

The art of medical education

F. SCHEELE

Professor Medical Education, VU University Medical Centre, Amsterdam, the Netherlands.

Correspondence at: f.scheele@slaz.nl

Abstract

Is the art of medical education just making sure to provide sufficient up to date medical knowledge and a lot of clinical experience? It is much more. The art of medical education is about a teaching program that is designed to serve the community of the near future. The program is the result of a thorough evaluation of societal needs and is capable of influencing the properties of future care. New care professionals who are trained in the program will become instrumental in solving complex problems in health systems. The art of medical education is about the change of traditional ideas of how to cope with these health systems. This change will raise anger and resistance. Effective change management is essential to survive attacks from laggards and to maintain enthusiasm to invest in the health care of the future. Educationalist science provides several important insights that help us find the optimal shape of the program. Good role models and a learning environment that is an example of the intended professional and organisational behaviour, learning by doing, simulation programs, educational tools like e-learning systems, a good assessment and feedback system, and a portfolio to prove and discuss professional progress are all pivotal components of the ideal program. To achieve mastery within the art of medical education, a quality improvement program will be the crown of the process. Medical education is a multifaceted process and so the quality improvement should be. The art of medical education is a great challenge. The health care of your future deserves it.

Key words: Medical education, strategic planning, change management, learning, role model, hidden curriculum, quality care.

Introduction

In several countries medical education, especially in the clinical context, has become part of a process of redesign and change (Scheele et al., 2008). The redesign is based on current insights. However, probably a lot of insights still have to become apparent in the future. The process of redesign and change is an excellent opportunity to gain more knowledge and understanding of medical education in the clinical context. Concerning the art of medical education, in this article, an impressionistic picture is created lacking detail and lacking classical prime educational facts. An attempt is made to have a glance at future developments in clinical medical education.

Strategic planning

Medical education is done for a purpose: To serve health systems for the near future. What are the

prospects of health systems for the future? What does society expect from medical personnel? Which pitfalls are recognized in daily medical care and which solutions for the future can be proposed? What is the right balance in several scales? For example, do we need generalists or specialized doctors? Do we need a focus on a certain group of patients like the elderly? Do we need a focus on certain technologies like information technology? Do we need very creative professionals that thrive in a world of ambiguity and relative chaos or do we need humble, adaptive and disciplined team members in a world where protocols and checklists bring us to optimal performance? The point made is that medical education should be recognized as an important tool in the governance of health systems (van der Lee et al., 2011). The goals for governance of health systems should be the main driving force for a medical school or a clinical learning environment. These goals may differ between high and low resource

countries, between various cultures and even according to persons within one country (Wallenburg et al 2010). Moreover, these goals will change in time. The discussion about the goals for governance in health systems should be a continuously discussed matter.

Complex problems

The discussion about problems in health systems and the description of goals is a complex matter. The provision of health care can be addressed from several different scientific paradigms. Health care systems are an economic burden in several countries. On the other hand prevention or quick handling of health care problems of labourers is of economic advantage. Medical personnel in health care systems tend to create professional societies that protect autonomy of doctors and other care providers. The professional culture of medicine is one of scientific development and making progress in individual treatment. Could we make professional autonomy supportive for some of the governance goals? Representatives of patients and other potentially important discussants should be included in solving complex problems and describing goals for the future of health systems (Caron-Flinterman et al., 2005). Important discussants may come from various scientific fields like ethics, social sciences, economics, information technology and so on. Mono disciplinary solutions are usually much less effective and durable than trans disciplinary solutions (Rosenfield, 1992). Strategic planning for health systems and defining a tactical approach for complex problems is laborious and expensive, but indispensable for mastery of the art of medical education.

Change management

When the goals for governance of health systems have become explicit, a strategy for the use of medical education is the next step. Having brilliant ideas is possible, but making them come true is almost impossible (Grol & Grimshaw, 2003). The science of making ideas come true is the one of change management. This science will help you to prioritize goals, make visible which players are important to deal with, which societal movements or hypes you could use to smoothen the way and which factors may enhance success or may bring failure of the process. Change management is about tactical timing of steps, the use of planning and control on the process and to keep an eye on budgetary risks (Gale & Grant, 1997). The main mistake in educational reform seems to be the use of inappropriate change management. Content oriented persons often

believe that quality will sell itself. Unfortunately, that is not the case. Quality has to be sold by thoroughly planned change management programs. Fortunately, during the process of change management selling of high quality is often easier, than selling mistakes.

When working with clinicians, one of the most important items to take care of during change management processes is the possibility of free enterprise within carefully chosen borders (Maravelias, 2003). Professionals seem to thrive with professional freedom and their initiatives often show of paramount importance for the success of projects. Too much regulation will strangle professional free enterprise and takes out the soul of medical education. Instead of creating dense regulations, change managers should focus on shared visions and stories that tell the ideas of good medical practice. These visions and stories are the skeleton of the change management process and provide global borders for free enterprise.

Learning by doing

Depending on the goals set during your strategic planning, by retrograde planning end terms (knowledge, skills and attitude) essential for your new doctor may be defined. These end terms must find their place in the curriculum of medical education. Medical education is a mixture of theoretical education and practical education. The challenge is to balance a program in such a way that learning by doing is optimally supported by simulation training and theoretical education. Learning by doing is the most powerful learning tool (Teunissen et al., 2007). Blended learning combining e-learning with simulation training and learning by doing should be pursued. Various ways of e-learning like webinars or serious gaming may become very important to enhance learning at the work place (Cook et al., 2010). Simulation training for rare or difficult skills and for team skills is very helpful to support learning on the workplace. Years of merely theoretical training are less effective (but often cheaper) and learning by doing should be regarded of paramount importance. The mastery of the art of medical education is found in medical education management. Good management means looking for the right clinical activities for the needs of the trainee, for the optimal use of simulation trainings and for the optimal support form e-learning in a context of restraints of time and money.

Appropriate clinical exposure in different phases of training

One of the challenges of optimal management of medical education is to provide appropriate clinical

exposure to students and trainees in different phases of their career. Clerks should at least be confronted with patients with clear cases of common diseases. Trainees in obstetrics should start to master the normal delivery before entering more complicated obstetrics. Final year trainees should not spend much time on coaching normal deliveries, but should have abundant exposure of complex operative deliveries and of generic problems like triage during peak exposure of acute patients. Several clinical wards are hard to manage in such a way that teaching will become optimal for the trainee. The art is in exposing the trainee to clinical problems that are ranging from fairly difficult to almost too difficult most of the time. At least every 3 months the trainee and the supervisor should discuss the steepness of the learning curves of the trainee.

Role modelling

Role models have a strong influence on professional development. Role models should continuously get feedback about the messages sent by their behaviour (Lombarts et al., 2010). Role models could be excellent preachers of the goals set for the governance of health systems. When role models do share visions and live the stories that describe the goals, medical education is delivering doctors fit for the future. Sometimes goals do not correlate with the professional culture and role models do not send the desired messages. This is a matter of putting these items on the agenda over and over again and having a long breath. Part of faculty development should be raising the awareness of the responsibility of being a good role model and knowing the desirable messages to show during clinical practice.

Designing the hidden curriculum

The structure of the learning environment must be an example for the planned education in which the goals for the future are embodied. This warrants a continuous observation of the hidden messages that are sent by this structure (Hodges & Kuper, 2012). Does the structure enhance effective inter-professional practice? Does the structure facilitate ethical considerations? Does the structure provide feedback on personal performance and team performance? Does the structure bring in patients for shared decision making? Does the structure enhance patient safety? Does the structure make sure that residents do work they are fit for? Does the structure demand adherence to protocol? Do we have a system for quality assurance? We could discuss hundreds of questions here that could concern chosen goals for governance of health systems. Asking these ques-

tions about your educational work floor is of the highest importance for optimal medical training. The structure of our learning environment could be the most important educator during learning by doing. Ask the questions concerning your goals continuously and redesign the structure until all questions are met. The educational impact will be enormous and the quality of care should improve (if the goals are well-chosen).

Educational tools

Educational science has brought helpful insights to improve medical training, both by curriculum design based on adult learning principles and on the continuous use of effective education. Educational science has evidence for the prominent place for learning by doing and the combination with simulation and (ict supported) theoretical training. For adequate management of education transparency of the learning process is essential. End terms coming from strategic planning, a curriculum on paper and a carefully designed hidden curriculum are the fundamentals to build on. A work place with a good learning climate (Boor et al., 2011) has to be created. Asking help from educationalists in creating a proper curriculum and a good learning climate seems obvious. Moreover these professionals should advise on the use of simulation training and theoretical (e-) learning.

Faculty development is needed to assure the proper attitude of the clinical staff and to distribute knowledge about clinical assessment and feedback (Schofield, 2010). Active learner courses for trainees are helpful. Trainees are instructed to get the most out of their training time and to use the educational structure in a creative and effective way.

An appropriate assessment and feedback system will ensure knowledge about the progress and learning needs of the trainee (van der Vleuten et al., 2010). Statements of awarded responsibility will help to define the level of competence of trainees and enhance patient safety during the development as a trainee. Step by step the trainee will be awarded more clinical responsibility (ten Cate & Scheele, 2007). The transition to the work as a licensed medical specialist will be optimally prepared by a virtually full responsibility already before the moment of licensing.

The use of a portfolio is helpful (Driessen et al., 2007a). It should contain summaries of assessment procedures, proof of simulations and theoretical education, output from scientific work, the attained levels of competence in a time frame and reflections on the learning process. On a regularly basis (e.g. every three months) the program director discusses the portfolio with the trainee. The first result of this

discussion is proof of sufficient progress of competence within the time frame described in the curriculum. The second result is a logical choice of next training goals. The goals are described SMART. The third result is an agreement about how these goals are going to be reached in the next clinical rotation. An electronic portfolio is advisable to make the collection and integration of assessment data easier (Driessen et al., 2007b). An electronic portfolio may enhance the transparency of the training results. These results mirror off the combination of properties of both the trainee and the educational quality of the training site.

Quality care

The quality of medical education is once more a matter of multi-perspectives (Barnett, 1992). The quality could be regarded from the professional point of view on the care provided on the wards where the training is organised. This quality could be assessed by visitation of delegates from the professional society, but also last year trainees often are aware of the professional value of the content offered in different training sites. The quality could also be assessed from the point of view of educationalists. Measurements of educational climate, of educational performances of individual clinical teachers in combination with interviews of trainees at the end of their rotation would give sufficient information for an internal audit and improvement system. For feedback on educational structures an external appraisal like the EBCOG visitation system is suitable. Subjects are regional, hospital based and discipline based supporting structures for education. Examples are the availability of (e-learning) courses, skills laboratories, and a mentoring system and programmed communities of learners. Another point of view for quality assessment comes from society. It questions whether societal problems are addressed sufficiently in the training post. Examples are the care for the fragile elderly patients, training for cost effective care and safe care, dealing with ethical problems and so on. A final option for quality control is the use of patients as partners in training and patient care. A good system for quality control and an effective program for improvement are the crown on the achievement of mastery in the art of medical education.

Conclusion

The art of medical education will become apparent in an environment where teams of clinicians and

educationalists try to bring in a multi-perspective on teaching. They should give lots of attention to setting the goals for future health care, to the process of change and to the way educational science is optimally brought in to the learning places. Quality care should bring in the ongoing drive for innovation and continuous improvement of the system.

References

- Barnett R. Improving Higher Education: Total Quality Care. 1992 Open University Press, Bristol, UK.
- Boor K, Van Der Vleuten C, Teunissen P et al. Development and analysis of D-RECT, an instrument measuring residents' learning climate. *Med Teach*. 2011;33:820-7.
- Caron-Flinterman J, Broerse J, Bunders J. The experiential knowledge of patients: a new resource for biomedical research? *SocSci Med*. 2005;60:2575-84.
- Cook D, Garside S, Levinson A, et al. What do we mean by web-based learning? A systematic review of the variability of interventions. *Med Educ*. 2010;44:765-74.
- Driessen E, van Tartwijk J, van der Vleuten C et al. Portfolios in medical education: why do they meet with mixed success? A systematic review. *Med Educ*. 2007a;41:1224-33.
- Driessen E, Muijtjens A, van Tartwijk J et al. Web- or paper-based portfolios: is there a difference? *Med Educ*. 2007b; 41:1067-73.
- Gale R, Grant J. Managing change in a medical context: guidelines for action. AMEE Medical Education Guide No 10. *Med Teach*. 1997;19:239-49.
- Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. *Lancet*. 2003;362:1225-30.
- Hodges B, Kuper A. Theory and Practice in the Design and Conduct of Graduate Medical Education. *Acad Med*. 2012; 87:25-33.
- Lombarts K, Heineman M, Arah O. Good clinical teachers likely to be specialist role models: results from a multicenter cross-sectional survey. *Plos One*. 2010;5:e15202.
- Maravelias C. Post-bureaucracy – control through professional freedom. *J Organ Change Manag*. 2003;16:547-66.
- Rosenfield P. The potential of transdisciplinary research for sustaining and extending linkages between the health and social sciences. *Soc Sci Med*. 1992;35:1343-57.
- Scheele F, Teunissen P, van Luijk S et al. Introducing competency based postgraduate medical education in the Netherlands. *Med Teach*. 2008;30:248-53.
- Schofield S, Bradley S, Macrae C et al. How we encourage faculty development. *Med Teach*. 2010;32:883-6.
- Ten Cate O, Scheele F. Competency-based postgraduate training: can we bridge the gap between theory and clinical practice? *AcadMed*. 2007;82:542-7.
- Teunissen P, Scheele F, Scherpbier A et al. How residents learn: qualitative evidence for the pivotal role of clinical activities. *Med Educ*. 2007;41:763-70.
- Van der Lee N, Westerman M, Fokkema J et al. The curriculum for the doctor of the future: messages from the clinician's perspective. *Med Teach*. 2011;33:555-61.
- Van der Vleuten C, Schuwirth L, Scheele F et al. The assessment of professional competence: building blocks for theory development. *Best Pract Res Clin Obstet Gynaecol*. 2010;24:703-19.
- Wallenburg I, van Exel J, Stolk E et al. Between trust and accountability: different perspectives on the modernization of postgraduate medical training in the Netherlands. *Acad Med*. 2010;85:1082-90.