"Do One, Teach One": The New Paradigm in General Surgery Residency Training

To the Editor,

We read with interest the article by Picarella and colleagues and their proposed modification of the classic paradigm used in surgical training from "see one, do one, teach one" to "do one, teach one"[1] and would like to provide a British perspective. The "see one, do one, teach one" model of competence is based on the traditional "master-apprenticeship" model of surgical residency training devised by Halsted at Johns Hopkins Hospital in the late 19th century.[2] Although the "master-apprenticeship" model for surgical training has been successful, it has gradually become outdated.

In August 2007 through implementation of Modernizing Medical Careers (MMC), British postgraduate medical training was restructured into a continuous pathway of specialty training similar to the CanMed System.[3] Thus, within the United Kingdom, Halsted's "master-apprenticeship" model of surgical training has now been replaced by a model of the development of competence in which surgical trainees are assessed according to approved standards of the Intercollegiate Surgical Curriculum Programme (ISCP).[4]

The "do one, teach one" training paradigm proposed by Picarella and colleagues is based on declining operative experience as a first assistant resulting from the restrictions in working hours of doctors in the United States.[1] They argue that trainees obtain valuable experience as a first assistant before progressing to the principal operating surgeon. We agree with their views. Indeed, the restructuring of postgraduate medical training by MMC has reduced the length of training in the United Kingdom. Further restrictions in working hours through the compulsory implementation of the European Working Time Directive within the United Kingdom as the Working Time Regulations has also affected the operative experience of British surgical trainees not only in general surgery[5,6] but also in the specialty of plastic surgery.[7]

We would like to highlight a "4-step approach" to teaching a surgical skill taught on a 2-day *Training the Trainers* course, developed by the Royal College of Surgeons of England 17 years ago.[8,9] The 4 steps are as follows: (1) the trainer demonstrates the skill, (2) the trainer explains as the trainer demonstrates the skill, (3) the trainee describes the process as the trainer demonstrates the skill, and (4) the trainee describes the process as the trainee demonstrates the skill.[10] By providing a focused method of instruction, this approach might offer a solution for the reduced operative experience resulting from the legislation restricting working hours in the United Kingdom, Europe, and the United States.

The *Training the Trainers* course uses a hierarchical concept, known as the "pyramid of competence" (Fig. 1), which was first

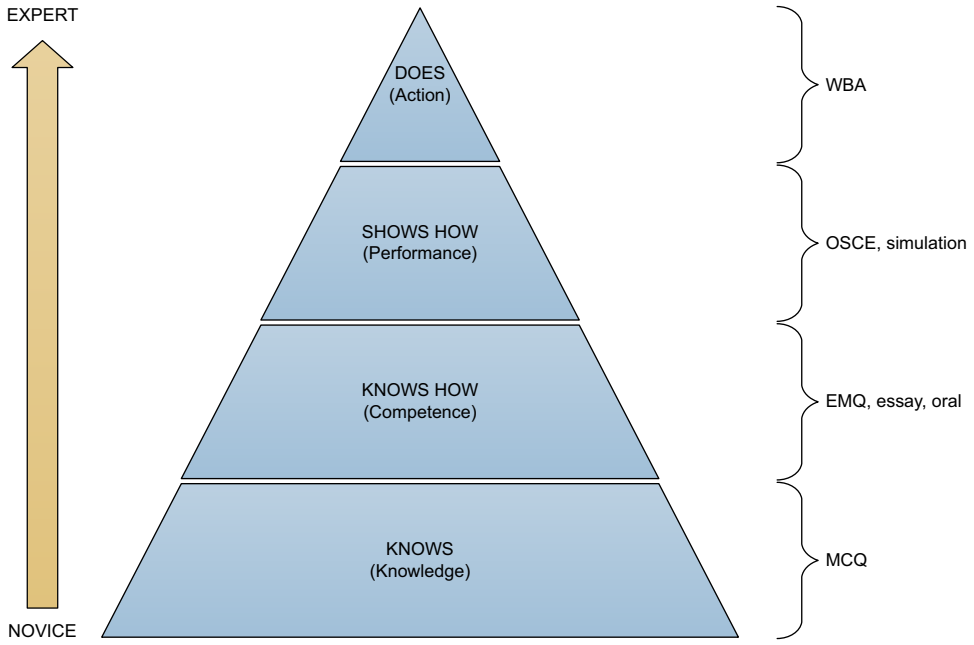

FIGURE 1. Miller's "pyramid of competence." Adapted from[11-13] WBA, work-based assessment; OSCE, objective structured clinical examination; EMQ, extended matching question; MCQ, multiple-choice question.

described by Miller as a model for assessing competence.[11] Each of the 4 hierarchical layers represents a developmental sequence from "novice" to "expert." The stage of "knows" is at the base of the pyramid because it involves the factual recall of knowledge and provides the fundamental basis for being able to perform any skill competently. The surgeon should advance through the higher stages of "knows how" (ie, competence), which represents the application of knowledge to problem solving and decision making, and "shows how" (ie, performance), which requires the surgeon to demonstrate this competence. The final stage of competence is "does" and represents the surgeon's performance in daily surgical practice (ie, action), which is at the apex of the pyramid. Each level in the pyramid is assessed using appropriate methods, as shown on the right of Fig. 1.

We believe that the "4-step approach" might be a useful adjunct to more effective teaching and learning of a surgical skill and demonstrating competence in surgical training. Although Picarella and colleagues have suggested a useful modification of an outdated concept, their solution might be further enhanced by implementation of the "4-step approach" used during the *Training the Trainers* course.

Roger J. G. Stevens
Michaela P. Davies
Department of Plastic and Reconstructive Surgery
Aberdeen Royal Infirmary
Aberdeen, Scotland, United Kingdom
Lisa Hadfield-Law
Education Department
The Royal College of Surgeons of England
London, United Kingdom

REFERENCES

1. Picarella EA, Simmons JD, Borman KR, Replogle WH, Mitchell ME. Do one, teach one" the new paradigm in general surgery residency training. *J Surg Educ*. 2011; 68:126-129.
2. Halsted WS. *The Training of the Surgeon*, vol 15. Baltimore, MD: Johns Hopkins Hospital; 1904:267-275.
3. Modernising Medical Careers; About. Modernising Medical Careers. Available at: http://www.mmc.nhs.uk/medical_education/about_modernising_medical_care.aspx. Accessed June 6, 2011.
4. Beard JD. Assessment of surgical skills of trainees in the UK. *Ann R Coll Surg Engl*. 2008;90:282-285.
5. Chikwe J, de Souza AC, Pepper JR. No time to train the surgeons. *BMJ*. 2004;328:418-419.
6. Parsons BA, Blencowe NS, Hollowood AD, Grant JR. Surgical training: the impact of changes in curriculum and experience. *J Surg Educ*. 2011;68:44-51.
7. Wong M, Jones S, Sheikh H, James N. The effect of the new deal on the operative experience of plastic surgical SHOs. *J Plast Reconstr Aesthet Surg*. 2006;59:311-312.
8. Peyton R. Education for educating surgeons. College has found strong demand for training programmes. *BMJ*. 1996;312:1301-1302.
9. Peyton R, Fry H, Hadfield-Law L, Harris D, Walker M. *Training the Trainers: Module 1: Learning and Teaching*. London: Royal College of Surgeons of England; 2006.
10. Peyton R, Fry H, Hadfield-Law L, Harris D, Walker M. Learning practical skills. In: *Training the Trainers: Module 1: Learning and Teaching*. London: Royal College of Surgeons of England; 2006.
11. Miller GE. The assessment of clinical skills/competence/performance. *Acad Med*. 1990;65:S63-S67.
12. London. Deanery. Faculty development. E-learning for clinical teachers. *What Is Workplace Based Assess*? Available at: http://www.faculty.londondeanery.ac.uk/e-learning/workplace-based-assessment/what-is-workplace-based-assessment. Accessed June 6, 2011.
13. Peyton R, Fry H, Hadfield-Law L, Harris D, Walker M. Assessment of surgical trainees. In: *Training the Trainers: Module 1: Learning and Teaching*. London: Royal College of Surgeons of England; 2006.