
Ian K Ritchie, Consultant Orthopaedic Surgeon and Director of Surgical Training Royal College of Surgeons of Edinburgh. Ian.ritchie4@btinternet.com

Ladies and Gentlemen.

It is a great pleasure and an honour to be here today. A pleasure because I have had the privilege of spending a month travelling in Africa. It is an honour because I have an opportunity to broaden my horizons that is given to few of my contemporaries. So I must start by thanking the Association of Surgeons of East Africa for giving me this unique opportunity. I also have to thank my employers in Scotland for giving me leave of absence to take up this travelling Fellowship.

I am sure that you are all aware that the Fellowship was founded by Dr Yusuf Kodwavwala, who is here in the audience. He established a charitable foundation in 1985 named after his parents and it is funded from the royalties of his very successful other career as a writer. His mother, Rahima was never given the chance to go to school and sadly died at the age of 37 in childbirth. His father Dawood completed primary education and was able to develop a successful business career that allowed him to educate 6 children. He died of Carcinoma of the oesophagus. The Fellowship was established in the names of Rahima and Dawood in 1987. The purpose of the Fellowship is to allow the Fellow to travel in the member countries of ASEA to teach and lecture and to give this oration at the annual meeting. I have done my best to fulfil this brief and this represents the culmination for me of a month of great experiences and new insights into the practice of surgery.

The title of this oration is surgical training in the 21st Century. It seems to me a rather grand title and I am only too well aware that I am talking to a group of people who are well versed in the thinking about medical education that is current today and more importantly, have a far greater understanding than I have about how to apply these principles locally. If I end up in the position of appearing to teach you what you know already, then I apologize in advance, and that is not my intention. None the less, I think it might be worthwhile to express a personal view on the subject of surgical training from someone who has no great academic expertise, but who has learned about education much as I learned about surgery – by apprenticeship In the next few minutes, I would like to present a brief overview of some of the theory of medical education which helps me understand the thinking behind the changes currently taking place. Then I will take you on a brief journey through my experience of surgical training and then contrast it with the aspirations for the new type of training which is in the process of evolution. From this I hope we can gain some understanding of the rationale for the changes in surgical training taking place in UK. Finally, I will take the liberty of discussing some of the ways in which it might be possible to make use of these changes for surgeons in training in Africa and other parts of the world.

Let me first of all present my credentials. I am an Orthopaedic surgeon in a District General Hospital in Central Scotland. It seems to me a rather grand title and I am only too well aware that I am talking to a group of people who are well versed in the thinking about medical education that is current today and more importantly, have a far greater understanding than I have about how to apply these principles locally. If I end up in the position of appearing to teach you what you know already, then I apologize in advance, and that is not my intention. None the less, I think it might be worthwhile to express a personal view on the subject of surgical training from someone who has no great academic expertise, but who...
expertise, in the process of training surgeons. I am also the Director of Surgical Training at the Royal College of Surgeons of Edinburgh. In this post, I share responsibility for the administration of hospital inspections in Scotland at the level of Basic Surgical Training with my colleague in the Royal College of Physicians and Surgeons of Glasgow.

I have oversight of the inspections of basic and higher surgical training posts abroad and responsibility for College tutors in Scotland and abroad. Thus I also have responsibility for oversight of the Overseas Doctors Training Scheme.

Educational theory

I am sure that, like me you have all been subject to a lot of opinion about various educational theories. If I were to mention problem based learning, performance based assessments and portfolios, I am sure that you will recognize these terms and in some cases you may well wonder what they all mean. I confess to some confusion from time to time as words and phrases change their meaning slightly with use and misuse.

I thought it might be helpful at this point to deal with some of the educational theory that I think is helpful in this area. I hasten to add that it is not exhaustive, but represents an overview of the areas that I have found helpful when trying to rationalize what I do in practice.

Bloom

If we think of learning as an evolving process, then it is helpful to consider Bloom's model of learning which he developed in the 1950's. In this model, the learner starts by acquiring knowledge, the basis of learning. He is able to bring this knowledge to mind as he progresses to the next stage which is comprehension. Here he demonstrates that he has grasped the meaning of the knowledge that he has learned. Thereafter he progresses on to applying the knowledge in new situations with the effect that he is able to solve problems, demonstrate and change processes.

The next stage of analysis is where the learner can break a process down into its parts and understand the organization, see relationships and clarify what is happening. Progress to the higher levels of synthesis and evaluation demand an ability to put parts together to form a new whole and an ability to judge the value of the new whole for its purpose and support that judgement with reason. Using this model, we can follow the progress of the school pupil through the educational processes of medical school and surgical training to the goal of the trained, thinking and evaluating surgeon.

Miller

Having classified the stages of learning, the next thing to do is to find out whether there is any way of establishing that these levels have been achieved. In other words, can we assess progress in the learning process?

In 1990 psychologist George Miller proposed a framework for assessing clinical competence. This has been far reaching in terms of its effect on the thinking of educational psychologists in medicine and surgery. At the lowest level of the pyramid is knowledge (knows), followed by competence (knows how), performance (shows how), and action (does). In this framework, Miller distinguished between “action” and the lower levels.

Work based methods of assessment target this highest level of the pyramid and collect information about doctors’ performance in their normal practice. Other common methods of assessment, such as multiple choice questions, simulation tests, and objective structured clinical examinations (OSCEs) target the lower levels of the pyramid. As experience increases so performance based assessment becomes more important. Underlying this distinction is the sensible but still unproved assumption that assessments of actual practice are a much better reflection of routine performance than assessments done under test conditions.

Much of the work on educational theory has been done in the so called First world, but I believe that the principles apply where ever teaching is done and is independent of resource.

It is much like the principles of surgical practice; namely that the basic principles apply irrespective of circumstance. Surgical infection due to sloppy technique can not be compensated for by high tech theatres and equipment. In the same way, education relies on the basics which start and end with a good relationship between the trainer and the trainee. From this foundation the trainee is encouraged to develop an enquiring mind which does not accept at face value all that is presented to him.
UK TRAINING

Old Style

My understanding of education has been formed firstly by my experience of school in Aden and Mombasa and then in Scotland where it was very clear that the teacher was held in awe, obeyed and seldom questioned. Medical School in Aberdeen in the 1970’s was in many ways an extension of school with a regular and reassuring programme of lectures at which I took copious notes to which I seldom referred again except to cram for periodic examinations. The degree examinations at the end of training were a period when all thought of enquiry about the amazing things I was seeing on the wards and in the outpatient clinics went out of the window in favour of the all-out push to pass the examination. I still remember the feeling of elation (and surprise) at passing. The style was spoon feeding with little encouragement to develop self directed learning.

After graduation, the challenges of learning the day to day business of patient care took over and I believe that is when I learned the most important lessons about the business of professional care of patients. I learned from the example of my role models, the experience of my peers, the guidance I received from the nursing and paramedical staff and most importantly from the patients that I treated. But it didn’t feel like learning as I had become used to experiencing it. It was some of the best and most exciting times of my life. Looking back on it, I feel it was a bit like taking a newly cast object out of the mould and then knocking off all the rough edges and extra material to produce a more useful piece of work. I wonder if this is what Skinner meant when he wrote that “education is what survives when what has been learned has been forgotten” This is the area of Application and Synthesis in Bloom’s taxonomy.

I soon came back to earth when I had to relearn how to learn in order to pass the examinations for the Fellowship of the Royal College of Surgeons of Edinburgh. Please believe me when I say that was a struggle. I still wake up at night in sweat thinking about the prospect of meeting an examiner the following day. Over the past 3 weeks, I have met people in Uganda, Kenya and Malawi who have all been experiencing the same sensations. It is truly the stuff of nightmares!

The tragedy is that all that time spent learning results in a surgeon who knows an awful lot for a short time. Most of the theory vanishes into the recesses of the mind and is retrieved with increasing difficulty with the passage of time.

There is another problem with examinations. At the end of this process, no-one knows whether I can do the job of being a surgeon. There is no doubt that I have sufficient knowledge at that point, but no formal assessment has been made of my abilities as a practising surgeon. Once the hurdle of the examination is out of the way, the true learning starts again.

I have good memories and bad of my training. The good outweigh the bad such that if the system were still the same, I would not discourage anyone from taking up a career in surgery. So, with some reservations, I am happy with the system that produced me. What about the system that is producing doctors in the UK today? Ever since I began in medicine, I have heard statements like this about me and later about those coming after me: “Things were better in the old days”; “The graduates today know nothing about anatomy”; “They have no idea about patient care anymore – what are they teaching them at medical school these days?” I am sure that you, like me have heard similar things, indeed, in the odd moment of stress, you have probably expressed similar thoughts.

But I have to report to you that the majority of medical school graduates continue to fill me with hope and optimism as they demonstrate a reassuring capacity for hard work, compassion and fun. More than that, I also notice a sense of independent thought and questioning which flowers quickly when fostered. They are well equipped by the new problem based learning systems to go and find the answers to their questions using a wide range of learning and research tools. So it is not all bad.

Going back to my training after obtaining my Fellowship, I found it to be a great learning experience, but it was mostly self directed learning. This was difficult for me because I was used to being spoon fed a lecture. Furthermore, in the practical aspects of elective surgery, I found that I did a great deal of observation of my consultants’ practice as I assisted them and only after quite a time of settling in with the boss was I formally taught to do procedures. When it came to trauma, I received most of my teaching from trainees more senior than me and usually at night.
Thereafter I learned a great deal by that well tried technique of trial and error. I don’t think too many of my patients suffered terribly as a result, but it was often stressful. It was called “Good experience”. I knew I was doing at least satisfactorily if no comment was made, or if the consultants continued to talk to me.

**Current Practice**

Let me contrast that with what a trainee attached to me for 6 months has to endure. We start within the first few days by meeting for an hour to do an initial appraisal. This meeting is confidential, private, uninterrupted and is primarily aimed at setting realistic goals for the period of the attachment. We start by finding out what the trainee has done so far and what they yet need to do. I want to know what his medium and long term goals are. For example, he will sit the Orthopaedic specialty Fellowship exam in 2 years and he wants to learn how to do hip and knee replacements. He needs more exposure to nailing long bone fractures.

In the longer term, he wants to work in a district general hospital with a subspecialty interest in primary hip and knee replacements. In our discussion we will cover aspects of research and audit as well as the knowledge base in the curriculum for Orthopaedic trainees. I will explain my timetable and range of work and then we will agree some reasonable goals to be achieved during the 6 month attachment. For example 2 hip and 2 knee replacements done in totality by the trainee with me assisting him. This and other goals covering clinic work, care of inpatients, research and audit are then written down and form the basis of the learning agreement or contract which we are both bound to honour.

In my view, this meeting is extremely important because it establishes a rapport and the basis for a fruitful working relationship. It also cuts out that prolonged settling in period to which I referred earlier so that the trainee gets into the business of “doing” much earlier.

Halfway through the attachment, we again sit down and discuss progress. If things are going well and he is ahead of schedule, then we can reset the goals to expect greater achievement. If there are problems which have been identified, then this is an opportunity to discuss them and deal with the difficulty. It is an opportunity for positive feedback. I would like to comment further on the subject of positive feedback. We all know that feedback loops act to increase or decrease output. I know from personal experience and observation that if something goes wrong, the trainees are seldom left in any doubt. It is also true that if I make a mistake, I am my harshest critic and I am sure that applies for every person in this room. My observation is that in these circumstances happiness is generally reduced. Further criticism often breeds resentment.

On the other hand, I also know from personal experience the effect on my performance and enthusiasm for the job of a few well chosen words of genuine praise. Happiness is increased. If we accept the premise that no-one in healthcare gets up in the morning with the specific aim of doing harm, then if things go wrong it is most likely due to ignorance, mistake or omission and surely the correct responses for these are education, not flagellation. If we value our trainee colleagues as contributors to patient care as well as people who can help to share our daily work load, then surely the least we should do is openly acknowledge their good work. Why is it that we all find it so hard to say “well done” to our colleagues in training? Maybe we think we are doing it, but I suspect that most trainees assume they are doing OK if no comments are made. It is my ambition to have it widely accepted that praise is a good thing and that it is not a sign of weakness to give praise generously when it is deserved. At the end of the attachment, we have a final formal meeting at which we review progress and discuss the good and the things that we might have done better. It is an opportunity for the trainee to give me his opinion about the way that I have supervised his training. This is not always good news for me particularly if I have been away for a month on a travelling Fellowship!

None the less it is an important part of the process of recognizing that the trainee is not an inferior being, but a highly intelligent adult who can give me insights into the process of training which will benefit me and future trainees. It can only happen if we have mutual respect. These three formal meetings are the bedrock of the training process for me. I commend it to you because I have found it to be a valuable change in my approach to education. They are by no means the only interaction that I have with my colleague, but they form the basis of a stable relationship which allows and encourages learning and development on a daily basis.
In Orthopaedic surgery there are also a number of tools which we use to support the training process and which help in continuing assessment of our trainees. These include a full and explicit curriculum and tools to assess progress and define achievements in practical skills such as specific procedures, and outpatient work. Ultimately, the trainee must be assessed but if the process is explicit and continuous, there should be clear and achievable goals and steady progress in most cases. Equally, if there are difficulties, then these should be apparent early and in most cases can be dealt with relatively easily.

All of these elements are included in the portfolio which is the accumulated evidence that the trainee carries with him to prove that he is good at his job and learning more with the passage of time. The items contained in the portfolio include:

- Learning agreement
- Research portfolio
- Audit activity
- Operative log
- Performance based objective assessments
- Reflective diary of meeting attendance

**Future Practice**

The future of UK surgical training will be different from the past. There will be a reduction in the time it takes to train a "specialist" with the emphasis on competence assessed through performance based assessments and the accumulation of a portfolio of evidence to prove suitability for inclusion on the specialist register and the issuing of a Certificate of Completion of Training.

You will see that the so-called 'holding grades of SHO, registrar and Senior Registrar no longer exist and there is going to be a group of people who will be in non-training posts, but trained to specified levels of competence, which will allow them to perform tasks in the service. There is an expectation that they will be able to move between service and training, but the mechanism for this is not clear yet. Thus it is possible for an individual to go straight through from graduation to CCT as a GP or specialist in a very short time depending on the acquisition of competencies. Alternatively they may take a longer time for reasons such as having a family, travel or other personal reasons, in which case they would go into service posts where they can be more flexible in the way they work.

It sounds good in theory, but it has yet to be tested in practice. It is worth pointing out that this is similar to the way it has been done in various European systems for some years now. So it is possible.

It is interesting to note that there is little emphasis on examinations which test only knowledge and have little to tell us directly about a person's psychomotor skills or attitude and behaviour which are just as important as knowledge and are incorporated in Bloom's higher levels of learning. They can be best seen at work in Miller's pyramid in the upper levels of action where we want to assess performance. The future will be interesting.

**COSECSA Training**

The training systems in Eastern, Central and Southern Africa, are broadly based on examinations supported by local assessment methods which vary from country to country beneath the umbrella of COSECSA and ASEA.

**Local Training**

I have been impressed with the range and quality of the training systems in individual countries as I have been travelling around. I am impressed with the evident enthusiasm of the trainees and the dedication of the trainers. Education is expensive and I have met many individuals who give from their personal resources of time, knowledge and skill to support the training effort locally.

In these local initiatives, it is interesting and encouraging to note that although there is still a lot of support from abroad, increasingly the efforts of local trainers are driving initiatives and programmes and aid from abroad is being used to support these initiatives.

**Fellowship Training**

A recurring theme in all the places I visited was that there is a need for Fellowships for trainees nearing the end of their training which will allow them to gain targeted training in areas of practice which are not readily available locally and which are perceived to be areas which the local service needs to develop. Examples in Orthopaedic Surgery would be Arthroscopic surgery and Joint replacement.

The concern for trainers in Africa is that the current systems, particularly in UK encourage
good trainees to stay in UK rather than return to their home country to provide much needed expertise for their own populations. The reasons for this are complex, but include inadequate salaries at home, and a lack of suitable posts in UK. Often the trainee is trapped doing jobs that are beneath his level of experience if and until he can prove himself suitable to be considered for the highly competitive Specialist registrar posts where he will receive training and ultimately a CCT which will allow him to remain as a specialist in UK. If he doesn’t get that far he finds that he is trapped in a system which pays him well to do relatively undemanding work and by then he and his family are reluctant to change their way of life by returning home with not much to show for a period away of several years.

You can see that this is likely to get worse with the changes underway. Competition for training posts will be stronger and the appointment of UK graduates to these posts will occur at a much earlier stage in their careers. The other posts will be explicitly service posts with no training element to them at all.

Without wishing to be too critical of the National Health Service whose priority is provision of healthcare to the British public, I do think that not enough thought has been given to the effect that the NHS’ need for many junior doctors has had on the health services of nations such as India, Pakistan and some African countries.

It is easy to be critical of aspects of a very complex problem, but I do think that there are unintended effects of the way the NHS has operated in the past. It appears that this may change with the proposals under Modernizing Medical Careers where training post numbers are reduced and the other posts in the NHS are explicitly service posts. I perceive in these changes an opportunity.

**Fellowships Abroad**

If I had the power to effect a change in the NHS which would improve the training opportunities for surgeons in training in Africa, it would be to develop a series of training Fellowships across all specialties directed at providing for the training needs of surgeons from Africa. My proposal, which is no more than an idea, but an idea whose time seems to be right given the changes in the NHS at the moment, is that some of the posts which will be designated as Enhanced Service Appointments should be set aside for training doctors from abroad and out with the European Union.

In order to work, this proposal can not be one way, but would depend on the Fellow providing some service work in return for a salary. However, the other side of the coin demands that the trainee must receive training as specified at the outset. In other words, these Fellowships would be:

- Time limited
- Targeted
- And funded by allowing the trainee to carry out service work within the NHS for a salary.

**Time Limited**

It seems illogical to give a trainee an open ended appointment for training. One never gets to the end of training and there will always be the temptation to extend the training by another few months or years. These posts should specify at the outset the length of time allowed for the Fellowship.

**Targeted**

Before the Fellow leaves his home country, he should know the skill which he is going to learn. The trainer will also be aware of this and early in the Fellowship, there should be a formal meeting to clarify the expectations on both sides and to set explicit goals for the period of the Fellowship.

**Funded**

If the Fellow is contributing to the work of the department to which he is attached, then he should be paid a salary commensurate with the appointment. Clearly, the Fellow has to be able to perform to the required level in order to justify the salary. There is at present an assumption that doctors from abroad in the UK have to settle in and this process is deemed to have happened when they have completed their first job and have a reference from their consultant. This will not work for my proposal, because it is a waste of time.

**COSECSA/ASEA - Sponsoring Body**

Therefore, the systems of training and validation in countries providing the trainee will need to be reliable. To qualify for such a place, there has to be agreement that the standards of training provided in Africa match the requirements of the post to which the trainee will be appointed and there must be some body which will take
responsibility for validating the training so that
the trainer and the institution receiving the
trainee can be confident that the individual
coming to the UK will be of a standard which is
acceptable and more importantly, will be able to
develop in the environment in which they find
themselves. It will not take many mismatches of
expectations in this regard for the whole system
to collapse in disrepute.

**Institutions in UK**

Just as important is the understanding that the
trainer in UK has a responsibility to agree to
train the individual in the specified skills and to
the specified level of experience.

**RCSEd**

The Royal College of Surgeons of Edinburgh
through the ODTS already assists trainees from
abroad to negotiate the bureaucracy of visas and
permits for training as well as GMC registration
and there is no reason why this should not
continue. In addition to this, the RCSEd could
supply the certification and stamp of validation
of the training process which the trainee has
experienced. Of course there would have to be
some scrutiny of the training process which
would ensure that standards are acceptable for
both sides of the training agreement.

**Hospitals and specialists**

The advantage for the Trusts is clear in that the
post is filled regularly with a reliable doctor
who will be giving a worthwhile contribution to
the NHS for a defined period. The consultant
trainer will be happy to continue with this
process if the trainees are of a suitable standard
and will clearly benefit from the targeted
training provided. But of course, the other side
of the coin is that the trainer must provide the
agreed experience for the trainee from abroad.

As I have said before, this must be set down
clearly at the outset, agreed between the trainer
and the trainee and achievements recorded
throughout the period of the Fellowship. The
final part of the agreement involves an external
assessment of the achievements with validation
in the form of a certificate issued by the Royal
College of Surgeons of Edinburgh.

In my view, this would be worthwhile for both
sides of the arrangement and would allow the
establishment of good relations between the
medical professions of both countries as well as
benefiting patients in both countries. This is my
personal aspiration for the Royal College of
Surgeons of Edinburgh and for the surgical
trainees of the future in Eastern, Central and
Southern Africa. Personally, it is a tall order to
achieve this and I think there is a lot of
salesmanship to be done. But I am not
pessimistic. In times of great change such as we
are experiencing in the NHS at the moment,
there are threats to our way of practicing
surgery, but there are also great opportunities.

We should look more closely at the
opportunities. The RCSEd is celebrating 500
years of service to surgery. It has been at the
forefront of standard setting and maintaining
standards. It did not do this by refusing to
change. ASEA has been in existence for 50
years and it produced COSECSA 5 years ago.
There is no sign of stagnation in thought or
action in either of these organizations and I
predict a vibrant future as the profession of
surgery in Africa moves forward in the service
of all Africans.

President, I have been honoured to be the
Rahima-Dawood Traveling Fellow this year and
I have been humbled by the dedication and
enthusiasm of surgeons in Africa. I trust that this
Fellowship will continue and increase in stature
and honour in the world of Surgery. It serves a
great purpose in increasing understanding and
communication. It is a worthy memorial for two
humble individuals, Rahima and Dawood.

Thank You.