Current issues in medical education

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Summary

Medical education has witnessed recently an accelerated and worldwide trend of change. The race is on for curricula that are relevant, appropriate and accountable. One of the consequences of this is the need for a drastic reassessment of how we devise curricula, and of what models, approaches, and strategies to adopt.

Outcomes-based education is currently offered as an alternative to the content-based approach, which has been criticized by many educational experts in the past. Although this new approach has its detractors, it holds some promise of being able to improve on a current situation that is in deadlock with itself.

There has been a great deal of interest in educational strategies in the last decade. This has been associated with the development of new concepts such as "problem-based learning", "student-centered learning", and "integrated teaching". Each school has to assess each of these strategies and adopt what ever will serve the aims of the curriculum. Similarly, the considerable progress that has taken place in the design and development of instructional materials and instructional technology should be appreciated. This includes, development in computer assisted learning, virtual reality, the use of simulated subjects, e learning, and the new concept of Reusable Learning Objects (RLO's).

Finally, it was realized, with the rapid development in medical education that medical education requires professional training. The assumption that any good medical practitioner has the ability to teach no longer holds and professional training is required.

Key words: *Medical education, Curriculum, Strategies, Professionalism, Instructional material, Humanistic approach.*

Résumé

Récemment, l'éducation médicale a vu une tendance du changement accélérée et mondiale. On se précipite pour réaliser les programmes d'enseigment qui sont pertinents, appropriés et qu'on pourrait prendre comme référence. L'un des conséquences de ceci est le besoin pour une ré-évaluation radicale en matière de comment nous pouvons combiner les programmes d'enseignement, et des plans, méthods et des strategies à adopter.

L'education fondée sur des résultats et actuellement avancée comme une alternative par rapport à la méthode basée sur le contenu qui a été critique par beaucoup des experts dans le domaine de l'éducation au passé. Quoique cette nouvelle méthode ait ses détracteurs, il tient quelque promesse celle d'être capable de réaliser une amélioration sur la situation actuelle qui arrive à une impasse avec lui même.

Il y avait beaucoup d'interêt dans les strategies d'enseigment il y a quelques dizaines d'années. Ceci a des liens avec l'evolution des concepts mouveaux tels que: "apprentissage basé sur des problémes", "apprentissage orienté vers les étudiants", et "enseignement integré". Chaque école doit évaluer ces strategies l'une après l'autre et adopter tout ce que servira les buts du programme d'enseignement.

De même, le progrés remarquable realise er matière du plan et progrès de matériel de l'enseignement et la technologie de l'instruction devrait êntre reconnu. Y compris le progrés dans le domaine d'apprentissage assisté par l'ordinateur, realité virtuelle, l'utilisation des sujets artificiels, apprentissage e et le nouveau concept d'apprentissage des objets d'après Reusable (RLO).

En conclusion, conformement au progrès rapide en matière de l'education médicale , on sait bien que l'education médicale demande une formation professionelle. L'hypothèse fondée sur le fait qu n'importe quel médecin praticien qui est bon est capable d'enseigner n'est plus acceptable, et la formation professionelle est exigée.

Introduction

Medical education has witnessed recently an accelerated trend of change. This change movement is spread across many areas of the world. The American Association of Medical Colleges (AAMC)[1,2] was influential in stimulating the movement of change in the United States and Canada. Similarly, the General Medical Council (GMC) led the change in UK. The document "Tomorrow's Doctor" produced by the GMC in 1993[3] had a major impact on the pace and direction of change in the UK and other parts of the world. These forces and others have led to a good deal of developments in different aspects of medical education. New trends in curriculum development have appeared as
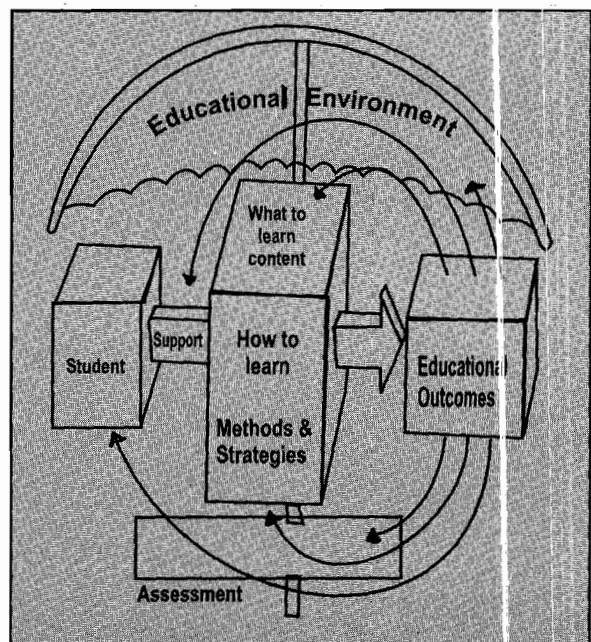

Fig. 1 *A model for the curriculum emphasizing the importance of educational outcomes in planning.*

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a result of these developments. In this article some of these new trends are discussed.

What is a Curriculum

It is important in the beginning to define what the word curriculum implies. It has been recognized that defining curriculum is complex, and although different definitions have been offered, none has been universally accepted. Kelly in 1982[4] described what he called "a loose definition of the curriculum"; namely that curriculum is "all aspects and dimensions of the educational experiences which pupils have during any period of formal education". With this definition in mind it is important to know what the components of the curriculum are.

Tyler suggested in 1949[5] that the curriculum should consist of four fundamental elements: objectives, contents, procedures or methods, and evaluation. This simple and linear model was found to be over-simplistic, both in its components and in the relationship between these components[6]. Harden[7] offered a more developed model both in its components and the relationship between these components and he suggested a more sophisticated approach in planning the curriculum[8,9] (see Figure 1). In this approach, the curriculum is constituted of the aims and objectives, contents and how it is organized, the educational strategies to be used, the teaching methods, the evaluation and assessment methods, the method of communicating the curriculum, the educational environment, and how the educational process will be managed.

Certainly, the educational environment was found to be one of the key determinants of an efficient curriculum, and hence, the inclusion of the educational environment or climate in this model is of particular interest. It has been suggested that the educational environment should be used as an important variable in any proposed quality assessment programs [10].

There were a few concepts that were also found to be important for the proper understanding of the meaning and proper application of a curriculum:

Firstly, it should be realized that the hidden curriculum can have a detrimental effect on the outcome of the curriculum. The hidden curriculum represents those aspects of the curriculum that are not planned and may not even be visible to staff or students. This could be contributed by the structure or the culture of the university. A culture of order and achievement is infectious, and similarly a culture of aggression and cynicism is contagious. Role modeling can be another important component of the hidden curriculum. This is particularly important in reshaping attitudes and values[4].

The other important concept to appreciate is the concept of the planned, the taught, and the learned curriculum[11]. The planned curriculum is the curriculum which was produced and approved by the institution; be it the university, the college or the school. The taught curriculum is the curriculum which was actually applied and taught by the staff. The learned curriculum refers to all aspects that students learned at the end of the curriculum (see Figure 2). This is an important concept to bear in mind on implementing the curriculum and in evaluation. Ideally, the three circles should be coinciding, but in real life there will be some difference. The disparity between the planned and the taught is related mainly to the implementation by staff. This could be because they did not understand satisfactorily the curriculum; they do not agree with the curriculum; they are not qualified to implement the curriculum; or they do not have the resources required for proper application of the curriculum. Therefore, this concept should be appreciated when implementing and evaluating the curriculum.

The other important concept is related to the effect of assessment methods on the curriculum. Wiggins[12] says: "Assessment is central, not peripheral, to instruction. Indeed learning depends on the goals provided by assessment and on the adjustment based on its results". Many experts have emphasized the influence of the assessment on the curriculum [13]. In a practical way the assessment decides the curriculum. Experience has shown that students' way of learning depends on the assessment methods. What to learn, how to learn it, and to what depth depends to a greater extent on the assessment methods. Therefore, the influence of assessment has to be appreciated and should be planned on sound principles to achieve the curricular objectives.
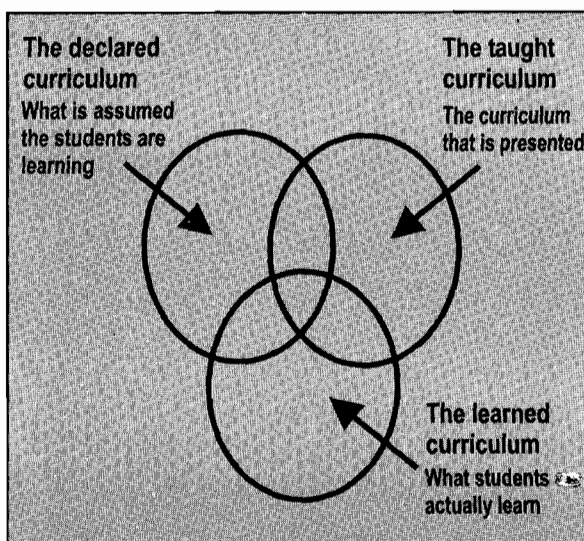
Outcome-based education

The content-based approach has been the main characteristic of the traditional approach to educational planning in university education[6]. To plan a curriculum on this model, the different subjects and their contents are decided. The decision is based on some intrinsic objective that these subjects contribute to the curriculum rather than the overall objectives. This is a planning model that has been rejected by many educational experts for the last quarter of a century in favor of some form of objectives model[4].

The problem with the content-based approach is that it does not take care of the broader overview of the whole course. The assumption of the advocates of this approach is that if all the elements are included, the whole curriculum will be adequate. This approach is popular with teaching staff because of its ease of implementation. This approach, as Harden[8] commented, concentrates on details at the expense of the overall picture. It ignores an overall strategy, and the criteria for selection of contents are often not clear, and may be related to the interests of people planning the curriculum and to the influence of the dif-

Fig. 2 *The declared curriculum, the taught curriculum and the learned curriculum.*

Table 1   Curriculum-related eucational strategies related to the medical school

Innovative	Traditional
Student centered	Teacher centered
Problem-based	Information gthering
Integrated teaching	Discipline-base teching
Community based	Hospital base education
Electives	Standard progrm
Systematic	Appreticeship program

ferent departments in the college.

The outcome-based approach is currently offered as an alternative way of curriculum development and management. The initial work and development of this approach was carried out in the schools of the United States of America[14].This is a performance-based approach that is gaining an accelerated pace of acceptance worldwide, particularly in medical education. In Dundee, 12 outcomes were adopted for the undergraduate medical curriculum[7]. At Brown University in the USA, nine abilities were described[15]. The Association of American Medical Colleges (AAMC)[2] proposed a group of learning objectives as guidelines for medical schools.

The proponents of outcome-based medical education emphasize that this approach has several advantages. It emphasizes relevance to the practice of medicine; it is easily understandable and acceptable by teachers; it unifies the curriculum and prevents fragmentation; it emphasizes accountability, flexibility, self directed learning; and it facilitates assessment, evaluation and curriculum planning[7].

In contrast, opponents of this approach are concerned that education should be free-ended and fear that the limitation of the outcomes may limit the real objectives of education. Another real concern is related to the emphasis of outcome-based education on some vague concepts like values and attitude at the expense of vital knowledge and skills[7].

Educational strategies

Educational strategies are those "methods" or "principles of procedure" used to achieve the requisite, decided-upon educational objectives. There has been a great deal of interest in educational strategies in the last decade. This is related, to a large extent, to the pressure for change that medical colleges have been faced with. This has also been associated with the development of new concepts such as "problem-based learning", "student-centered learning", "community-based curriculum", and "integrated teaching"[8].

Harden et al.[16] identified six educational strategies related to the curriculum in a medical school (see Table 1). Each of these is presented as a spectrum. On the extreme left is the innovative approach, while the traditional approach is on the extreme right. These spectrums provide a useful instrument that can be used in curriculum analysis, review and development.

There should be a clear distinction between the educational objectives of a medical school and the strategies adopted to achieve these objectives[16]. Each school has to assess each of these strategies as a servant and not as a master of the aims of the curriculum[17].

There are some other strategies that are worth looking into during the design of a new curriculum:

- The language of instruction is an important issue in some non-English speaking countries that requires insightful thinking and preparation[17]. Political and public pressure may force medical colleges to use or to change to either the local language or to use English as the language of instruction. This is an important issue and an early decision about this strategy should be made.
- Alternative medicine is another issue that has witnessed a lot of recent attention. Political, economical, and social pressures are some of the forces behind this development. It may be time to start to look seriously into this approach and to assess its scope[17].
- The third issue is related to the humanistic base of medicine. One of today's criticisms of medical doctors is the focus on curing diseases, without paying enough attention to issues related to the quality of life. "The disease was cured, but the patient died" is a famous saying that we often hear. Basing the curriculum on caring for patient, family, and society rather than merely curing diseases is an important dimension, which requires attention on planning the medical curriculum[17].

Instructional material development

Considerable progress has taken place in the design and development of instructional materials and instructional technology and the way they are used. Harden[18] commented, in relation to the introduction of the new learning technologies, that " …. The developments are occurring at an astonishingly rapid pace, and where the implications for traditional approaches to education, and indeed for medical schools as we know them today, are profound". Several reasons have accounted for this development:

- The remarkable progress in computer facilities: both hardware and software and the increasing ease of using the Internet have opened unlimited opportunities;
- Similarly, development in virtual reality and use of simulated patients have made it possible to see a lot of development in learning technologies. There is a trend to use a higher level of technology with more flexible resources;
- The use of RLO's (reusable learning objects) is a new concept that is gaining momentum, and is likely to become a revolution in the development and use of instructional materials[19]. The concept is complex, and space precludes a review of exactly what is meant by the term, but suffice it to say that RLO's are elements of computer based objects, deliverable over the internet. They can be reused by many people simultaneously, and in different educational contexts[20]; and
- The development in e-learning is striking and a virtual medical school is already in the final stages of preparation[21].

Professionalism

With the rapid development in medical education, it was realized that medical education requires professional training. The assumption that any good medical practitioner has the ability to teach no longer holds good. Furthermore, the fast rate of change in medical education has led to parallel changes in the role of the teacher[8]. Nowadays, the teacher needs to be an information provider, an assessor, facilitator, planner, resource developer, and a role model[22]. In the UK, the General Medical Council published a document titled "The Doctor as Teacher"[23] and one of the recommendations states: "Teaching skills are not necessarily innate, but can be learned. Those who accept special responsibilities for teaching should take steps to ensure that

they develop and maintain the skills of a competent teacher"[24]. In the UK, all new teaching staff at medical colleges are encouraged to be members of the Institute of Learning and Teaching[25]. This is a newly established institute that requires certain level of qualification in education for membership.

Conclusion

Every curriculum has, at its base, the assumption that its designers (and implementers) know what students need to know; that they know what values and norms students need to adhere to; and that they know what students must be able to do once they work in the world outside. This paper asserts that such assumptions cannot be regarded as immutable or as unproblematic. Assumptions need to be challenged, inspected, fleshed out and deliberated upon. This paper also asserts that any curriculum – in medical education or otherwise - needs to be responsive to a constantly changing environment, and that curricula cannot afford to be static in their content, in how they are "packaged" and "delivered", and in the kind of professionals they produce.

The pace of educational development, in all sectors, is quickening throughout the world. In the wake of massive technological developments – especially in medicine and medical practice - and in the wake of globalization, the race is on for curricula that are relevant, appropriate and accountable. The educational institutions of the world – and medical colleges in particular – are in dire need of efficient curricula that can do what they are supposed to do – that is, to deliver competent professionals. One of the consequences of this is the need for a drastic re-assessment of how we devise curricula, and of what environments, strategies, norms/values, skills and knowledge will produce the right product.

This paper has tried to show that curricula based on traditional notions are not working efficiently, and are subject to a barrage of complaints from a broad spectrum of society. I have attempted to give a brief outline of an alternative to the traditional approach to curriculum design and curriculum implementation – that is, outcomes-based education. Although it has its detractors, it holds some promise of being able to improve on a current situation that is in deadlock with itself.

This paper has also tried to look at other aspects within the broader scope of what we understand by the notion "curriculum" - that is, the need for innovative educational strategies, the need for professional development of medical teaching staff, and the need to explore the potential of alternative instructional technologies.

By opening ourselves to a broader understanding of the word "curriculum", by challenging our assumptions, by looking at new methodologies, by re-assessing our ideas on what the curriculum is and does, we will come one step closer to breaking medical education institutions out of tried-and-trusted approaches to the curriculum that might be out of step with the reality of a globally integrated, technology-dominated, and ever expanding knowledge and skills-based world.

References

1. Association of American Medical Colleges. Physicians for the Twenty-first Century: Report of the project panel on the General Professional Education of the Physicians and College Preparation for Medicine. Journal of Medical Education 1994; 59: 1-208.

2. Association of American Medical Colleges. Report 1: Learning Objectives for Medical Students Education. Guidelines for Medical Student Education Guidelines for Medical Schools. Washington Medical School Objectives Project 1998. Washington: AAMC 1998.

3. General Medical Council. Tomorrow's Doctors: Recommendations on Undergraduate Medical Education. London: General Medical Council 1993.

4. Kelly AV. "Curriculum development" in The Curriculum: Theory and Practice (5-28). London: Harper &Row Publishers 1982.

5. Tyler RW. Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press 1949.

6. Hirst PH. The Logic of the Curriculum. Journal of Curriculum Studies 1969; 1: 142-158.

7. Harden RM, Crosby JR, and Davis MH. An introduction to outcome-based education. Medical Teacher 1999; 21: 7-14.

8. Harden RM. ASME Medical Education Booklet No.21: Approaches to curriculum planning. Medical Education 1986; 20: 458.

9. Harden RM. Ten questions to ask when planning a course or curriculum. ASME Medical Education booklet No 20. Medical Education 1986; 20: 356-365.

10. Genn JM and Harden RM. What is Medical Education Here Really Like? Suggestions for action research studies of climates in medical education environments. Medical Teacher 1986; 8: 111-124.

11. Harden RM. Curriculum mapping: a tool for transparent and authentic teaching and learning. Medical Teacher 2000; 23: 123-137.

12. Wiggins G. Educative assessment: Designing assessment to inform & improve student performance. San Francisco: Jossey-Bass 1998.

13. Brown S. "Trends in assessment". In Harden R, Hart IR and Mulholland H (Eds.). Approaches to the assessment of clinical competence: Part 1. Dundee: Centre for Medical Education 1992.

14. Spady WG. Organizing for results: the basis of authentic restructuring and reform. Educational Leadership 1988: 4-8.

15. Smith SR and Dollase R. Planning, implementing and evaluating a competency-based curriculum. Medical Teacher 1999; 21: 15-22.

16. Harden RM, Sowden S, and Dunn WR. Educational strategies in curriculum development: the SPICES model. Medical Education 1984; 18: 284-297.

17. Al-Shehri MY. Medical curriculum in Saudi medical colleges: current and future perspectives. Annals of Saudi Medicine 2001; 21: 320-323.

18. Harden RM. Myths and e-learning (editorial). Medical Teacher 2002; 24: 469-472.

19. Harden RM and Hart IR. An international virtual medical

school (IVMEDS): The future for medical education? Medical Teacher 2002; 24: 261-267.

20. Wiley, D. A. (2000). Connecting learning objects to instructional design theory: A definition, a metaphor, and a taxonomy. In D. A. Wiley (Ed.), The Instructional Use of Learning Objects: Online Version. Retrieved June 11th, 2003, from the World Wide Web: http://reusability.org/read/chapters/wiley.doc

21. Davis MH and Harden RM. E is for everything- e-learning? Medical Teacher 2001; 23: 441-444.

22. Harden RM and Crosby JR. The good teacher is more than a lecturer – the twelve roles of the teacher. Medical Teacher

2000; 22: 334-347.

23. General Medical Counsel (GMC). The Doctor as Teacher. Paragraph 4: The educational obligation of all doctors. London: GMC 1998.

24. General Medical Counsel (GMC). Good Medical Practice. Paragraph 9; Recommendations on the training of specialists. London: GMC 1998.

25. Brown S. The Institute of Learning and Teaching and UK approaches to accrediting teaching: looking to the future. Medical Teacher 2000; 22; 513-516.