking questions (and you may feel more comfortable answering them) without the pressure of time constraints that exist during the practical exercise. This is the part of learning from experience Schön [5] refers to as “reflection on actions”. It is essential to incorporating the new competencies into their patterns of practice.

4.6 Stick to the script

It may be tempting to “show off” your knowledge about a particular technique by demonstrating alternative techniques, which you may use. Although the intention may be to increase the knowledge of the participants, the effect may be otherwise. In fact, this kind of approach may result in the alternative knowledge interfering with the primary knowledge and skill the session is designed to foster [3]. The techniques described have been carefully designed to allow the course participants to retain them and reproduce them without error, add-

ing alternatives to the recognized techniques may confuse the surgeons, if not at the time, then later when they try to reproduce them at their own institution.

4.7 Feedback to course participants

At the end of each session, it is useful to provide some feedback to each of the surgeons. It is helpful for them to know that they have completed the practical satisfactorily. Your comments should always be supportive, even if you wish to highlight some areas of weakness. An appropriate comment might be “You did that exercise well, but don’t forget to countersink interfragmentary screws that do not lie in a plate”.

■ ■ **Feedback is essential in all learning situations because it allows course participants to edit and correct the knowledge and skill, making their memory and their performance better. Physicians want feedback on their performance and they will see this as an excellent opportunity to get it.**

However, remember that feedback given poorly is not helpful to learning [4]. Consider their feelings of vulnerability given the public nature of the learning experience and the presence of peers. Also, remember that you want them to be “self-correcting” in their surgical practices so feedback should not only guide, but also explain.

4.8 Keep an eye on the rest of the practical: problems and how to deal with them

It is helpful to see how other groups are proceeding. It may give you some idea of how to pace the practical,

and you often see the same mistake occurring at several tables, which you may want to bring to the attention of your group. In the following the most common problems during a course are described and solutions offered.

4.8.1 Nonattendance of course participants

The practical exercises are an important part of the course and certification of course completion or CME credit cannot be given if a course participant does not attend the practical exercises. You should have a list of which participants are expected to be at your table and if there is a course participant absent you should attempt to contact them and let the course chairman know.

Some participants may feel that the practicals are unnecessary. If this is the case, the importance of the sessions should be explained to them, and it should be pointed out that even experienced surgeons can gain a lot from the practical exercise.

If a course participant refuses to attend the practical exercise, then the matter should be handled by the course chairman.

4.8.2 Lack of experience with certain procedures or implants

If you are unfamiliar with the procedure being demonstrated the course participants will know. It will diminish their learning for that procedure and they will have a lack of confidence in your ability for the other practicals. It is better to be honest in these situations and say that you are unfamiliar with that particular technique. Working off the video, or asking a fellow instructor will usually ensure that teaching is not interrupted.

4.8.3 Participants with poor understanding

Occasionally, a course participant will have persistent difficulty understanding the topics discussed, despite explanation. This is most commonly due to language difficulties. It may be helpful in these cases to explain the concept at a slower pace at the end of the practical exercise. Enlisting the help of a fellow countryman with better language skills may also help.

4.8.4 When there is more than one instructor

When there is more than one table instructor per table, the instructors should decide how they are to manage the group before the first practical. It is usually easier to divide the table in two, with each instructor having their own group, but each continuing to be available to the others if required.

4.8.5 Course participants going too far ahead

Timing is difficult in practical exercises but occasionally some surgeons will race ahead of the others, especially if they have some familiarity with the techniques. It should be suggested that they do not go on to the next segment before it is presented, as they will understand the procedure better if they perform it after it has been explained. If they complete their tasks early, ask them to observe a colleague and be prepared to provide feedback if requested by the instructor.

4.8.6 Spending too long with one course participant

Instructors should be careful not to spend much of their time on a particularly slow or demanding course participant to the detriment of the other surgeons. If a participant requires more supervision than usual, you may need to spend time with them at the end of the session.

5 After the course

After the course, feedback to others involved in the planning and instructional processes of the course may be useful. You may wish to give feedback to the course chairman and practical director regarding aspects of the practical exercises that went well or could be improved such as particularly difficult sections, timing or equipment problems. You should also ask the practical director for feedback, they will usually be patrolling the floor during the practical exercises and may have some advice for you.

The most important feedback may come from the course participants. It is helpful to ask them if they thought the practical exercise went well, or if they had any comments regarding any aspects of the practicals, not only regarding your performance, but any general points, which you may want to pass on to the practical director and course chairman.

6 Summary of principles of effective coaching for table instructors

Working as a table instructor will be effective if you stay close to some fundamental principles of this kind of teaching and learning.

- The most important part of the course is the direct experience of the course participants. It is the basis for incorporating all knowledge and skill into real-life surgical practices.
- You are a coach as they attempt to master the knowledge and skills. You need to be trusted in this role for not only your competence as a surgeon, but also your competence as a person. You are a role model for the course participants, and it is in this way that you can change their attitudes and their skills.
- Interaction is the key to storing this knowledge and skill in the memory in a way that is retrievable when they are “back home”. Interaction helps the course participant to associate this experience with existing competencies and practices. It is fine-tuning but also intellectual practice at storing and retrieving what is needed to perform successfully.
- Your knowledge is tacit, embedded in your actions. You must make your knowledge explicit, visible to the learner, so that they can understand it, practice it, and store it.
- Motivation is driven by the ability of course participants to compare present knowledge and skills with required knowledge and skills. Your ability to give feedback in a way that enables course participants to see where they are and where they ought to be is fundamental to enhancing motivation to learn.
- Like most adult learners, these surgeons are independent, practical, and problem-oriented in their approach to learning. However they must also be reflective. They must know why, not just how. Coaching means directing, correcting, and explaining.

The role of the table instructor is central to success for this program. It is a point of integration and the basis for reflection for the other components of the course. It depends on your surgical, educational, and interpersonal knowledge and skill. Be transparent in what you do and teach them in a way that makes them want to learn.

7 Anecdote



During a basic course that involved international participants, I was table instructor to surgeons from several different countries. One participant did not have good conversational English skills but seemed to understand most of the instructions I gave. It was not until near the end of the first practical exercise, that I realized he had not understood the points I had made and was not able to understand the video. He had been nodding when I explained things to him, but only out of politeness, not because he understood what I was saying. The same thing has happened with patients who have perfect language skills but do not understand the concepts being explained: often course participants will not wish to appear obstructive, impolite, or lacking in knowledge. It is important that you confirm the course participants understanding of each topic—perhaps by asking them to tell you what their understanding of the subject is.

Ian Harris

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