Medical Teacher
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713438241

Faculty development: Yesterday, today and tomorrow

Michelle McLean [a]; Francois Cilliers [b]; Jacqueline M. Van Wyk [c]
[a] University of the United Arab Emirates, South Africa [b] University of Stellenbosch, South Africa, South Africa [c] University of KwaZulu-Natal, South Africa

Online Publication Date: 01 January 2008

To cite this Article McLean, Michelle, Cilliers, Francois and Van Wyk, Jacqueline M.(2008)'Faculty development: Yesterday, today and tomorrow',Medical Teacher,30:6,555 — 584
To link to this Article: DOI: 10.1080/01421590802109834
URL: http://dx.doi.org/10.1080/01421590802109834

2008; 30: 555–584 MEDICAL TEACHER

AMEE GUIDE NO 36

Faculty development: Yesterday, today and tomorrow

MICHELLE MCLEAN[1], FRANCOIS CILLIERS[2] & JACQUELINE M. VAN WYK[3]

[1]University of the United Arab Emirates, [2]University of Stellenbosch, South Africa, [3]University of KwaZulu-Natal, South Africa

Abstract

Medical education has evolved to become a discipline in its own right. With demands on medical faculties to be socially responsible and accountable, there is now increasing pressure for the professionalisation of teaching practice. Developing a cadre of professional and competent teachers, educators, researchers and leaders for their new roles and responsibilities in medical education requires faculty development. Faculty development is, however, not an easy task. It requires supportive institutional leadership, appropriate resource allocation and recognition for teaching excellence.

This guide is designed to assist those charged with preparing faculty for their many new roles in teaching and education in both medical and allied health science education. It provides a historical perspective of faculty development and draws on the medical, health science and higher education literature to provide a number of frameworks that may be useful for designing tailored faculty development programmes. These frameworks can be used by faculty developers to systematically plan, implement and evaluate their staff development programmes.

This guide concludes with some of the major trends and driving forces in medical education that we believe will shape future faculty development.

Introduction

What is faculty development? A historical perspective

At one time, anyone who graduated from medical school was considered capable of teaching. It became apparent, however, that teaching was not an innate gift. Besides content, teaching also involved 'process', and to develop the 'art' of teaching, academics required support (Benor 2000). So, began some of the first 'faculty development', also referred to in the literature as 'professional development' or 'staff development' (Guskey 2003, Steinert 2005). The purpose of this early 'teacher training' was generally to prepare academic faculty members for teaching, which was their primary responsibility at that time. As an academic's repertoire of responsibilities evolved to include research and administration, the concept of faculty development expanded, largely to strengthen the academic base of institutions (Bland & Stritter 1988; Hitchcock et al. 1993; Wilkerson & Irby 1998; Steinert 2000, 2005; Steinert et al. 2003; Harris et al. 2007). Sheets and Schwenk (1990) capture this in their definition of faculty development:

> "Any planned activity to improve an individual's knowledge and skills in areas considered essential to the performance of a faculty member in a department or a residency programme (e.g. teaching skills, administrative skills, research skills, clinical skills)".

Tables 1 and 2 reflect this evolving conception of faculty development. Table 1 is a chronological summary of some important contributions to academic development in medical education spanning more than three decades, while Table 2 summarizes the major trends and driving forces in medical education which we believe have influenced faculty development over the past thirty years.

The theories underpinning student learning have played a major role in the evolution of staff development (Table 2). For example, in line with the behaviourist theory in vogue

Practice points

- Faculty development is not a luxury. It is an imperative for every medical school.
- Sustainable faculty development requires a medical education unit/department staffed with respected faculty developers who are academic role models.
- Faculty development needs to be systematic, involving planning, implementation and evaluation.
- The outcomes of faculty development should be realistic and measurable (i.e. task-oriented).
- Faculty development should be tailored to suit the needs of individuals, disciplines and the institution.
- Activities used in faculty development programmes should encourage experiential learning and reflection (e.g. peer evaluation, portfolios).
- Faculty development should strive for collaboration across medical disciplines, and where possible, across professions.

Correspondence: Michelle McLean, Faculty of Medicine and Health Sciences, Department of Medical Education, Al Ain, United Arab Emirates. Tel: 0971 37137 137; fax: 0971 37672 167; email: mcleanm@uaeu.ac.ae

ISSN 0142–159X print/ISSN 1466–187X online/08/060555–30 © 2008 Informa UK Ltd.
DOI: 10.1080/01421590802109834

Table 1. Chronological evolution of faculty development in medical education (some important contributions from 1975 to present).

Authors	Suggestions/highlights
Gaff (1975)	Faculty development in higher education perceived as activities that assist teachers to • Improve their teaching skills • Design better curricula • Improve the institutional culture
Centra (1976)	Defined faculty development as the broad range of activities used by institutions to renew or assist faculty to undertake their expected roles. Feedback from students was considered effective in changing teacher behaviour only when teachers were provided with individual consultation and suggestions for improvement.
Stritter (1983)	Divided faculty development into three categories: • Technical assistance (more or less at an individual level) • High faculty involvement ('professional socialization', e.g. through workshops; collaborative educational research) • Assessment (by peers, students and self-assessment, with feedback)
Bland & Schmitz (1986)	Faculty development included skills other than teaching. Primary goal of faculty development had changed from recruiting and training faculty to building the academic base of a specialty by developing research capacity though fellowships, advisors, mentors, etc.
Bland & Schmitz (1988)	Faculty development provides faculty and institutional vitality. Strategies to improve vitality at 3 levels: • Institution (e.g. altering personnel policies, redefining mission) • Department/college (organisational development and practice, e.g. providing administrative assistance) • Individual faculty members (faculty exchange, peer consultation, cross-departmental teaching)
Sheets & Schwenk (1990)	Faculty development is 'any planned activity to improve an individual's knowledge and skills in areas considered essential to the performance of a faculty member in a department or a residency programme (e.g. teaching skills, administrative skills, research skills, clinical skills)'. Reported a paucity of research and evaluation in which participants were directly observed and outcomes gathered.
Hitchcock et al. (1993)	Major conclusions from a review of the literature: • Concept of faculty development is evolving and expanding (e.g. professional academic skills; ethics, clinical and research skills) • Teaching skills still prominent aspect of faculty development • Post-residency fellowships are effective to recruit and train of new faculty • Institutional environment is important in faculty development (to improve productivity) • Faculty evaluation is an effective approach to faculty development • More research into outcomes of faculty development required • Different faculty development models required for different faculty • Faculty development centres increasing
Wilkerson & Irby (1998)	Faculty development strategies influenced by theories of learning in vogue and research findings. Comprehensive faculty development should include • Professional development (orientation) • Instructional development (improved practice, e.g. through mentoring) • Leadership development (leading to medical educators) • Organisational development (rewards for teaching)
Steinert (2000)	To keep pace with changes, faculty development will need to broaden its focus by • Using diverse learning methods • Being underpinned by learning theories • Fostering partnerships and collaboration • Rigourously evaluating interventions
Steinert et al. (2006)	In a best evidence medical education (BEME) study focusing on the outcomes of faculty development evaluation, the authors suggest using Kirkpatrick's (1994) four levels of outcomes to frame evaluation. In the authors' view, conclusions could not be drawn from many studies as the outcomes were not measured.

Table 2. Major trends and driving forces in medical education, the evolution of the medical 'teacher' and faculty development, from 1970s to present (various sources).

Decade	Major trends and driving forces in medical education	Focus of the medical teacher	Faculty development and skills required *How to:*	Faculty development response
1970s	Behavioural theories (change in behaviour; mastery through practice)	Characteristics of a ''good'' teacher	• Write measurable outcomes • Deliver educational content in organised and sequenced fashion to meet objectives • Provide exercises with feedback • Evaluate learner behaviour according to objectives	''Teacher training'' units which generally used • Student ratings followed by written feedback to teachers
1980s	Cognitive theories (active knowledge construction; conceptual constructs) • Adult learning theories • Integrated curricula • Beginning of information technology • Community-based medicine begins	Process expert (in addition to content expert)	• Identify learners' preconceptions • Activate prior knowledge • Provide conceptual scaffolding for new knowledge • Promote learner engagement with content • Understand learning • Design activities to foster learning	• Skills training, often with videos • Self-assessment Some appointments in medical education units/departments
1990s	Social learning theories (life-long learning; collaboration; socialisation) • Student-centred education • Problem-based learning (PBL) • Core curriculum with electives • Professionalism • Community-based education • Evidence-based medicine (EBM) • Continuing Medical Education (CME) • Role models • Accountability	• Expanding roles (e.g. role model, facilitator) and responsibilities (teacher, administrator, clinician, etc.) • Scholarly teaching	Promote life-long, independent learning • Encourage students to work as team members • Encourage collaborative learning • Address issues of culture, power, beliefs in the learning environment • Peer assess • Assess different domains and competencies Undertake medical education research	Faculty development included • Facilitation of student learning • Peer coaching and collegiality • Developing improved assessment measures • Developing reflective practitioners • Developing role models • Educational research Medical education units common. Emergence of fellowship programmes for educators
2000s	Professionalism (patient-centredness; cultural competence) Technological advances • Early clinical exposure: various settings • Authentic learning and assessment (portfolios, OSCE, by patients) • Outcomes-based education (skills, knowledge, attitude) • Information technology and the Internet • First virtual medical school • Social responsibility • Ethical practice • Cultural diversity increasing • Accreditation and accountability • Best Evidence Medical Education (BEME)	• Developing competent, professional teachers (accreditation) • Training in medical education becoming compulsory • Scholarship of teaching encouraged • Cultural competence	• Develop reflection in- and on-action • Self-assess • Improve collegiality • Teach students to teach • Develop personal development plans • Approach patients ethically and professionally • Develop cultural competence	Faculty development (tailored for individuals, disciplines and institution) focusing on • Designing measurable outcomes • Developing teaching portfolios • Medical education research skills (qualitative and quantitative) • Peer mentoring • Medical education units with educational staff becoming a necessity. • Fellowship programmes common.

in the 1970s, faculty development aimed to develop the attributes and competencies of the 'good' teacher: someone who could use various teaching aids, reinforce important concepts and communicate effectively (Wilkerson & Irby 1998). In the 80s and 90s, reform to more student-centred and self-directed learning required a metamorphosis of the teacher, from a didactic conveyer of knowledge to a facilitator of student learning (Entwistle & Ramsden 1983; Knowles 1988). To make this transition, teachers needed new skills, which required training. The dawning of the new millennium brought 'outcomes-based education', with competencies being identified for graduating medical students (Harden et al. 1999; Carraccio et al. 2002; Simpson et al. 2002).

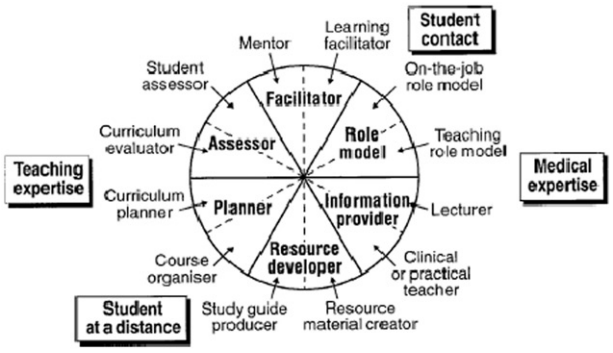

Figure 1. The twelve roles of the medical teacher, from content expert to professional role model (Harden & Crosby 2000).

Faculty development followed suite, and the various roles of the medical teacher, from clinical expert to mentor and role model, were further expanded and defined (Harden & Crosby 2000) (Figure 1).

Not long afterwards, Hesketh et al. (2001), using the three circle model (Harden et al. 1999), defined the intelligences of an excellent clinical teacher. These twelve intelligences embodied knowledge, skills and attitudes, such that the right person was doing the correct procedure or task properly with the appropriate attitude and behaviour (Box 1). These competencies matched the medical education discourse at that time, emphasizing issues such as patient safety, professionalism, evidence-based medicine, student-centred learning and self-assessment.

As institutions and individual disciplines strive to skill medical teachers, researchers and administrators for their evolving and current responsibilities, the competencies of faculty members are continuously being redefined. Acknowledging that individual faculty members cannot excel in all of the recognized responsibilities, a trend of a 'division of labour' has emerged in some academic disciplines (Tedesco et al. 2002; Harris et al. 2007). A multi-disciplinary team recently charged with identifying competencies for different responsibilities in Family Medicine identified four major areas of responsibility (encompassing ten roles) of faculty members involving different combinations of teaching, research, education and administration (Harris et al. 2007) (Box 2). Although teaching was viewed by that team as an activity in which all discipline members engaged, Leinster (2003) is,

Box 1. Defining the competence of the "excellent" clinical teacher: Hesketh and colleagues' (2001) application of the three circle model (Harden *et al.*, 1999).

12 intelligences

Doing the right thing = performance of tasks (7 technical intelligences), *Doing the thing right = approach to tasks* (3 intellectual, emotional, analytical and creative intelligences), and *The right person doing it = professionalism* (2 personal and professional intelligences)

Performance of tasks: Technical intelligences

"Doing the right thing"

What the doctor as a teacher is able to do

1. Teach large and small groups (7 tasks)
2. Teach in a clinical setting (9 tasks)
3. Facilitate and manage learning (12 tasks)
4. Plan learning (8 tasks)
5. Develop and work with learning resources (9 tasks)
6. Assess trainees (9 tasks)
7. Evaluate courses and undertake research in education (4 tasks)

Approach to tasks: Intellectual, emotional and analytical and creative intelligences

"Doing the thing right"

How the doctor approaches teaching

8. *Intellectual intelligence:* With understanding of principles of education (15 concepts, e.g. learning styles, distance learning, principles of change)
9. *Emotional intelligence:* With appropriate attitudes, ethical understanding and legal awareness (12 attributes, e.g. enthusiasm, empathy and interest, respect)
10. *Analytical and creative intelligence:* With appropriate decision-making skills and best evidence-based education (4 abilities, e.g. prioritises workload as teacher, uses evidence-based medical education as the basis of teaching)

Professionalism: Personal intelligences

"The right person"

The doctor as a professional teacher

11. The role of the teacher or trainer within the health service and the university (9 requirements, e.g. understands teaching responsibilities, maintains acceptable balance between service, teaching and research)
12. Personal development with regard to teaching (3 requirements, e.g. reflects upon and aware of own strengths and weaknesses, keeps abreast of new teaching and learning techniques)

Box 2. Categories of faculty members (and roles) in Family Medicine (Harris et al. 2007)

Teacher-Administrator (e.g. Chair; Residency Director; Clinic Director)

Teacher-Educator (e.g. Director of Education; Pre-doctoral Director; Clerkship Director)

Teacher-Researcher (e.g. Research Director; Research Faculty)

Teacher-Clinician (Community Preceptor; Clinical Faculty)

however, of the opinion that not every consultant should teach. Leinster argues strongly for teaching to be the domain of those with genuine interest and ability. If faculty development is to address institutional, discipline and individual faculty needs, each medical school will need to decide on the specific roles and responsibilities of different faculty members within the context of its unique educational environment.

While Sheets and Schwenk's (1990) definition of faculty development is probably still largely applicable today, much has, however, changed (and is still changing) in medical and health professions education, warranting a new definition. In redefining faculty development, cognisance should be taken of the broadening concept of 'faculty'. To this end, shorter patient stays, increasing student numbers, chronic disease, as well as the requirement of accreditation bodies for additional primary health care exposure during training, have increased students' ambulatory and community-based experiences (GMC 1993; Bligh et al. 2001; Irby & Wilkerson 2003; Clark et al. 2004; Houston et al. 2004; Holman 2004) – 'Clinical education must reflect the changing patterns of healthcare and provide experience in a variety of hospitals, general practices and community medical services' (GMC 1993).

Thus, teachers of today's medical students may now include clinicians in private practice, community preceptors as well as practitioners from other health care professions, such as physiotherapists, nurses and social workers (Eitel et al. 2000; Steinert 2005). As their teaching experience and level of teacher training will vary (Clark et al. 2004; Houston et al. 2004), faculty development should therefore include any individual involved in teaching undergraduate medical students or supervising post-graduates. Considering the busy schedules of many health care professionals and the complexity of curricular models, faculty development may need to be scheduled off-site, in community clinics or hospitals (Skeff et al. 1997a, b; Steinert 2005). An inclusive use of 'faculty' has therefore been adopted in this guide.

Why the need for a guide?

Planning and implementing faculty development is not an easy task. There are probably as many barriers to implementing a faculty development programme as there are factors driving the process. As a result of some of these forces, the focus of faculty development has shifted from individual teacher development to a more institutional and systematic planning approach, which some may perceive as top-down, and at the expense of individual academics (Hill & Stephens 2004). While the unique context of each institution will impact on how faculty development is managed, we believe that any faculty development programme should address both the professional (i.e. in the interest of the institution) and the personal (i.e. benefiting the individual) development of teachers. Faculty developers have a significant role to play as agents of change in terms of the promoting an institutional culture that values both the personal and professional development of individual faculty members.

The medical, health sciences and higher education literature abounds with descriptions of the many and varied faculty development programmes (Wilkerson & Irby 1998; Prebble et al. 2004; Steinert et al. 2006; Skeff et al. 2007). Not always forthcoming, however, is the effectiveness (i.e. meaningful outcomes, such as improved teaching practice) of many of these interventions (Prebble et al. 2004; Steinert 2005; Otto et al. 2006; Steinert et al. 2006). Evaluation has often relied on perceived, self-reported benefits rather than monitoring and assessment of actual teaching practice, making it difficult to judge the effectiveness of faculty development. With more than 30 years of experience and research on faculty development in medical education and even more in higher education upon which to draw (Table 1), this guide aims to identify some of the principles that have been reported to contribute to 'effective' and successful faculty development. These principles might assist faculty developers tailor their academic development programmes to meet not only institutional needs, but also those of different disciplines and individual faculty members.

What will be covered in this guide?

To discuss faculty development in its broadest context (i.e. teaching, research, administration, leadership) is beyond the scope of this guide. Direction will therefore be provided in terms of the '*teaching*' aspect only. Research involving teaching practice and student learning cannot, however, be excluded from any discussion of the teaching profession, as medical and health education research is evidence of scholarship (Glassick et al. 1997; Glassick 2000; Cook et al. 2007). As the discipline of medical education requires educational scholars and professional leaders and administrators, some academics need to be nurtured for these roles. By reviewing the past and current literature on faculty development in medical and higher education and by providing suggestions on planning and implementing meaningful staff development, we also hope to provide insight into how faculty development may need to evolve to meet the future challenges of medical education.

Who should read this guide?

This guide aims to assist faculty developers who have been tasked with supporting teachers and supervisors of medical students. We hope that faculty developers in allied health professions will also find the guide useful as similar principles will apply, particularly in the light of an increasing emphasis on interprofessional learning (Parsell & Bligh 1999; Bligh et al. 2001). Undergraduate teachers and post-graduate supervisors

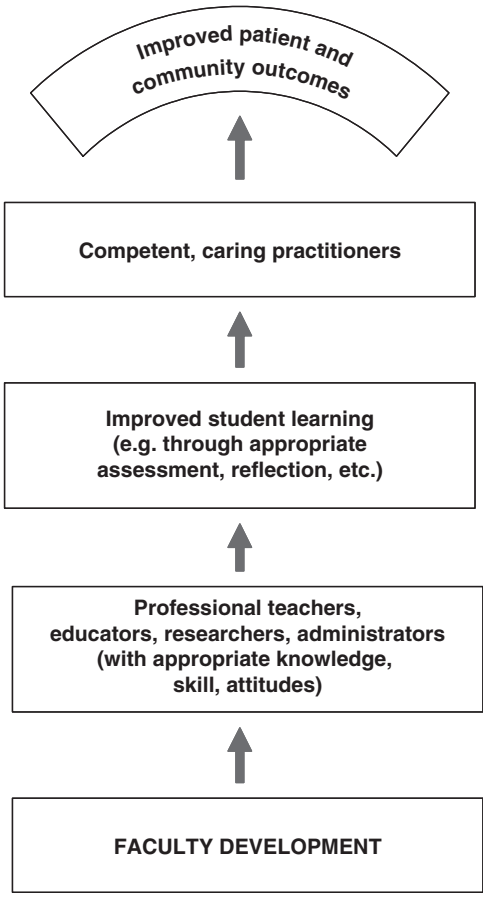

Figure 2. Relationship between faculty development and the overarching outcomes of medical education.

may use the guide as a resource for reflecting on their specific needs in terms of their personal (i.e. career advancement) and professional (i.e. for institutional accreditation) development as teachers, medical educators and academic leaders.

What assumptions and principles are embodied in this guide?

The primary assumption embodied in this guide is that faculty development must ultimately serve the overarching goals of medical education i.e. improving patient and community care by training and educating quality medical practitioners. This we believe is achieved by developing professional teachers, educators, researchers and administrators who are genuinely committed to the holistic development of health care practitioners and to improving student learning. Figure 2 reflects this hierarchical framework, which informs much of this guide.

Several other assumptions are embodied in this guide:

- Medical education is a profession in its own right, overseen by specialist educators and medical educators. There should therefore be faculty development programmes that promote the development of communities of practice – professional medical educators, administrators, researchers and educational leaders.
- The use of 'teacher' and 'educator' in this guide refers to different levels of professional development. Although perhaps oversimplistic, we use 'teacher' as a generic term assigned to an individual with little or no formal teaching qualification but who teaches, currently an expectation of most academics. An 'educator', on the other hand, is more scholarly, and will often have a higher or medical education qualification and is involved in medical education research. Academic development units or departments are generally staffed by educators and medical educators.
- Faculty development serves many purposes, ranging from individual staff development in terms of teaching, research, administration or career opportunities, to meeting the accountability needs of an institution. Faculty development should therefore be planned at different levels: individual, departmental, institutional, regional, national or international (Skeff et al. 1997a, b). This guide is directed at faculty development at the institutional level, which would then involve programmes designed for individual teachers, disciplines and the entire faculty. The growing role of regional, national and international co-operation in faculty development is acknowledged.
- Faculty development programmes should promote both the personal and professional development of academic staff. While accreditation will drive professionalization of the discipline, institutions will need to ensure that their faculty development programmes provide opportunities for faculty who wish to pursue a career in medical education. Although examples of such faculty development programmes are rare (Steinert 2005; Pololi & Frankel 2005), Knight et al. (2007) believe that they are not impossible to design.

With medical curricula increasingly addressing issues such as patient safety, ethics and community development (Bligh et al. 2001; Irby & Wilkerson 2003), social responsibility and accountability must be taken into account in faculty development programmes. A more comprehensive definition of faculty development at an institutional level in the 21st century might then read something along the lines of:

> The personal and professional development of teachers, clinicians, researchers and administrators to meet the goals, vision and mission of the institution in terms of its social and moral responsibility to the communities it serves.

The rationale for such a definition will hopefully become evident as the reader progresses through the guide.

What drives faculty development?

While Gruppen et al. (2006) have identified three main driving forces (public accountability, the changing nature of health care delivery and the need to sustain academic vitality) of faculty development, several others, both internal and external, also warrant consideration.

A. Internal factors

Socialization into the institutional culture. Recruitment into academic institutions is a costly exercise, consuming up to 5% of the annual operating budget (Waldman et al. 2004).

It therefore makes fiscal sense for an institution to invest in the development of its faculty members, who some regard as the institution's most valuable asset (Whitcomb 2003). Ideally, this investment should begin at the time of appointment. Orientating new faculty into their roles and responsibilities should pay dividends in terms of staff retention.

Preparation for teaching. It would be true to say that most medical academics have received little or no training or preparation for their teaching responsibilities. This is understandable, given that academic appointments in medical faculties are typically based on a combination of a relevant professional (usually clinical) qualification and research excellence. Rarely are academics required to demonstrate teaching experience or evidence of teacher training, much less possess a higher education or medical education qualification, leaving many ill-prepared for their teaching responsibilities. This lack of preparedness is becoming more acute with widening student diversity, integrated curricula, new technologies (e.g. simulation and e-learning), the unpredictability of future clinical practice and as the evidence supporting the benefits of good teaching practice on student learning accumulates.

We believe that becoming an effective and exemplary teacher and then an educator is a developmental process (Riley 1993; Higgs & McAllister 2007a,b). It is generally accepted that one's approach to teaching reflects one's conception of teaching and learning (Trigwell 1995; Kember 1997; Prosser & Trigwell 1997; Lueddeke 2003; Richardson 2005; Prebble et al. 2004). Conceptions range from reproductive, in which teaching is perceived as knowledge transmission, to a transformative conception in which teaching is perceived as fostering not only cognitive but also affective change in learners. As there is little evidence suggesting that teaching experience alone promotes the adoption of transformative conceptions (Norton et al. 2005), it is becoming imperative that institutions invest in and support their teaching faculty in transforming their conceptions, which should then improve their teaching practice. For individuals who choose a 'teaching' career path (i.e. personal development), this professional development can be followed through to its logical conclusion: from teacher, to scholarly teacher, to educational scholar (Cohen et al. 2005; Fincher & Work 2006) or perhaps educational leader (Eitel et al. 2000; Steinert et al. 2003; Rogers 2005; Cohen et al. 2005). Rogers (2005) recommends that institutions take a proactive stance in this regard. To this end, an institution that truly values both the professional and personal development of its staff will nurture those interested in becoming educational scholars, leaders, researchers and/or service providers. In practical terms, this may require actively identifying educational 'champions' as potential educational leaders. Through reflection, nurturing and continued institutional support, some teachers may develop into the much needed educational leaders and scholars (Rogers 2005).

To provide support, advice and feedback for teachers to improve their practice, Weimer and Lenze (1997) describe three models:

- The professional service model, in which a consultant provides organizational or technical support. In this model, face-to-face consultative sessions between individual faculty members and faculty developers appear effective in assisting teachers to interpret and reflect on their performance. In other instances, some staff may require assistance with particular curriculum issues, while those applying for promotion may need support to develop teaching portfolios, while those registered for post-graduate medical education degrees may need assistance with their research proposals.
- The counselling model, in which a consultant assists teachers to seek solutions to their own problems and challenges. Individual staff members may, for example, seek advice following poor student evaluation.
- The collegial model, in which two peers provide mutual guidance. The model can be extended to include a group of colleagues. Mentoring could be included in this model.

It is likely that a combination of these models will be effective, as each caters for different needs. Faculty developers should seriously consider including mentoring in their faculty development programmes. While only a few studies have reported on the impact of peer faculty mentoring on student outcomes, research findings support the concept. Mentoring, through the creation of a culture of professional inquiry, may foster a non-threatening environment for socializing newcomers, promoting collaborative networks, developing career paths and encouraging meaningful academic encounters (Pololi et al. 2002; Steinert 2005; Ramani 2006). Ramani (2006) advocates the appointment of a panel of senior academic staff to guide and mentor junior faculty and newcomers. In a more global context, part of the success of the Foundation for the Advancement of International Medical Education and Research (FAIMER) in terms of establishing international networks and collaborative links rests with its mentoring programme (Burdick et al. 2006).

Sustaining academic vitality. Stress and burnout amongst medical teachers is common (Harden 1999). Increasing student numbers, managed health care, administrative and research responsibilities all need to be factored into the changing roles and responsibilities of the medical school academic (Skeff et al. 1997b). To promote academic vitality, appropriate faculty development programmes linked to rewards and incentives would assist in retaining teachers, clinicians, researchers and administrators (Bland & Stritter 1988; Hitchcock et al. 1993; Wilkerson & Irby 1998; Bligh 2005; Gruppen et al. 2006). From Bligh's (2005) perspective, 'Faculty development programs are outward signs of the inner faith that institutions have in their workforce'.

B. External factors

Meeting society's needs. While the overarching goal of medical education is to improve health care delivery (GMC 1993, Boelen 1999), the health care needs of society are constantly changing. As today's incoming medical students will be practicing medicine a decade after they begin their studies, we need to prepare them to meet the largely unknown future

challenges of their profession. These sentiments resonate loudly in an early GMC (1993) document:

> Given the pace at which the horizons of medical science and technology expand, we can be certain that the doctors of tomorrow will be applying knowledge and deploying skills which are at present unforeseen . . . We cannot teach science that is as yet undiscovered nor can we forecast its future implications. But some of the present day art and science of medicine is fundamental to its practice and will certainly endure . . . For the rest, we can best strive to educate doctors capable of adaptation and change, with minds that can encompass new ideas and developments and with attitudes to learning that inspire the continuation of the educational process throughout professional life [p. 4].

The task of training adaptable, quality health care providers who are life-long learners requires a cadre of informed, competent, dedicated and professional clinical teachers, educators, researchers and administrators. A considerable onus and social responsibility therefore rests with individual medical faculties to provide appropriate training and support for anyone who teaches or supervises its learners.

Accountability and the professionalization of teaching practice. Accountability is a fact of life in tertiary education. As Brown (2000) pointed out almost a decade ago, 'teaching is rarely the only occupation of an academic . . .. And yet it is the most public aspect of the work, in that students, employers and other stakeholders often focus on that part of the academic's role'.

The public, as well as government and professional bodies have the right to demand regular teaching audits of institutions of higher learning (including medical faculties) as part of quality assurance (Benor 2000; Eitel et al. 2000; Dearn 2005; Fry 2006; Skeff et al. 2007). Measurable outcomes in many accreditation documents increasingly refer to the need for teachers to professionalise their practice, for which they should be rewarded (e.g. World Federation for Medical Education 2003, HPCSA 2004) – 'Medical schools should establish effectiveness-related standards of performance for all teaching staff. . .. Qualifications in medical education should be recognized for promotion' (HPCSA 2004).

Although Benor (2000) predicted that certification would be necessary for clinical teachers by 2020, the writing was already on the wall long before that article was published. In the United Kingdom, the Standing Committee on Postgraduate Medical Education had highlighted a need to improve the standards of clinical teaching (SCOPME 1992), while the 'Dearing Committee' had recommended accredited training programmes for all academics at tertiary institutions (Dearing 1997).

Despite these numerous national and international recommendations, the professionalization of teaching practice has been slow. Academic appointments at most tertiary institutions still do not require educational qualifications. Recent renewed efforts calling for certification have, however, been voiced by the UK's National Professional Standards Framework in which competencies (knowledge, skills and professional values) for higher education faculty have been defined (HEA 2006; Fry 2006) (Box 3). Such competencies might be a good starting point for reflecting on generic skills and abilities of all teachers in tertiary education, including medical education. Importantly, continuing professional development and teaching scholarship feature prominently on this list.

A similar picture emerges for the United States. The *Ad Hoc* Committee of Deans of the Association of American Medical Colleges (2004) recommended that medical schools develop and support a cadre of outstanding clinicians and clinical teachers with education as their main responsibility (AAMC 2004). Probably in response to this, the clinician-educator fellowship programmes offering protected time for personal and professional development which emerged at a number of American academic medical centres continue to flourish (Skeff et al. 1997a, b; Viggiano et al. 2000; Skelton 2003; Gruppen et al. 2006).

With recommendations for minimum global standards and core competencies in medical education (e.g. WFME; Institute for International Medical Education, IIME), the pressure for

Box 3. Competencies identified by the UK's National Professional Standards Framework for Teaching and Supporting Learning in Higher Education, published in February 2006 (HEA 2006, Fry 2006)

Areas of activity

1. Design and plan learning activities and/or programmes of study
2. Teach or support student learning
3. Assess and provide feedback to learners
4. Develop effective learning environments and provide student support and guidance
5. Integrate scholarship, research and professional activities with teaching and learning
6. Evaluate practice and undertake continuing professional development

Core knowledge

Knowledge and understanding of:

1. Subject material
2. Appropriate methods of teaching and learning in the subject area and at the level of the academic programme
3. How students learn, generally and within the subject
4. Use of appropriate learning technologies
5. Methods of evaluating the effectiveness of teaching
6. The implications of quality assurance and enhancement of professional practice

Professional values

1. Respect for individual learners
2. Commitment to incorporating the process and outcomes of relevant research, scholarship and/or professional practice
3. Commitment to developing learning communities
4. Commitment to encouraging participation in higher education, acknowledging diversity and promoting equality of opportunity
5. Commitment to continuing professional development and evaluation of practice

accreditation now extends beyond a country's borders (Hamilton 2000; Lilley & Harden 2003; Stern et al. 2003; 2005; Karle 2006). These global accreditation calls have been flamed to a large extent by the worldwide proliferation of medical schools and by increasing numbers of medical students and health care workers studying and/or seeking employment abroad. Standards for medical teachers and educators are included in these global requirements (Steinert et al. 2003; Purcell & Lloyd-Jones 2003; Lilley & Harden 2003). As an example, the WFME (2003) requires that as a *basic standard* of staff development

> 'the medical school must have a staff policy which addresses a balance of capacity for teaching, research and service functions, and ensures recognition of meritorious academic activities, with appropriate emphasis on both research attainment and teaching qualifications.'

The WFME quality standard requires, in addition, that 'the staff policy should include teacher training and development and teacher appraisal'. Quality recruitment standards in the WFME document also refer to criteria relating to educational, research and clinical merit, which should be reflected in an institution's mission statement (WFME 2003).

In addition to training medical students in the art and science of medicine, our medical graduates are also expected to teach.

> 'All doctors have a professional obligation to contribute to the education and training of other doctors, medical students and non-medical healthcare professionals on the team .... Graduates must understand the principles of education as they are applied to medicine. They will be familiar with a range of teaching and learning techniques and must recognise their obligation to teach colleagues. They must understand the importance of audit and appraisal in identifying learning needs for themselves and their colleagues' (GMC 1999).

As the development of 'principles of education' must take place during their training, this responsibility rests with their teachers, and ultimately, with the institution. Medical education has, however, fallen short in terms of developing these teaching skills in its graduates, with few undergraduate or graduate medical curricula including this component in their training. The American Medical Students' Association, recognizing this omission, has proactively, in collaboration with Mount Sinai School of Medicine, designed the 'Training Tomorrow's Teachers Today' programme to enhance students' clinical teaching and academic leadership skills. The programme also trains medical students to undertake medical education research (Smith et al. 2007a). Faculty developers could learn much from these student endeavours.

Irrespective of the forces driving faculty development, success and sustainability will ultimately depend on the commitment to change and the change in individual teachers (i.e. attitudes, behaviour, conceptions, and hopefully teaching practice). While the decision for personal development as an educator or educational leader essentially rests with individual faculty members, institutional leaders must, however, bear the moral responsibility for the professional development of the faculty they recruit or the individuals who teach their students. This is an institution's social responsibility to the communities it serves.

What are the barriers to faculty development?

Many factors may impede faculty development, ranging from unsupportive leadership, resistance to change, lack of faculty motivation and an unwillingness of faculty members to acknowledge deficiencies in their teaching ability, knowledge or skills (Hitchcock et al. 1993; Steinert 2005). For Skeff et al. (1997b), three major barriers impact on faculty development: lack of institutional support, misconceptions and attitudes of teachers and the relative paucity of research on what constitutes effective teaching improvement.

Lack of institutional support for faculty development

The *institutional culture* affects the value ascribed to faculty development. A number of contextual and situational factors (e.g. leadership; appropriate rewards) within institutions and even within different disciplines may contribute to this mismatch, including the value assigned to teaching (Healey 2000; Knight & Trowler 2000; Richardson 2005; Norton et al. 2005). These factors can also impact on an institution's commitment and resource allocation and hence participation in faculty development (Hitchcock et al. 1993; Ramani 2006; Simpson et al. 2006). While mission statements of most medical faculties generally advertise teaching as a priority, it is often research which triumphs (Hitchcock et al. 1993; Clark et al. 2004; Steinert 2005). If senior faculty administrators pay only lip service to faculty development, academic staff will perceive little need to participate and will spend their time where they derive most personal benefit. Historically, this has been research and clinical service. In addition, the motivation of teachers with a genuine interest in student learning may be undermined if reward systems focus on research prowess or revenue generation.

At institutions where research remains the 'gold standard' for appointment and promotion, participation in faculty development may require negotiation. A similar situation could arise if faculty development is perceived as a political 'top-down' approach, with little or no personal or professional reward (Hill & Stephens 2004). Fortunately, with accreditation bodies advocating more student-centred curricula and requiring 'professionalisation' of teaching (Eitel et al. 2000; HEA 2006; Fry 2006), faculty development should become an integral institutional activity. Inspirational and supportive leadership is, however, critical (Gale & Grant 1997; Bland et al. 2000). From Whitcomb's perspective (2003), if faculty members are viewed as valuable assets and rewarded for their educational contributions, faculty development then becomes an institutional investment, and, 'by enabling faculty members to meet individual goals as teachers, scholars and leaders, the broader goals and missions of the educational institutions are also met' (Boucher et al. 2006).

Boyer's (1990) identification of four scholarships, followed by Glassick et al. (1997) criteria for measuring these

scholarships, has provided a template for recognizing and rewarding excellence and scholarly activities in all spheres of academia. 'Teaching scholarship' can now be evaluated and rewarded in the same way as research or clinical service. With medical education having gained recognition as a profession in its own right, staff development programmes can address not only the professional development of faculty members, but also the personal development of those who wish to pursue a career as a medical educator or educational leader. The teaching fellowships, academies of teaching excellence (Skeff et al. 1999; Steinert et al. 2003; Gruppen et al. 2006) and Masters and PhD programmes in post-graduate medical education (Eitel et al. 2000; Rogers 2005; Cohen et al. 2005; Harden 2006) that have proliferated over the past two or decades provide many opportunities for both personal and professional development for teachers, educators, administrators and educational leaders.

Teachers' attitudes and misconceptions. Teachers' attitudes and misconceptions about their teaching reduce the likelihood of participation in faculty development (Skeff et al. 1997b). To this end, they may underestimate their teaching ability, may not perceive the benefits of training or may fail to recognize any link between teaching and clinical skills or between teacher training and teaching excellence. A faculty evaluation programme involving students and peers is recommended as a good starting point for faculty development (Hitchcock et al. 1993; Prebble et al. 2004). Poor student reviews, which will negatively impact on any promotion application, may prompt individual faculty members to participate. Ultimately, however, we would hope that the institutional culture is such that it encourages self-evaluation and reflection on practice.

Paucity of research on long-term benefits of faculty development. As mentioned earlier, meaningful or long-term outcomes of faculty development have generally not been measured or documented, despite several decades of research on and reported success of faculty development programmes (Skeff et al. 1997a, b; Guskey 2003; Prebble et al. 2004; Steinert 2005; Steinert et al. 2006). This may be explained in part by the difficulty in measuring many of the desired outcomes. While participant satisfaction can be elicited relatively easily as it is self-reported, it is considerably more difficult to measure improved student learning or enhanced patient care. As will be discussed in more detail later in the section on 'Planning and implementing faculty development', evaluation of any faculty development programme should be considered during the early planning stages when the objectives and outcomes are being decided upon. In part, the lack of reported meaningful outcomes may also relate to our evaluation tools. As these evolve (Knight et al. 2007), so too, hopefully, will be our ability to more meaningfully measure our desired outcomes.

Does faculty development really matter?

If we accept the fundamental educational premise that teaching influences student learning (Lueddeke 2003; Prebble et al. 2004), then by improving educational knowledge and teaching practice, students should benefit. Despite a wealth of literature describing faculty development programmes in medical, health sciences and higher education, few studies document meaningful outcomes such as sustained changes in teaching practice or improved student learning (Skeff et al. 1997a; Prebble et al. 2004; Steinert et al. 2006; Knight et al. 2007; Williams et al. 2007). Evidence supporting the assumption that faculty development does impact on student learning is, however, accumulating. A recent extensive review of the impact of academic development programmes on student outcomes in tertiary education led Prebble et al. (2004) to propose that good teaching does have positive effects on student outcomes (e.g. adoption of deep learning strategies), and that through a variety of academic development interventions, teachers can be assisted to improve the quality of their teaching. In this regard, Prebble et al. (2004) identified four guiding influences, which can be used to frame faculty development. These include:

(1) attributes and elements that contribute to good teaching practice,
(2) teachers' beliefs and conceptions of teaching and learning that may positively influence student outcomes,
(3) a range of conceptual models of good teaching, and
(4) learners' perceptions of what constitutes quality teaching.

1. Teaching elements and attributes contributing to good teaching practice. It has been possible to identify teaching attributes (from an extensive list) that promote student learning, such as those proposed by Cohen (1981) and Ramsden et al. (1995) (Box 4). From the many lists of qualities and attributes, each institution should identify a set of principles that reflects effective or good teaching practice in its particular educational setting. These can then be used to

Box 4. Some examples of qualities and attributes contributing to good or effective teaching

For Cohen (1981), common qualities or attributes that would contribute to effective teaching include:

- appropriate pedagogical skills;
- rapport with, empathy for and accessibility to students;
- Planning and organization (structure) of educational activities;
- Matching the degree of difficulty of the work with student ability;
- Interactivity, by actively engaging learners in educational activities; and
- Providing quality feedback to learners.

For Ramsden et al. (1995), good teachers

- are committed to improving their practice through learning more about teaching and reflection;
- are enthusiastic, wishing to share their knowledge with their learners;
- are cognisant of context and adapt their teaching to fit the *learner's needs*;
- promote deep rather than surface learning;
- set objectives, employ appropriate assessment measures and provide feedback to learners on their performance; and
- respect their students and set high standards for their achievement.

frame faculty development for the unique context of the institution.

2. Teachers' beliefs about teaching. Without an awareness of their teaching and learning conceptions, teachers generally view their task as imparting knowledge. Even if they espouse more transformative conceptions of learning, there is often disjunction between their practice and their beliefs (Murray & MacDonald 1997; Norton et al. 2005; Devlin 2006). If a primary goal of faculty development is to promote student learning by improving teaching practice, achieving this may rest with individual teachers openly and actively engaging with their conceptions of teaching and learning and their actual practice, through, for example, reflecting on their teaching sessions which may have been recorded for later viewing. Trigwell (1995) has also suggested that discussing conceptions of teaching thought to lead to improved learning during faculty development exercises may promote reflection on practice. Taylor et al. (2007), based on their qualitative study of clinical educators, have also recommend that faculty development should provide opportunities for teachers to discuss their assumptions about teaching.

3. A conceptual model of teaching and learning. In a synthesis of a vast literature on strategies to improve teaching, Prosser & Trigwell (1999) have suggested that the focus of good teaching practice should be the student, not the teacher. In their view, teachers who adopt a 'student-centred learning approach' to teaching

(1) develop a *coherent and articulated view* of what they are trying to achieve in terms of student learning, and how they can achieve this (i.e. focus on student learning). Today, learning outcomes need to reflect more than just knowledge acquisition,
(2) discover the many ways in which students perceive the planned learning context (i.e. take cognisance of the learning environment), and
(3) ensure that students understand the articulated view (i.e. align teaching and learning).

A major function of faculty development should therefore be about making teachers aware of aligning their teaching practice with the needs of students. At the end of the day, such an exercise should also benefit the institution, whose responsibility it is to graduate highly competent health care professionals.

4. Students' conceptions of teaching. Asking students to assess the quality of their learning experiences is commonly used by institutions to guide faculty development. Contrary to what many academics may believe, student evaluation, provided it is used appropriately, is useful, generally reliable and is relatively unbiased in terms of providing feedback to individual faculty and administrators (Dunkin 1997). Student evaluation has been recommended as a good starting point for faculty development (Hitchcock et al. 1993; Trigwell 1995). Prebble et al. (2004), however, remind us that we should use student ratings formatively for developing and improving teaching through feedback, advice and support. We should also be looking at multiple evaluation efforts rather than using student ratings alone.

What contributions have medical education units offices made to faculty development?

Although the first offices of medical education were set up in the late 1950s and early 1960s, their focus, according to Davis et al. (2005), was primarily medical education research. Later, in the 1970s, medical education units/departments were established to support undergraduate medical programmes, but probably also in response to the evolving responsibilities (and hence needs) of teachers (Tables 1 and 2). The widespread adoption of problem-based learning (PBL) in the late 1980s and 1990s then sparked a flurry of activity, resulting in education units appearing in many medical faculties. Over the past two decades, with the shift in focus of faculty development from the individual teacher to departments and institutional needs (Bland & Schmitz 1988; Benor 2000; Hill & Stephens 2004), medical education departments have become integral in a number of medical colleges. Educational specialists, a rare breed at medical schools prior to 1993 (Leinster 2003), but now highly sought after, are responsible for reskilling and developing the academic fraternity in the light of society's changing health care needs. For a comprehensive discussion on the development and roles of a medical education unit, readers should consult AMEE Educational Guide No. 28 (Davis et al. 2005).

What constitutes 'effective' and sustainable faculty development?

A considerable body of literature spanning more than 30 years of faculty development experience and research offers advice on what is considered 'effective' faculty development. We, however, reserve the use of the word 'effective' since the reported success of many programmes relates to faculty participation and satisfaction rather than long-term outcomes such as changed practice or improved student learning (Prebble et al. 2004; Steinert et al. 2006; Knight et al. 2007; Williams et al. 2007). A similar paucity of "meaningful outcomes" has also plagued continuing medical education programmes for the same reasons (Tian et al. 2007). In reaching their conclusions, Steinert et al. (2006) and Tian et al. (2007) used Kirkpatrick's (1994) levels of evaluation as the gold standard for assessing the outcomes. Participant satisfaction and self-reported changes or improvements were most commonly reported, which are both lower order levels of outcomes on the Kirkpatrick (1994) scale (Table 3). In Kirkpatrick's (1994) model, effectiveness of an intervention is considered at four levels:

(1) reaction of participants (e.g. participant satisfaction);
(2) learning (in terms of knowledge, skills and attitudes);
(3) behavioural changes (willingness to transfer learning to educational environment); and
(4) results (impact on learners, trainees, patients, organizational culture).

Table 3. Application of a modified and expanded version of Kirkpatrick's model (1994) for evaluating educational outcomes (Freeth et al., 2002) of faculty development. Also provided are some suggestions for evaluation and evidence that outcomes have been achieved.

Level and Outcome	Description of outcomes	*Suggestions for evaluation	*Evidence of achievement of outcomes
1. Reaction	Participants' views on the learning experience in terms of content, quality of instruction, format, organisation, etc.	*Quantitative*: Post-programme evaluation	Participant satisfaction may not provide information about short- or long-term effects of the intervention, but it does contribute to *motivation* to attend further faculty development activities
2a. Learning: *Change in attitude*	Changes in participants' perceptions or attitudes towards teaching and learning.	*Quantitative*: Pre- and post-programme evaluation using validated scales, e.g. conceptions of teaching and learning *Qualitative*: Interviews or focus groups Reflection and self-assessment by participants	More transformative conceptions of learning, learner-centred approaches A more positive attitude, e.g. by attending additional faculty development sessions, requesting assistance with teaching
2b. Learning *Modification of knowledge or skills*	*Knowledge:* In terms of concepts, theories, principles *Skills:* Development of cognitive, social and psychomotor skills	*Knowledge:* Pre- and post-training knowledge-based assessment *Skills:* Observation or video-tape teaching sessions, consultation with feedback, follow-up taping	*Knowledge:* Increased awareness of educational concepts *Skills:* Improved ratings from students/peers
3. Behaviour *Change in behaviour*	Transfer of learning to the educational environment or willingness to apply the new knowledge and skills	*Quantitative:* e.g. Approach to Teaching Inventory (Prosser & Trigwell, 1993); student ratings *Qualitative:* Observation of practice, diaries, portfolios, interviews, reflective journals	Improved outcomes for validated scales Improved practice Volunteering for education committees; post-graduate studies, etc. Career path along teaching track Collaborating groups (formal/informal), e.g. medical education research
4a. Results: *Change in system or organisational practice*	Broader changes in the organisation as a result of faculty development	*Quantitative:* Inventory measuring, e.g. Educational Environment *Qualitative:* Narrative inquiry; case study Needs to be longitudinal	Increased satisfaction with rewards for teaching Policy changes, e.g. rewards for teaching, fellowship programmes, medical education appointments Curriculum or course reform Mentoring programme for junior faculty
4b. Results: *Impact on learners, trainees or patients and communities*	Improved student or trainee learning and performance or patient care as a result of the educational intervention	May be *qualitative* or *quantitative*: Pre- and post-evaluation by students, trainees, patients (questionnaires, interviews, etc.), analysis of student grades, retention, etc.	Improved ratings by students, trainees, patients Improved student results, retention, etc. Improved health care (difficult to measure) *Long-term effects difficult to measure*

*Few studies have measured long-term effects. Follow-up of initial evaluation required.

Although Freeth et al. (2002) do not view Kirkpatrick's levels as hierarchical, outcomes become increasingly difficult to measure as one moves from reaction to results. Hopefully, as our evaluation tools evolve and additional resources are allocated to faculty development, measuring some of these outcomes should become easier.

Guskey (2003) advises us that in order for institutional leaders and faculty developers to sing from the same hymn sheet, we should agree on what constitutes 'effective' faculty development. In our view, effectiveness will, however, depend on a number of factors, including the primary aim of the faculty development activity or programme. For example, if the intention is to develop discrete skills such as familiarizing faculty with the use of the smart classroom, mastering the technology can be achieved in a few sessions. The outcomes should be very different for a faculty development programme that aims to foster a more student-centred teaching practice. Achieving this would require long-term intervention with sustained support, guidance and feedback. These examples highlight not only the need to tailor faculty development to match the task, but to ensure that the objectives of the faculty development programme are realistic. Judging whether the results are 'meaningful' will be dependent on realistic objectives, suitable measurement tools and adequate resource allocation. As Prebble et al. (2004) have pointed out, the difficulty in measuring improved student outcomes may stem, in part, from the fact that the link between faculty development and student outcomes is an indirect or two-step process. In the first instance, if staff development leads to more transformative conceptions of teaching and hence practice, this 'good teaching' should then enhance student learning, which may be possible to measure (e.g. improved grades and throughput; improved communication). Other aspects of student learning (e.g. appropriate behaviour and attitudes) are more difficult to measure.

The ultimate and overarching goal of medical education is improved patient care (Figure 2). If student learning is difficult to evaluate, measuring 'better patient care' will pose more of a challenge. We therefore need to be realistic about what can and can't be measured in terms of the outcomes of faculty development. For example, it would certainly be easier to measure changes in clinical care following a training course for clinical teachers in 'teaching communication skills' than it would be following an innovative teaching intervention in Anatomy!

As alluded to earlier, the literature informs us that it is possible to promote student learning by improving teaching practice, which may be facilitated by changing teachers' conceptions of learning (Prosser & Trigwell 1997; Prebble et al. 2004; Richardson 2005). But, how do we develop faculty development programmes that promote more transformative conceptions of teaching and learning and how do we change teaching practice when 'Medical education is probably as diverse as it has ever been' (Pritchard 2004) and when 'Medical education seems to be in a perpetual state of unrest' (Cooke et al. 2006)? Notwithstanding this apparent difficulty, guidelines, recommendations and principles of good practice have emerged from the experiences of a number of faculty developers over the past three decades which can be used to inform our practice (Table 4) (Hitchcock et al. 1993; Steinert 2000, 2005; Prebble et al. 2004; Rust et al. 2006; Simpson et al. 2006; Steinert et al. 2006).

We have chosen to group these recommendations into three main categories: effective change management strategies, effective educational practice and accountable practice. While several of these principles and recommendations (e.g. needs analysis; evaluation) will be discussed in the 'Planning and implementing faculty development' section of this guide, some warrant special mention at this juncture.

Resident faculty development experts. The once popular practice of inviting consultants to offer short training courses or sending faculty to other institutions, often at great cost, is not sustainable. Successful faculty development depends on its long-term outcomes for faculty teaching and student learning. This requires ongoing staff development, tailored to suit the personal and professional requirements of individuals or disciplines and the general needs of the institution. In our view, this necessitates a medical education unit/department staffed with appropriately trained professionals who are sensitive to the needs of faculty and readily available for consultation (Hitchcock et al. 1993, Davis et al. 2005). 'Home-grown' faculty developers who have chosen educational scholarship as a career would lend credibility to such a unit or department. Also recommended is the practice of seconding 'educationally influential' colleagues as role models and advocates, such as those who have been rewarded for teaching (Kaufman et al. 1999; Rogers 2005; Williams et al. 2007). It is critical, however, that these individuals are respected by their colleagues (Steinert 2005). Simpson et al. (2006) have described faculty developers who are 'risk-taking role models', whose behaviour advances education through public sharing of educational imperfections and mistakes, through lessons learnt and as individuals who are able to modify faculty development to engage participants.

Avoid reinventing the wheel. Rather than expending time and energy on *de novo* programmes, it makes sense to adopt strategies from programmes with proven success. To this end, Wong and Agisheva (2007) successfully transposed of a well designed and successful faculty programme from one culture to another, taking cognisance of local contextual and institutional factors. So, if an existing programme meets your needs, you may want to adapt or modify it appropriately. While this may necessitate inviting experts to assist, ensure that there is sufficient capacity and expertise at home to service the needs of faculty in the long-term.

Collaboration with and beyond the medical education arena. Sustainable faculty development requires considerable financial and human resource allocation. As institutional resources are generally finite, it is not surprising that 'Co-operation has emerged a key theme amongst academics closely involved in change – not just within a particular

Table 4. Principles of good practice in faculty development (various authors).

Employ effective change management strategies	• Work within the institutional culture and context (Hitchcock et al. 1993)
	• Change institutional culture (to recognize teaching as important) (Hitchcock et al. 1993)
	• Work to overcome barriers (e.g. resistance to change) (Steinert 2005)
	• Support and endorsement by leadership essential (Simpson et al. 2006)
	• Establish a faculty evaluation programme as a starting point (by students and peers) (Hitchcock et al. 1993; Prebble et al. 2004)
	• Develop ownership of faculty development by involving faculty in planning (Hitchcock et al. 1993)
	• Market faculty development appropriately (to promote buy-in) (Steinert et al. 2006)
	• Appoint an effective leader for the faculty development programme (Hitchcock et al. 1993)
	• Experts should be involved in developing the programme (Hitchcock et al. 1993)
	• Use a multidisciplinary faculty development team (Simpson et al. 2006)
	• Prepare staff developers (Steinert et al. 2006)
	• Faculty developers should be risk-taking role models (Simpson et al. 2006)
Employ sound educational practice	• Develop a purpose for faculty development (Hitchcock et al. 1993; Steinert 2005)
	• Conduct a needs assessment (Steinert et al. 2006)
	• Determine appropriate goals and priorities (Steinert et al. 2006)
	• Accommodate the diversity of participants (Steinert et al. 2006)
	• Use different formats for activities (e.g. online peer coaching) (Steinert et al. 2006)
	• Use a range of activities that are experiential and interactive (Steinert et al. 2006)
	• Incorporate principles of adult learning, including reflection (Steinert et al. 2006)
	• Task-centred with an emphasis on immediacy of application (Carroll 1993)
	• Immediate application of what has been learnt (Steinert 2005)
	• Ensure tangible products (team-driven, if possible) at the end of each module (Rust et al. 2006)
	• Project-oriented faculty development programmes (Simpson et al. 2006)
	• Programmes should extend over time (Prebble et al. 2004; Steinert et al. 2006)
	• Create durable educational materials linked to institutional needs (Simpson et al. 2006)
	• Promote collaborative peer/colleague relationships through role models, mentors, exchange of information (Prebble et al. 2004; Steinert et al. 2006)
	• Use the academic work group to build positive group dynamics (Prebble et al. 2004; Rust et al. 2006)
	• Collaborate across institutions in the region (Hitchcock et al. 1993)
	• Provide feedback (Steinert 2005; Steinert et al. 2006)
	• Provide affirming and actionable immediate feedback from peers and faculty (Rust et al. 2006)
Accountable practice	• Align educator roles, institutional needs and excellence (Simpson et al. 2006)
	• Evaluate/measure the effectiveness of faculty development (Hitchcock et al. 1993; Steinert et al. 2006; Simpson et al. 2006)
Other	• Secure funding to enhance programme structure and local credibility (Simpson et al. 2006)
	• Faculty development must be adaptable, responding to changing needs (Simpson et al. 2006)

medical school but between schools both nationally and internationally' (Pritchard 2004). In addition, where possible, collaboration should be multidisciplinary and multiprofessional, in line with integrated curricula and the trend towards interprofessional health education.

Collaboration between regional institutions can be very productive (Kent & Gibbs 2004). AMEE (Association for Medical Education in Europe), ASME (Association for the Study of Medical Education) in Europe and the AAMC (Association of American Medical Colleges) in the USA have served important networking roles regionally and internationally. An example of successful regional collaboration from the authors' country is the annual meeting organized by the Western Cape Branch of the South African Association for Health Educationists. Five institutions in the province jointly organize a regional health education conference, an

interdisciplinary and multi-professional scholarly gathering that allows faculty to share teaching practice experience and showcase educational research. A sizeable cash award for the best contribution is an excellent incentive.

On a global scale, FAIMER is contributing to building capacity and leadership in medical education across the globe by fostering co-operation and establishing networks between more and less developed nations (Burdick et al. 2006). The most recent addition to the FAIMER suite of regional offices was the African one which opened in South Africa in early 2008 (Norcini (Director of FAIMER) *pers. comm.*).

Collaboration in faculty development should also extend beyond medicine and the health professions. As the principles of good teaching practice should be more or less similar in all higher education disciplines, the considerable experience and expertise in training and educating professionals in tertiary education in general could inform our practice. The importance of interprofessional collaboration should become evident in later sections of the guide.

Faculty development as change. Any faculty development programme should endeavour to initiate and sustain change. This could constitute change in attitude, knowledge, behaviour and/or practice. The scale and format of change might range, on the one hand, from an individual academic's practice to the grand scale of a project encompassing, for example, an entire faculty to meet the needs of a major curriculum reform initiative (Bandaranayake 1989; Bernstein et al. 1995). As context is important for change, an open, conducive organizational culture of learning should be fostered (Eckhert 2002). Effective change also requires consultation, ownership, negotiation and commitment (Fullan 1993).

If faculty development is about change, then Farmer (2004) suggests using the Complex Adaptive Systems (CAS) theory to inform our practice. The CAS Theory, rather than focusing on the 'macro' strategic level of an organization, purports that it is at the 'micro' level that the most powerful change processes take place. It is here that interactions, relationships and rules can shape the daily activities of individuals within an organization. In line with this idea of 'micro' level change, Kirkpatrick's (1994) discussion of 'individual' change becomes relevant. In this regard, four conditions need to be met: a desire to change, the knowledge of what to do and how to do it, a supportive work environment and reward for embracing change.

Any faculty development programme should therefore conform to best practice regarding change management principles (Kirkpatrick 1994; Gale & Grant 1997; Bascia & Hargreaves 2000; Bland et al. 2000). A meaningful discussion on change, however, requires more than a few paragraphs, which is beyond the scope of this guide. Readers are advised to consult the 'gurus' such as Fullan (1993), Bland et al. (2000) and AMEE Guide No. 10 (Gale & Grant 1997). Suffice to say at this point that while change is often a political process, faculty development should aim to foster a change in the institutional culture such that teaching scholarship is recognized and rewarded. Through appropriate attitudes and behaviour and role modeling, faculty developers have the potential to act as change agents.

Faculty development as accountable practice. If faculty development practice is to promote a more grounded approach, the myriad of initiatives underway across the globe should be appropriately evaluated and reported. Despite long-standing calls for better evaluation of practice, recent reviews still lament a lack of quality data in this regard (Prebble et al. 2004; Steinert et al. 2006). Lack of time, money and staff have been most frequently cited as factors preventing systematic evaluation of faculty development (Kreber & Brook 2001).

Two useful frameworks relating to accountable practice are provided by Gray and Radloff (2006) and Otto et al. (2006). In Gray and Radloff's (2006) framework for quality management in academic development in higher education, change is viewed as faculty development moving from remediation to transformation of practice. Quality management spans faculty development from the perspective of the academic developer to that of institutional management. Otto et al. (2006) describe the application of the programme logic model (borrowed from the Kellogg Foundation) to measure the contribution of faculty affairs and development offices to the recruitment, retention and development of a medical school's faculty. These documents are well worth reading.

Adaptability of faculty development. Simpson et al. (2006), in addition to their 'bedrock principles' relating to faculty development such as support and endorsement from the leadership and multidisciplinary faculty development, also propose 'practice tenets' for successful faculty development. One of these is the adaptability of any faculty development programme. As the roles and responsibilities of individual faculty members continue to evolve in terms of institutional and societal needs, faculty development activities must be modified accordingly.

Tailoring faculty development

Levels of faculty development

Before embarking on the practical aspect of this guide, it might be useful to identify the many purposes of faculty development. If each of these is viewed as a different level, with different outcomes (Table 5), then faculty development may be required for:

(1) orienting new staff members into the academic culture of the institution;
(2) developing discrete skills, which may be precipitated by a key event in the life of an institution, such as the implementation of new assessment methods or online learning;
(3) professionalizing teaching, by enhancing and extending the educational practice of academics in different disciplines;
(4) developing educational scholarship, by supporting individuals who will extend the field of medical education research; and

Table 5. Levels of faculty development designed to meet the needs of individuals, disciplines and the institution (adapted from Wilkerson & Irby, 1998; Benor, 2000).

Level of faculty development	Whose need is being met?	For whom?	When? How?	Individual or teams?	Possible benefits for the institution
1. Orientation	Institutional; individual	New academic staff entering the faculty	*Scheduling would depend on recruitment.* Format could include social gatherings, workshops and a peer mentoring programme	Preferably groups but may be on an individual basis	Faculty members • Are socialised into the institution • May be retained for longer if in a community of practice
2. Generic skills for all teachers - faculty, community preceptors	Institutional, discipline, individual	For all faculty, e.g. • Theories of learning • Interactive teaching • Principles of assessment • What's new in medical education?	*Regular intervals* for new faculty + updates for established faculty members though student and peer feedback on lectures, assessment questions. Interactive workshops are probably the best vehicle. E-learning, using Blackboard and other websites would be useful, especially for distance education. An educational newsletter would create an awareness of current issues in medical education. Developing educational portfolios would encourage reflection	Groups or teams (multidisciplinary or departmental, depending on need)	• Increased self-awareness of teaching ability and learning conceptions • Increased awareness of student needs • Greater satisfaction and participation by students • Improved teaching and assessment • Course or curriculum reform in line with global trends
3. For different communities of academics	Institutional, discipline, individual	*Clinical teachers*, *residents,* e.g. • Learning in the clinical environment • Ethical and effective use of patients for teaching • Assessment and feedback in clinical teaching *Administrators*, e.g. • Effective management • Effective leadership *Researchers,* e.g. • What is medical education research? • Research methodology • Research ethics	*Ongoing.programme* which may lead to certification. May be in response to a particular need, e.g. course development. Feedback from students, patients and other members of the health care team would be useful as starting points and for measuring progress. Workshops and group discussions across disciplines encourage team work. Development projects (e.g. how would you revise this module, course?) could be useful for generating discussion. A medical education research group with regular journal clubs would support faculty wishing to become medical education researchers. Online and distance education possible	Individual but more likely to be small multidisciplinary groups. May be discipline-based.	• Improved student learning • Improved supervision • Patient satisfaction • Role modelling • More inclusive faculty/discipline management • More collegial culture • Greater individual and institutional scholarship • Research productivity, including student and resident research
4a. Educational scholarship	Institutional, individual	For those who have chosen teaching as a career: *Clinical-Educator; Medical Science Educator*, e.g. • How to publish • Writing grant proposals • Managing research funding	*Ongoing programme*, with the possibility of certification and/or a degree. Many activities are possible for these faculty, ranging from attending medical education conferences and recognised international training courses. A medical education research group is important. Collaborative research should be fostered	Individuals or small groups (communities of practice)	• Communities of knowledgeable scholars • Development of innovative curricula, assessment and evaluation tools • Educational leaders and mentors • Home-grown faculty developers • Medical education research • Improved student outcomes
4b. Educational administration and leadership	Institutional, individual	*Dean; Associate Dean for Medical Education; Curriculum Committee Chair* • Policy and procedure development • Organisational structure • Effective leadership	*Ongoing programme* involving increasing responsibility. Training in human resource management and leadership skills essential	Individual or small groups or teams	• Empowering leadership • Conducive institutional culture • Curriculum reviews • Policy development relating to key issues • Change agents

(5) developing educational leadership, by supporting faculty members who wish to become policy-makers, chairs of educational committees or deans of faculty.

We have adapted these levels from Benor's (2000) 2020 vision of multiphasic faculty development and teacher accreditation, in which he proposed four phases of staff development – from orientation, through basic and specific instructional skills, and finally, to developing educational leadership. Table 5 reflects levels rather than phases, in line with the assumption that only some faculty will opt to become educational scholars and leaders. Faculty development programmes should therefore be appropriately tailored or customised to meet the needs at each level – institutional, discipline, individual faculty members or a combination. To this end, one would anticipate that all newcomers to an institution require orientation into the educational and institutional environment. All teachers would also require a repertoire of generic teaching skills (e.g. teaching in small groups), while clinical teachers need more specific skills (e.g. teaching ethically with patients or supervising residents).

Using Levinson et al.'s (1978) description of life as a series of transitions and plateaus at different stages in academic life, Carroll (1993) suggested that faculty development programmes should be aimed at individual faculty members at transition points (which may be regarded as phases) in their career, such as initial appointment, promotion, tenure, assumption of supervisory or leadership duties and, finally retirement. While these may represent personal 'academic crossroads' for individuals, we would certainly hope that institutions recognize the professional aspect of these transitions.

A 'critical incident' in the life of an academic, such as the requirement to become more digitally competent, may also present a crossroads. The global introduction of PBL should also have led many academics to reflect on their changing role in student learning and the recognition for training.

Considering the global *status quo* in faculty development, most faculty members probably receive Level 1 and possibly Level 2 training only (Table 5). As the pressure to implement global standards gains momentum and as accreditation bodies implement professional teaching requirements, it may come to pass that all teachers would be expected to attain Level 3 as a minimum requirement. Some academics may choose or be encouraged to undertake post-graduate studies in medical education to become educational researchers and perhaps leaders and administrators (Level 4). It should, however, be borne in mind that for under-resourced institutions, as is the case in many developing countries, achieving Level 2 would be difficult. FAIMER's role in creating a cadre of medical educators in Africa, Asia and South America will contribute greatly to developing this capacity in these regions.

Short courses *vs*. ongoing faculty development

If we accept that to improve student learning, teaching practice must change, then there must be faculty development interventions in place that might lead to the desired change in practice. From an extensive review of the higher education literature on the impact of faculty development on student outcomes, it would appear that short training courses (e.g. one-off seminars, workshops) have a limited impact on changing teaching behaviour or practice (Prebble et al. 2004). Does this imply that short courses have no place in faculty development? The answer is an emphatic 'No', as not all faculty development lends itself directly to the overarching goal of medical education of improving student learning or patient care. Short courses have been used extensively in faculty development as they are cost-effective for disseminating information to large groups. Short courses should also valuable for 'just-in-time' training, which may dovetail with institutional needs, e.g. to inform faculty about institutional policy and practice or to develop discrete skills and techniques. For example, training departmental chairs to use a new electronic student mark management system will probably involve only one or two sessions. While such improvement in administration efficiency may not benefit students directly, some might argue that if students receive results in good time, there could be earlier feedback and remediation and hence improved learning. Measuring this, however, would be difficult, which may explain, in part, why long-term impacts of faculty development programmes have generally not been documented (Steinert et al. 2006). To reiterate, it is important therefore at the outset of faculty development planning to identify the purpose of the intervention as this will impact on the outcomes to be measured and the evaluation tools to be used to measure effectiveness.

Does this imply then that more comprehensive and intensive, ongoing faculty development improves student outcomes? While the evidence leading to such a conclusion is currently insufficient, the gradual accumulation of research data suggests that for sustainable faculty development, such interventions may be necessary (Prebble et al. 2004; Steinert et al. 2006). Programmes that extend over a few semesters with protected time and which run in parallel with participants' teaching schedules may increase teacher's knowledge and skills and reflection on practice. Protected time will allow participants to meaningfully test different approaches, perhaps fostering the use of more student-focused activities, which in turn should improve student learning. Continuous programmes may also lead to certification or accreditation, which may meet both the personal and professional needs of individual faculty members as well as those of the discipline and the institution. For sustainable change in educational practice in the institutional context, it is important to encourage and nurture some faculty members (including post-graduate students) to become the future generation of educational scholars and leaders.

Planning and implementing faculty development

A number of issues raised in earlier sections of this guide (e.g. the need for realistic and measurable outcomes; tailoring faculty development) now become relevant. The general lack of reported long-term or meaningful outcomes of faculty development programmes does not mean, however, that we should 'throw the baby out with the bath water'. Many of

the principles and recommendations underlying faculty development (Table 4) provide faculty developers with considerable guidance and direction. In this section of the guide, we hope to address some of these issues and to provide insight and practical advice on what appears to be successful practice and what factors should be taken into consideration.

Perhaps a useful analogy at this stage would be a comparison between a faculty development programme and a journey. Passengers embark on a journey for many different reasons (Fullan 1993). If the destination is not advertised or is not suitable, few passengers will start the journey. If the destination changes *en route*, some will disembark along the way. To cater for all travellers, it is important to know who they are, where they want to go and why they are taking this particular excursion. Once at the final destination, we need to know if the ride met with their expectations. Would they recommend the trip to a friend? Can we be of assistance for future travel plans? Equally, important is to understand why some may have abandoned the journey along the way. As the organizers, we would want to know if everything went according to plan. A good travel company would also check with the passengers some time after the travel. What would we do different next time? This description should have evoked words such as 'purpose', 'need', 'planning', 'evaluation' and 'satisfaction', all important considerations when designing, implementing and measuring the effectiveness of any faculty development. Designing such programmes calls for a systematic approach to ensure that key elements such as 'purpose' and 'need' are addressed. This task may be facilitated by following, for example, the six-step approach advocated by Kern et al. (1998) for evaluating curriculum development (Table 6).

A six-step approach to faculty development (adapted from Kern et al. 1998)

For simplicity, we have divided Kern et al's (1998) six steps into three phases:

A. planning (Steps 1–3);
B. implementation (Steps 4–5) and, finally;
C. evaluation and feedback (Step 6).

Critical questions we believe should be addressed at each of the six stages can be found in Table 6.

A. Planning faculty development (Steps 1–3)

1. Problem identification and general needs assessment

The first step is to agree on the purpose of the proposed faculty development (i.e. identify the problem) and the broad aim in terms of the institution, particular disciplines and individual faculty members (i.e. a general needs assessment). Identifying a problem suggests that there is a current state and a desired state. The aim of the faculty development programme should be to bridge this identified deficiency.

Critical questions at this stage might include (Table 6): Is the faculty development programme in response to a particular 'problem' that has arisen (which may require a short-term intervention) or is it part of continuous staff development (e.g. from orientation to teacher accreditation), which requires sustained intervention?

Are the driving forces internal (e.g. individual career development) or external (e.g. accreditation), or both? Have sufficient resources been allocated?

If the driving forces are largely external and if there is little personal motivation to improve teaching, then individual faculty members will want to know why they should participate (Carroll 1993).

2. Needs assessment of target participants

Having agreed on the general purpose of the faculty development programme, the needs of individual faculty members, disciplines and the institution should be identified. Critical questions at this stage would include: For whom is the faculty development? Are they new or existing staff? Why do they need faculty development? What is their current level of knowledge, skills and attitudes? Is faculty development voluntary or mandatory? What barriers exist? How do we overcome them? (Table 6).

Incoming faculty require different interventions from faculty members already socialised into the institutional environment. Existing faculty may, however, need to develop new skills to cope with changing demands on their time and their teaching practice. A possible way to identify a cognitive deficit might be to measure faculty members' 'tacit' knowledge and understanding of teaching and learning concepts (e.g. McLeod et al. 1997). You may have to develop your own tools, which ideally should promote self-assessment. One could, for example, ask clinical faculty to evaluate their competency against the three circle model criteria for an excellent clinical teacher (Harden et al. 1999; Hesketh et al. 2001). In such a scheme, individual clinical teachers would identify their deficiencies in terms of teaching competency, skills and professional approach, develop a personal learning plan and then slot into the appropriate scheduled sessions.

A self-perception of inadequacy (Carroll 1993), such as poor student evaluation may result in individual requests for faculty development. Determining specific needs of individuals may, however, require consultation or negotiation. Faculty developers might then work with individuals or course co-ordinators at a departmental level (Hill & Stephens 2004).

3. Appropriate goals and specific measurable outcomes

Questions at this point may include: What knowledge, skills and attitudes need to be achieved through faculty development? Is it possible to measure improved student learning or improved patient care? What tools are at our disposable to measure the proposed outcomes? (Table 6).

The task at hand will dictate the overarching goal and specific outcomes, which may range from cognitive or affective to psychomotor. Having determined the overall aim of the faculty development programme (e.g. improving

Table 6. Critical questions at each stage of an adaptation of Kern and colleagues (1998) six-step model to faculty development.

Key issues in sustainable faculty development	Critical questions to be asked	Implications for faculty developers
1. Problem identification and general needs assessment	What is the purpose of this faculty development? (e.g. general staff development or in response to a ''need' or CME?) What kind of faculty development programme is required? (short-term or continuous – would depend on need). What are the motivating forces? (e.g. internal or external or both) Who are the stakeholders? Does the institutional culture support faculty development? What resources are available?	Impacts on the level/type of faculty development: individual, generic; departmental; clinical, etc. Developing the teaching instinct is a developmental process but one-off sessions might be useful for updates, orientation, discrete skills development Internal motivation to participate should be encouraged Institutional culture (affected by leadership) will impact on recognition of teaching scholarship, resource allocation, etc.
2. Needs assessment of target participants	For whom is faculty development? What is their current understanding/conception of teaching and learning? What are their present needs? (e.g. assessment; IT; feedback?) Is faculty development mandatory or voluntary? What barriers exist? How do we overcome them?	Faculty development must be tailored to suit the needs of different faculty (e.g. clinicians, medical scientists, community preceptors, multidisciplinary or single department Determining prior knowledge, understanding, conceptions would assist in identifying needs of individuals and disciplines. Consider a pre-programme assessment of level of understanding and conceptions Institutional culture will impact on participation Many, especially those relating to institutional culture impact on faculty development
3. Goals and specific measurable objectives or outcomes *(N.B. Plan evaluation at this stage)*	What participant outcomes (e.g. knowledge, skills, attitudes) are expected? Will the programme improve student learning and/or patient care? How can we evaluate/measure these outcomes?	For long-term improvement, faculty development should be ongoing Measuring improved learning or patient care is difficult Evaluation methods must be appropriate (quantitative + qualitative) Conduct a post-faculty development assessment + follow-up (e.g. 6 month or 1 year later)
4. Educational strategies	How will the advertised outcomes be achieved? What are the theoretical underpinnings of this faculty development? How can the diversity of participants be accommodated? How do we make faculty development learner-centred and interactive?	Faculty development exercises must match the task. ''On-the-job'' learning. Task-based. Link theory to practice A variety of activities will accommodate different types of learners. Tailor appropriately In an integrated curriculum, cross-disciplinary faculty development will provide insight into contributions to teaching by different disciplines. A team approach also promotes collegiality
5. Programme implementation	Should faculty development be multidisciplinary? Is there protected time? Are the goals and outcomes being met? If not, is the programme sufficiently adaptable to accommodate perceived shortcomings?	The particular task will dictate whether faculty development should be multidisciplinary Protected time allows faculty developers to work within a particular framework This is when you know whether planning had been sufficient Design a programme to be flexible, to meet unforeseen challenges
6. Evaluation and feedback Use Kirkpatrick's (1994) model to frame evaluation: 1. Participant satisfaction 2. Increase in knowledge, skills, positive change in attitude 3. Change in behaviour 4. Results (e.g. impact on students, patients, institution)	Levels 1. Did training meet participant needs? Was their time well spent? 2. What impact did it have on their knowledge, skills and attitude? 3. What impact did faculty development have on participants' practice? 4. Did faculty development improve student learning? Did it improve health care? Did it impact on institutional or departmental culture? How could the programme be improved? Is follow-up required? Are there any unanticipated outcomes?	Outcomes become more difficult to measure from Level 1 to 4 of Kirkpatrick's model. Participant satisfaction is important to ensure subsequent participation. Easy to measure Can be measured relatively easily, e.g., inventories Can review their teaching sessions. Student ratings Measuring improved student learning may require long-term evaluation of results, retention, etc. Measuring improved patient care is difficult. Long-term evaluation required If faculty development is well organized, some may be motivated to become educators Communities of practice may develop Evaluation and feedback may reflect the need for follow-up One should always be looking for omissions and improvements

student assessment), the institutional and individual outcomes must be explicit and measurable. As the tools we use should be able to measure the desired outcomes, evaluation should be planned when the outcomes are identified, i.e. at this point, in Step 3. Kirkpatrick's (1994) levels of outcomes should be consulted (Table 3).

Realistic and measurable outcomes may then include

- Individual competencies in terms of cognitive (knowledge), affective (attitudinal) and psychomotor (skills and performance) development.
- The learning 'process' (e.g. small group facilitation; reflective teaching).
- Educational (e.g. better student assessment) or clinical (e.g. improved communication with patients) benefits.

Project- or task-oriented faculty development (Simpson et al. 2006; Rust et al. 2006) which draws on adult learning principles (e.g. Knowles 1980) offers a number of benefits: immediacy of application and ease of identifying measurable outcomes. The latter is also the focus of Steinert et al.'s (2006) Best Evidence Medical Education (BEME) review of faculty development. Projects or tasks may also facilitate the alignment of faculty development with institutional needs.

B. Implementation (Steps 4 & 5)

4. Educational strategies

Appropriate questions at this stage may include: How will the advertised outcomes be achieved? What are the theoretical underpinnings of this faculty development? How can the diversity of participants be accommodated? What activities can we use to make faculty development learner-centred and interactive? (Table 6).

Educational strategies used in the faculty development programme should be aligned with the learning outcomes. They should be authentic and contextually relevant. A lecture-based approach to demonstrate the learning that takes place in a small group tutorial in PBL would not be considered 'authentic'. Similarly, it is best to learn to use new software and multimedia at the computer, with hands-on practical experience that is immediately applicable. Just as we expect our students to engage in activities that promote independent learning, peer and self-evaluation and reflection, we should practice what we preach. The level and hence outcomes of any faculty development programme will guide the choice of activities, which could range from journal clubs, peer mentoring, portfolio completion to the development of objectives and assessment questions in interprofessional teams. Table 5 provides some suggestions regarding activities at different levels of faculty development.

If faculty development is about changing practice with the view to improving student learning, then it should be underpinned by one or more theoretical models (Box 5). Much of the research in higher education has linked conceptual change models with student learning models and so faculty developers have tended to use a hybrid approach (Trigwell 1995; Kember 1997; Prosser & Trigwell 1997; Prebble et al. 2004; Richardson 2005). Good examples of this combination include the studies of Ho et al. (2001) and Gibbs & Coffey (2004). Gibbs and Coffey (2004) suggest that if teachers can adopt more transformative conceptions of learning, their more student-centred teaching practice should foster deep learning. Gibbs and Coffey (2004), based on results of a large-scale study (22 universities; 8 countries) using several validated inventories, reported positive conceptual and practice changes amongst 'trained' teachers, as well as deep learning amongst students exposed to the trained group. Insufficient evidence, however, exists to select one model over another, with each offering benefits. The task at hand will dictate the most appropriate model but it is likely to be a hybrid approach.

More than 25 years ago, Stein (1981) advised a learner-centred approach to faculty development. In such an approach, participants set their own goals, plan their learning, use experiential learning in small groups and evaluate the outcomes of their participation. Many of these suggestions reflect the same theoretical underpinnings (e.g. adult learning) and principles (e.g. self-directed and student-centred learning) that should inform our teaching practice (Carroll 1993; Wilkerson & Irby 1998; Steinert 2000, 2005; Pololi et al. 2001; Mann 2002; Steinert et al. 2006) (Table 7). By linking theory with practice in faculty development programmes, teachers will have first-hand experience of the principles and the theories that should inform their teaching practice and the activities in which learners should engage.

Thus, in a learner-centred approach to faculty development, participants should be encouraged to

- negotiate their learning objectives (Knowles 1975),
- have hands-on practical experience (Kolb 1984),
- collaborate as members of a team (Bandura 1986),

Box 5. Theoretical models to improve teaching practice (Prebble et al. 2004)

- Behavioural change models, which focus on modifying a teacher's behaviour in the classroom,
- Development models, in which teachers change their focus of attention from self to subject, and eventually to student (initially, assive and then to active student learning),
- Conceptual change models, in which teachers' conceptions about teaching reflect their intentions and practices,
- Reflective practice models, in which teachers reflect on why and how they teach and assess learners,
- Student learning models, in which students' approaches to learning and their perceptions of the learning environment are considered, or
- Hybrid models, which combine aspects of different models.

- engage in self-directed learning (Knowles 1975),
- recognize the assumptions that underlie their beliefs and behaviours (Brookfield 1995),
- receive and provide feedback (Knowles 1975),
- solve problems and transfer this experience to other situations (Regehr & Norman 1996),
- reflect in- and on-action, alone (Schön 1987, 1991) and with colleagues (Bandura 1986),
- engage in self-assessment (Williams et al. 1999), and
- apply what they have learnt to their practice (Knowles 1988; Regehr & Norman 1996).

Trigwell (1995) has suggested some practical strategies that might be useful to engage academics with their practice during faculty development sessions. These include

- developing an awareness of the variation (i.e. different conceptions) in teacher thinking (e.g. through appropriate articles in journal clubs),
- discussing conceptions of teaching which are thought to lead to improved learning (e.g. in small group discussions with colleagues who have been recognized for their teaching excellence),
- illustrating strategies and practices that are consistent with these conceptions (e.g. through reviewing and reflecting on video-taped sessions),
- using positive student comments relating to teachers who have improved their teaching practice, which could be discussed in groups or through a peer mentoring programme.

Provided there is protected time and allocated resources, faculty developers can, through appropriate activities, exercise considerable creativity not only in appropriately tailoring faculty development, but also ensuring that there is constructive alignment between the desired outcomes and the process.

In terms of implementing a faculty development programme, positive outcomes of a mixed mode approach (role-playing, brainstorming, group discussions, practice, feedback) to both faculty development (Amin et al. 2006) and continuing medical education (Davis et al. 1999) programmes have been reported. Such an approach will cater for the different learning styles and personalities of participants, in line with Gardner's (1993, 1999) theory of multiple intelligences and the widely different manner in which faculty members approach tasks and interact with each other (Challis 2001).

Technology could certainly facilitate this. In this digital age, web-based and distance learning will become increasingly important in faculty development. With busy schedules and

Table 7. Examples of theories and principles used in teaching and learning that can underpin faculty development.

Theory or principle	Explanation
Maslow's (1970) hierarchy of needs	In order to be everything one can be (i.e. self-actualization), four hierarchical needs have to be met: physiological, safety, sense of belonging and self-esteem.
Vygotsky's (1978) zone of proximal development theory	The potential for cognitive development depends upon the 'zone of proximal development': level of development attained when one engages in social behaviour. Skills that can be developed with adult guidance or peer collaboration exceed what can be attained alone.
Kolb's (1984) experiential learning theory	In a four-stage learning cycle, immediate or concrete experiences provide a basis for observation and reflection, which are then assimilated. The cycle then begins again.
Knowles' (1980) adult learning theory	Adult learners are autonomous and self-directed, have accumulated a wealth of life experiences, are goal- and relevancy-oriented and are practical.
Bandura's (1986) social learning theory	Emphasizes importance of observing and modelling behaviours, attitudes and emotional reactions of others. Social learning theory explains human behaviour in terms of continuous reciprocal interaction between cognitive, behavioural and environmental influences.
Schön's (1987, 1991) theory on reflective practice	Two types of reflection: reflection in-action (thinking on your feet) and reflection on-action (retrospective thinking). Reflection used in unique situations, and when one may not be able to apply known theories or previously learnt techniques.
Brookfield's (1987) critical thinking theory	Critical thinking is a form of problem-solving. By recognising the assumptions that underlie our beliefs and behaviours, we can then judge the rationality of our decisions.
Lave's (1988) situated learning theory	Learning is a function of the activity, context and culture in which it occurs (i.e. is situated). Social interaction is a critical component of situated learning. Learners become involved in a 'community of practice' which embodies certain beliefs and behaviours to be acquired.
Gardner's (1993;1999) multiple intelligence theory	Initially proposed 7 intelligences (linguistic, mathematical, musical, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal) to account for the differences in individuals. Added 3 others later (naturalistic, existential/spiritual, moral).
Regehr & Norman (1996) and cognitive psychology	Identifies several issues in cognitive psychology impacting on teaching and learning: organisation of long-term memory, influences on storage and retrieval from memory, problem-solving and transfer, concept formation and decision-making.
Williams et al. (2001) self-determination theory	Describes how learners can be assisted to develop autonomous motivation, which will promote life-long learning. Achieved through self-assessment and self-efficacy. Personal judgment of a learner's ability can motivate him/her to set new goals and meet needs.

off-campus locations, faculty members, adjunct faculty and community and private preceptors can complete assignments online, chat to fellow participants at any time from anywhere in the world. The permutations are endless. We should not, however, be consumed by technology and lose sight of the value of face-to-face interaction with our peers and colleagues (Steinert 2005).

5. Final implementation

Questions that need to be answered at this stage include: Should faculty development be multidisciplinary? Is there protected time? Are the goals and outcomes being met? If not, is the programme sufficiently adaptable to accommodate unanticipated shortcomings?

The evidence supports the academic group as an effective setting for developing the complex knowledge, attitudes and skills involved in teaching (Prebble et al. 2004). Where possible then, faculty development should use collaborative team work, allowing individuals to reflect on their practice and receive feedback from peers. This team work should also aim to foster a culture of professional inquiry, but, should group faculty development be departmental or multidisciplinary? Both have pros and cons. While generic skills and knowledge (e.g. principles of assessment, learning theories) training could be conducted with multidisciplinary groups, other faculty development might need to be tailored specifically for clinicians or particular departments (Table 5). From Neumann's (2001) higher education perspective, department-based professional development is more likely to offer better opportunities for enhancing pedagogical practice than a centralised, generic teaching skills accreditation programme approach which may reduce teaching to a technical level of performance. In addition, even if the institutional culture may not be as supportive as we would like, an empowering discipline chair can still promote teaching excellence or educational scholarship amongst his/her staff (Knight & Trowler 2000; Boud & Middleton 2003).

Interdisciplinary faculty development offers several benefits. A multidisciplinary approach, for example, to prepare faculty for reform to an integrated curriculum would certainly promote an appreciation and understanding of how individual disciplines become horizontally and vertically integrated. One would also hope that the collaborative interdisciplinary discussions during formal faculty development sessions would inspire or improve long-term collaborative teaching and learning or perhaps research endeavours. Collegiality is certainly a documented outcome of multidisciplinary faculty development (Pololi & Frankel 2005; Davis et al. 2005). As medical practice (and hence the medical curriculum) becomes more interprofessional (Parsell & Bligh 1999; Bligh et al. 2001), the spin-offs of team work, collaboration and mutual respect are likely to become important outcomes of faculty or college development programmes. The 'problem identification and needs assessment' stages will therefore dictate the type (e.g. departmental, faculty, interprofessional) and level (e.g. generic skills for all faculty or discipline-specific knowledge and skills) of faculty development.

Lave's (1988) situated learning theory explaining how interaction with professionals socialises newcomers into the institutional culture can also be drawn upon. The development of 'communities of practice' should provide an environment that nurtures learning and professional development. In Bandura's (1986) view, learning should be based on observation rather than relying solely on individual efforts. As modelling is an important part of human behaviour, teaching skills could be improved by observing what is considered to be excellent educational practice (Bandura 1986). To take this a step further, in an institution that truly values and rewards its teachers, faculty development should be aimed at not only fostering the development of a community of professional and informed teachers, but should also encourage and provide support for a community of teachers and educators such that they become educational scholars and leaders. These individuals should be the mentors and role models of junior or new staff. Such collegiality would certainly promote scholarly productivity.

When planning group activities, we should, however, take cognisance of, for example, relationships, status, responsibility and reputation (i.e. Maslow's (1970) hierarchy of needs). Where faculty development requires collegiality and collaboration (e.g. developing skills to undertake curriculum reform), we need to recognize which faculty groups work best together. Challis (2001) provides an entertaining account of the role of the medical faculty developer, in which she advises the need to recognize the diversity of faculty when planning academic development. Do the squirrels work best with the dinosaurs and koalas, or do they work better with the sheep and the chameleons? (Challis 2001).

In an institutional culture that promotes faculty development, there will be protected time for faculty members to improve their personal and professional teaching practice. If faculty development is integrated with faculty policy, then resources will be allocated and participants will be rewarded. If clinical or science research, however, remains the gold standard of scholarship, faculty developers will face resistance to participation from faculty, possibly even from the most dedicated teachers.

C. Evaluation and feedback (Step 6)

6. Evaluate programme effectiveness and provide feedback

Although evaluation is an important aspect of faculty development, it is probably the most neglected (Prebble et al. 2004; Steinert 2005; Steinert et al. 2006). As discussed earlier, evaluation of a faculty development programme should be linked to the desired outcomes. Critical questions about measuring programme effectiveness need to be asked and answered during the planning stage, when the objectives are agreed upon (i.e. Stage 3 of Kern et al.'s (1998) approach) (Table 6).

As already alluded to, the poor documentation of long-term and meaningful outcomes may, apart from inherent difficulties of measuring higher level outcomes, relate to inappropriate

evaluation tools, amongst a number of other factors (e.g. insufficient resource allocation). To date, evaluation of faculty development has been largely quantitative. While this may be appropriate for lower level outcomes (e.g. participant satisfaction) in Kirkpatrick's (1994) model (Table 3), higher order outcomes require more qualitative measures (Skeff et al. 1997a; Knight et al. 2007).

It would be useful for faculty developers to use validated inventories and instruments from the higher education arena and Psychology for evaluating learner or faculty interventions. Prosser & Trigwell's (1993) Approach to Teaching Inventory and instruments used by Gibbs & Coffey (2004) in their landmark study are two such examples. Having offered this advice, we do, however, acknowledge our previous comment that part of our problem of measuring higher level outcomes may relate to our historic use of largely quantitative tools. A recent study by Knight et al.'s (2007) has demonstrated that it is possible to measure the qualitative impact of faculty development on both personal and professional development.

While we strive to measure 'meaningful' and 'long-term' outcomes of faculty development, Steinert (2005) has pointed out that despite participant satisfaction being assigned to the lowest level on Kirkpatrick's (1994) model, it is nevertheless an important consideration in faculty development. If participants do not believe that their time and efforts were well spent, they may not sign up for further faculty development sessions, just as the travellers on the train journey. We would also certainly want faculty to recognize the value of courses and recommend them to colleagues. Readers should consult Goldie (2006) for a description of the range of tools for evaluating educational programmes and Snell et al. (2000) for a discussion of measurement principles relating to clinical educational interventions.

In Kern et al.'s (1998) six-step approach, feedback is included in the final step. Reporting results of the evaluation to participants and stakeholders is important as it helps to identify future needs. This may initiate another cycle of faculty development. It may also identify unintended outcomes as well as where modifications to existing programmes are required. An institutional leadership which values its teachers will also be interested in the outcomes of its investment in its staff. These reports will certainly add value to accountability and quality assurance measures of the institution.

In suggesting frameworks such as those proposed by Kirkpatrick (1994) and Kern et al. (1998), the message that we would like to convey to anyone organising a faculty development is that a systematic approach to planning, implementing and evaluating faculty development is required. In addition, at the end of the day, the programme needs to meet the standards of accountable practice (Gray & Radloff 2006; Otto et al. 2006). For participants to feel that their time and efforts were well spent, they must know why they need to attend. Their needs must be serviced and there should be a 'product' at the end. Asking the right questions, tailoring the programme to suit the particular needs and rewarding participants are some of the key elements to successful, and hopefully, sustainable faculty development.

Future directions for faculty development

An extensive literature exists which attempts to predict the future of medicine and medical education (Alkan 2000; Benor 2000; Harden 2000, 2006; Rennie 2000; Gorman et al. 2000; Karle 2006). Having been given some academic latitude in preparing this guide, and considering that the overarching aim of faculty development is to develop the teachers, supervisors and educators of tomorrow's health care practitioners, it would certainly be appropriate to consider some of the trends which we think may influence faculty development in the next decade or two (Table 8). From an 'evolutionary' rather than a 'revolutionary' perspective (Harden 2000), we are of the opinion that three current but related developments in medical education warrant discussion. These are the digital age, globalization and the 'business' of medical education. A fourth factor which we believe will impact on future medical and hence faculty development will be the renewed emphasis on patient-centred health care, in which morals, ethics and professional behaviour are valued as much as knowledge and skills development.

The digital age, globalization and the commercialisation of medical education

Information technology, simulation and virtual reality, already an integral part of medicine and medical education, will continue to advance medical practice in the 21st century (Benor 2000; Harden 2000, 2006; Gorman et al. 2000). Gorman et al. (2000) see the future of their discipline (surgery) as 'no longer blood and guts, but bits and bytes' (Box 6).

Information and digital technology has also facilitated the realization of what some may have considered revolutionary a decade ago – a virtual medical school. Through the labours of Ronald Harden, the International Virtual Medical School (IVIMEDS) was born (Harden & Hart 2002). Resource development for this virtual medical school involves collaboration of ±30 medical schools representing more than a dozen countries. Not only does this virtual 'medical school' offer tailored 'just for me' and 'just in time' learning opportunities for students across the globe, but it also provides an international flavour to online learning. Truly a global community!

Like health care, medical education is fast becoming a business. Foreign fee-paying learners may now account for up to 15% of medical students at UK universities and as many as 40% at some Australian universities (Hawthorne et al. 2004). Commerialization and internationalization of medical education have been supported by the online and distance learning opportunities already discussed. We predict that virtual medical schools will continue to proliferate over the next decade, providing continuous and flexible learning and simulation opportunities to meet many of the needs of a global community of students. This globalization requires international teachers and resource developers and an international component in the curriculum (Alkan 2000). Combined, these issues should drive increased accountability, with accreditation of institutions and their teaching staff being required by national as well as international bodies.

Table 8. Projected impacts on faculty development to meet the needs of medical education in the next decade and beyond.

Major trends and driving forces in medical education 2010+	Academics required by medical schools	Faculty development issues
Globalisation, commercialisation of medical education, information technology and moral/ethical patient/community care and safety will lead to • Implementation of global standards in medical education (core international curriculum, competencies, assessment) • Increase in electives (global exchange) • 'Adaptive' curricula: Blended learning • Patient-centred curriculum based on ethics and values • Interprofessional education • Community-focused (especially rural) education • Diverse student and patient populations (transnational) • Virtual medical schools • Robotics; virtual reality • More generalists, family and public health practitioners trained • Accountability and accreditation (national/international) • Minimum standards for medical teachers • Increased basic medical science teaching in clinical years	Competencies in different communities of practice (e.g. clinical teacher vs. clinical educator; educational leaders) • International faculty, especially assessors • Specialised roles, e.g. assessors, clinical supervisors, IT experts; community preceptors • Digitally competent • Members of an interprofessional team • Transculturally sensitive • Humane, caring professional teachers and educators	Medical education departments mandatory, with specialist educators for assessment, curriculum development, research, etc. • Standards for medical educators • Credentialling of teachers and educators • International exchange of professional teachers and educators • Communities of practice: educators, researchers, administrators, etc. (i.e. division of labour) • Discipline-based faculty development important

In the medical education literature, the terms 'global' and 'international' are now being replaced by 'transnational'. Transnational education is defined as 'the intersection of international students, international teachers, and an international curriculum customized to local needs' (Harden 2006), while 'transnational competence' refers to the medical training that addresses health in the context of global migration (Koehn & Swick 2006). As transnational medical education (leading to transnational competence) must train and provide international students, curricula need to meet both international and local health care needs (Alkan 2000; Harden 2006). The minimum global standards and competencies in medical education advocated by the WFME (2003) and the IIME (Hamilton 2000; Stern et al. 2003), largely in response to the worldwide proliferation of medical schools, now become relevant.

Global standards should also apply to medical educators (Purcell & Lloyd-Jones 2003), as medical education staff become increasingly specialized (e.g. in assessment, curriculum development or research) (Benor 2000; Davis et al. 2005). One can download a draft version of curriculum standards for educational professionals from the website of the recently established Academic of Medical Educators (http://medicaleducators.org).

Purcell and Lloyd-Jones (2003) have evaluated two possible models regarding standards for medical educators – a competency model (Harden et al. 1999; Hesketh et al. 2001) and a scholarship model (Fincher et al. 2000). Faculty developers may find these models useful for framing some aspects of staff development.

In a 2020 medical school, Benor (2000) envisaged three types of medical teachers: content experts, assessors and moral guides. Have his predictions materialized almost a decade later? (Table 9). In many respects, Benor (2000) was correct. In terms of content experts, clinical knowledge will always be a requirement in medicine, fuelled largely by patient safety issues, litigation and accountability the (Leeder 2007). The second type of medical teacher is the professional assessor. As we are well aware, assessment has been and will always be a 'hot' item on any medical education agenda (Schuwirth & van der Vleuten 2006). We are of the opinion that global standards will soon extend to assessment. One of the first exercises in international standards setting according to IIME competencies for medical studies has already been successfully undertaken (Stern et al. 2005). Could this herald the beginning of international assessors?

When asked to comment on medical students and medical education in 2020, Rennie (2000) believed that medical education would always strive to produce caring, sensitive practitioners. The calls for a more patient-centred approach and a curriculum based on moral ethics and values that have echoed in the hallways of medical colleges for many years are growing considerably louder (Cooper & Tauber 2005; Sawa et al. 2006; Dobie 2007; Litzelman & Cottingham 2007; Smith et al. 2007b; Bleakley & Bligh 2007). While an ethos of compassion has always been advocated as the central theme of health care, it has not always been at the core of medical education. The widening chasm of disease burden and health care provision between wealthy and developing countries demands clinical teachers and supervisors who are skilled and knowledgeable in the principles of humane care (Cooper & Tauber 2007; Dobie 2007; Litzelman & Cottingham 2007). Amid global social injustice, poverty and human rights violations, Benor's (2000) prediction that today's students will require

Table 9. Benor's (2000) predictions for medical faculty in 2020. Have his predictions held up? Authors' deliberations.

Content expert: Proficient, effective, knowledgeable and valued professionals in specific fields	Expert medical scientists and clinicians will always be required in medical education. Patient safety demands expertise in medicine. Accountability will drive this	Clinical teachers and educators (in subspecialties) with a patient-centred ethos who value high moral standards and values
Content expert: Provides students with learning opportunities, directing them to proper resources rather than teaching	• Value of learner-centred education recognised for at least two decades. Knowledge still foundation for medicine, but it is being recognised that it is more important how students apply knowledge • In the light of information explosion, transferable skills are required by the learners	• Expert teacher needs to hold transformative conceptions of teaching and learning • Must be capable of developing generic skills in students Accountability to various stakeholders may require accreditation in terms of teaching Minimum global standards for teachers
Assessor: Uses a variety of sophisticated assessment measure (for quality assurance)	Competencies (knowledge, skills, attitudes) in medical education have led to specific quantitative (MCQs, OSCE) and qualitative (portfolios, critical incidents, reflective journals) assessment tools for 360° assessment. Development ongoing, e.g. simulations, virtual reality, performance-based assessment	Global standards/competencies require professional international assessors (Stern et al. 2005)
Moral guide: Guides students' moral and emotional development	Compassion, honesty, caring, integrity and a commitment to professional growth will always be desirable traits of the profession (Rennie 2000). Role-modelling and mentoring are crucial for this development in students	• Role modelling by all teachers • Improved counselling and career guidance centres

considerable moral guidance to become tomorrow's doctors is probably never truer, but, rather than appointing or identifying specialised moral guides, every clinical teacher should be a professional role model, whose behaviour students would wish to emulate.

What does this mean for medical faculties?

Accountability, accreditation, technological advances, globalization and commercialization are some of the factors that will drive quality academic medicine. The challenge for faculty developers is to find better ways of managing the perceived needs of administrators, the expressed needs of academics and the real health care needs of society. The onus of ensuring quality outcomes for patients and communities through first class medical education rests with deans of medical faculties. Such medical education outcomes require high calibre teachers and clinical supervisors. To develop a community of dedicated professionals and role models requires investing in their development through sustainable and adaptable faculty development.

Success and sustainability will, however, depend on the value ascribed to teaching by various stakeholders. Williams et al. (2007) recently offered suggestions to overcome the age-old hiatus of recognizing and rewarding teaching '... the difficulty in sustaining the effects of faculty development programs relates to the fact that good teaching is only indirectly related to revenue, unlike clinical or research activities. Because it is unlikely that good teaching will be directly related to institutional revenue in the foreseeable future, alternative models for improving and maintaining good teaching should be sought. Two such models are a regulatory model, in which teaching skills are regularly updated, analogous to clinical skills improvement through continuing medical education, and a quality model, in which teaching institutions compete for applicants based on valid measures of teaching quality in their programs. These and other models should be examined and tested in future faculty development programs'. As faculty developers, we might at this stage be satisfied with the regulatory model as a minimum. This is probably the *status quo*, in the light of accountability and accreditation, but we should, in the interests of student learning, aspire to promote the quality model. This we could facilitate by fostering a change in institutional culture such that teaching is rewarded and that educational scholarship is recognized equally with research and service.

All of this begs a question: Should there be minimum requirements and standards of practice for medical teachers and educators? If medical faculties are to produce health care practitioners who can deliver first class health care in a brave, new and ever-changing multicultural and technologically driven world, learners need to be exposed to quality teaching and learning experiences. Individual institutions therefore have a social responsibility to develop a cadre of professional teachers and educators. This may mean planning career paths for individual faculty members, such that those with genuine ability and motivation become the educators and educational scholars, while others become the researchers, clinical service providers and the administrators. We believe that minimum requirements relating to the professional practice of medical teaching, education and administration are long overdue. In the not too distant future, this

professionalisation will be driven by accountability and accreditation.

From our perspective, minimum requirements for professionalising teaching practice might then include the following:

- faculty development for academics should be integral to the mission of every medical school, such that deans and administrators cannot ignore issues of quality assurance and social accountability;
- the institutional culture must recognize and reward teaching excellence and scholarship equally with research and clinical service;
- there should be formal preparation for anyone who teaches our students. For appointments and for promotion along the educator track, a teaching qualification should be mandatory. Provision should be made for initial and ongoing professional development for all faculty members and teachers.

Reiterating an extract from Tomorrow's Doctor (GMC 1993): '. . . we can best strive to educate doctors capable of adaptation and change, with minds that can encompass new ideas and developments and with attitudes to learning that inspire the continuation of the educational process throughout professional life', reminds us of the need to train tomorrow's practitioners to be flexible, life-long learners. Carl Rogers (1969) expressed these very sentiments more than 30 years ago: 'The only person who is educated is the person who has learned how to learn; the person who has learnt how to adapt and change; the person who has realized that no knowledge is secure, that only the process of seeking knowledge gives a basis for security'.

What conclusions can we draw about faculty development?

Early in this guide we stated that faculty development was not an easy task. After reviewing an extensive higher and medical education literature on faculty development spanning three or more decades, our sentiments remain the same. We are far from being able to provide the 'ideal' programme as there is no 'quick fix' or 'one-size-fits-all' model of faculty development. Each institution will need to work within its unique context. We hope, however, that we have provided faculty developers, administrators and leaders who shoulder the responsibility of ensuring quality medical education with a systematic approach (by using a number of frameworks) to design and implement faculty development programmes, as well some guiding principles for effective, sustained and successful faculty development.

Although referring to educational programmes, Gibbs' (2006) comments ring true for faculty development 'We cannot afford to keep 're-inventing the wheel'; we need to make the wheel adaptable to the dynamically changing and real-world environment. We need to design programmes that are not dependent on stability, but are sustainable by adapting to change'.

In summary, faculty development today and tomorrow should:

- be *systematically* planned and implemented, with realistic, achievable and measurable outcomes that are appropriate for the task. This requires developing objectives and measurable performance criteria early in the planning process.
- include practitioners in various clinical settings, such as the community and other health care professions.
- be task-oriented, with immediate application.
- be tailored to suit the needs of the institution, disciplines and individual teachers, including educational scholars and leaders. These needs may become more specialised (e.g. international assessors) as medical education becoming more global or transnational.
- promote both professional and personal development, which requires continuous and long-term intervention.
- include multidisciplinary and group training, to promote collegiality and to create communities of practice in teaching, medical education research and administration.
- be underpinned by theories and principles of learning (e.g. self-directed; interactive; authentic; contextually relevant).
- be adaptable to meet the changing health care requirements and innovations in medical education (e.g. web-based learning and digital technology).
- take cognisance of globalization and the need for international standards and core competencies (even amongst medical school academics and medical educators).
- involve collaboration with disciplines beyond the boundaries of medical education. With the growing emphasis on multidisciplinary team work, interprofessional faculty development is likely to become a future imperative.

In institutions where teaching and educational scholarship is not afforded the same reward as research or clinical care, participation in faculty development may require incentives. Successful strategies for participation include appealing to faculty's moral responsibility by promoting student needs as an objective (Hill & Stephens 2004) or awarding CME credits (Williams et al. 2007). Fortunately, with the trend towards professionalizing teaching practice (Eitel et al. 2000) and accountability issues regarding teaching faculty (WFME 2003; Skeff et al. 2007), institutions will increasingly need to recognize their academic staff members as valuable assets and invest in their personal and professional development.

Finally, we agree wholeheartedly with Brown (2000) that 'teaching in higher education is too important to be left to chance'. Medical education is at a point where faculty development that promotes the professionalisation of teaching must be an integral aspect of the life of every medical school.

Notes on contributors

MICHELLE MCLEAN is currently a Professor in Medical Education, Faculty of Medicine and Health Sciences, United Arab Emirates, where she is

involved in faculty development and evaluation. Her career in medical education began in 1987 when she joined the Faculty of Medicine (later to become the Nelson R. Mandela School of Medicine), University of KwaZulu-Natal, South Africa, as a Histology teacher in the Department of Physiology. She became interested in medical education when the Faculty began implementing PBL modules in the traditional curriculum. In July 2006, she joined the Faculty of Medicine and Health Sciences in the Garden City of Al Ain, United Arab Emirates. Her current research interests are transferable skills in developing life-long learners and the role of females in the future of medical practice.

FRANCOIS CILLIERS is now Deputy Director of the Centre for Teaching and Learning at Stellenbosch University in South Africa. He was until recently responsible for faculty development at the University's Faculty of Health Sciences. He has been a driving force behind the recent redevelopment of the South African Association of Health Professions Education (SAAHE). He is also a FAIMER fellow.

JACQUELINE M. VAN WYK is an educationalist, staff developer and is Head of evaluation at the Nelson R. Mandela School of Medicine, University of KwaZulu-Natal (Durban, South Africa). She became involved in medical education after having served as a Science educator and trainer at a local tertiary college. She joined the Medical Faculty in 2000 as an education consultant. She has served on committees that coordinated, steered and monitored various aspects of the new medical programme while she is also active in staff development and quality assurance aspects of the undergraduate programme. She currently coordinates the academic activities of the second year cohort. Her research interests include teaching, learning of staff and students and the practice preferences of medical graduates from developing countries. She is a FAIMER fellow and has been involved in the launch of the South African Regional FAIMER Institute.

References

Alkan ML. 2000. The global medical school – 2020. Med Teach 22(5):527–530.

Amin Z, Eng KH, Gwee M, Hoon TC, Rhoon KD. 2006. Addressing the needs and priorities of medical teachers through a collaborative intensive faculty development programme. Med Teach 28:85–88.

AAMC (Association of American Medical Colleges). 2004. *Educating Doctors to Provide High Quality Medical Care*. Report of the Ad Hoc Committee of Deans (Washington, AAMC).

Bandaranayake RC. 1989. Implementing change in medical education in developing countries. Med Teach 11(1):39–45.

Bandura A. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory* (Englewood Cliffs, NJ, Prentice-Hall).

Bascia N, Hargreaves A. 2000. *The Sharp Edge of Educational Change: Teaching Leading and the Realities of Reform* (London, Routledge-Falmer).

Benor DE. 2000. Faculty development, teacher training and teacher accreditation in medical education: Twenty years from now. Med Teach 22(5):503–512.

Bernstein P, Tipping J, Bercovitz K, Skinner HA. 1995. Shifting students and faculty to a PBL curriculum: Attitudes changed and lessons learned. Acad Med 70(3):245–247.

Bland C, Stritter F. 1988. Characteristics of an effective family medicine faculty development program. Fam Med 20:282–288.

Bland CJ, Schmitz CC. 1986. Characteristics of the successful researcher and implications for faculty development. J Med Educ 61:22–31.

Bland CJ, Schmitz CC. 1988. Faculty renewal: Concepts, strategies and lessons from the past twenty years, in: JH Schuster & DW Wheeler (Eds), *Enhancing Faculty Careers: Strategies for Renewal*, (San Francisco, Jossey Bass).

Bland CJ, Starnaman S, Wersal L, Moorhead-Rosenberg L, Zonia S, Henry R. 2000. Curricular change in medical schools: How to succeed. Acad Med 75:575–594.

Bleakley A, Bligh J. 2007. Looking forward - looking back: aspects of the contemporary debate about teaching and learning medicine. Med Teach 29:79–82.

Bligh J. 2005. Faculty development. Med Educ 39:120–121.

Bligh J, Prideaux D, Parsell G. 2001. PRISMS: new educational strategies for medical education. Med Educ 35(6):520–521.

Boelen C. 1999. Adapting health care institutions and medical schools to societies' needs. Acad Med 74(8):S11–S20.

Boucher BA, Chyka PJ, Fitzgerald WL, Hak LJ, Miller DD, Parker RB, Phelps SJ, Wood GC, Gourley DR. 2006. A comprehensive approach to faculty development. Am J Pharm Educ 70(2):1–6.

Boud D, Middleton H. 2003. Learning from others at work: communities of practice and informal learning. J Work Learn 15(5):194–202.

Boyer E. 1990. *Scholarship Reconsidered: Priorities for the Professoriate* (Princeton, Princeton University).

Brookfield S. 1995. *Becoming a Critically Reflective Teacher* (San Francisco, Jossey-Bass).

Brown S. 2000. The Institute for Learning and Teaching and UK approaches to accrediting teaching: looking to the future. Med Teach 22(5):513–516.

Burdick W, Page S, Morahan P, Norcini J. 2006. Slowing the brain drain: FAIMER education programs. Med Teach 28(7):631–634.

Carraccio C, Wolfsthal SD, Englander R, Ferentz K, Martin C. 2002. Shifting paradigms: From Flexner to competencies. Acad Med 77(5):361–367.

Carroll RG. 1993. Implications of adult education theories for medical school faculty development programmes. Med Teach 15(2/3):163–170.

Centra J. 1976. *Faculty Development Practices in US Colleges and Universities* (Princeton, Educational Testing Service).

Challis D. 2001. Building an effective programme for clinical teachers: the role of the staff developer. Med Teach 23(3):270–275.

Clark JM, Houston TK, Kolodner K, Branch WT, Levine RB, Kern DE. 2004. National survey of faculty development in departments of medicine of U.S. teaching hospitals. J Gen Int Med 19:205–214.

Cohen PA. 1981. Student ratings of instruction and student achievement: a meta-analysis of multisection validity studies. Rev Educ Res 51:281–309.

Cohen R, Murnaghan L, Collins J, Pratt D. 2005. An update on master's degree in medical education. Med Teach 27(8):686–692.

Cook DA, Beckman T, Bordage G. 2007. Quality of reporting of experimental studies in medical education: a systematic review. Med Educ 41(8):737–745.

Cooke M, Irby DM, Sullivan W, Ludmerer KM. 2006. American Medical Education 100 Years after the Flexner Report. New England J Med 355(13):1339–1344.

Cooper RA, Tauber AI. 2007. Values and ethics: A collection of curricular reforms for a new generation of physicians. Acad Med 82(4):321–323.

Davis DA, Thomson MA, Oxman AD, Haynes RB. 1995. Changing physician performance: a systematic review of the effect of continuing medical education strategies. J Am Med Ass 274(9):700–705.

Davis D, Thomson MA, O'Brien MAT, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. 1999. Impact of formal continuing medical education. Do conferences, workshops, rounds and other traditional continuing education activities change physician behaviour or health care outcomes? J Am Med Ass 282:867–874.

Davis MH, Karunathilake I, Harden RM. 2005. AMEE Education Guide No. 28: The development and role of departments of medical education. Med Teach 27(8):665–675.

Dearing R. 1997. *Higher Education in the Learning Society: National Committee of Inquiry into Higher Education* (Norwich, HM Stationery Office).

Dearn J. 2005. The role and impact of faculty development on learning and teaching outcomes in Higher Education, *Educational Developments*, 6. Available online at: http://www.mcmaster.ca/stlhe/3M.council/John%20Dearn.pdf (accessed 15 July 2007).

Devlin M. 2006. Challenging accepted wisdom about the place of conceptions of teaching in university teaching improvement. Int J Teach Learn Higher Educ 18(2):112–119.

Dobie S. 2007. Reflections on a well-traveled path: self-awareness, mindful practice, and relationship-centered care as foundations for medical education. Acad Med 82(4):422–427.

Dunkin MJ. 1997. Assessing teachers' effectiveness. Iss Educ Res 7(1):37–51.

Eckhert N. 2002. The global pipeline – too narrow, too wide or just right. Med Educ 36:606–613.

Eitel F, Kanz K, Tesche A. 2000. Training and certification of teachers and trainers: the professionalization of medical education. Med Teach 22(5):517–526.

Entwistle NJ, Ramsden P. 1983. *Understanding Student Learning* (London, Croom Helm).

Farmer EA. 2004. Faculty development for problem-based learning. Eur J Dental Educ 8:59–66.

Fincher R, Simpson DE, Mennin SP, Rosenfeld GC, Rothman A, McGrew MC, Hansen PA, Mazmanian PE, Turnbull JM. 2000. The scholarship in teaching: an imperative for the 21st century. Acad Med 75(9): 887–894.

Fincher RE, Work JA. 2006. Perspectives on the scholarship of teaching. Med Educ 40(4):293–295.

Freeth D, Hammick M, Koppel I, Reeves S, Barr H. 2002. *A Critical Review of Evaluations of Interprofessional Education* (London, LTSN Health Sciences and Practice). Available online at: http://www.health.heacademy.ac.uk/publications/occasionalpaper/occasionalpaper02.pdf (accessed 27 July 2007).

Fry H. 2006. Professional development for teaching in Higher Education: a Brief account of the evolution of accredited programmes in the UK. Zeitschrift für Hochschulentwicklung 1(2):1–13.

Fullan M. 1993. *Probing the Depths of Educational Reform* (London, Routledge Falmer).

Gaff JC. 1975. *Towards Faculty Renewal* (San Francisco, Jossey-Bass).

Gale R, Grant J. 1997. AMEE Medical Education Guide No. 10: Managing change in a medical context: guidelines for action. Med Teach 19(4):239–249.

Gardner H. 1993. *Multiple Intelligences: The Theory in Practice* (New York, Basic Books).

Gardner H. 1999. *Intelligence Reframed: Multiple Intelligences for the 21st Century* (New York, Basic Books).

GMC (General Medical Council). 1993. *Tomorrow's Doctor's Recommendations on Undergraduate Medical Education* (London, GMC).

GMC (General Medical Council). 1999. The doctor as teacher. Available online at: http://www.gmc-uk.org/publications/doctor_as_teacher.asp (accessed 15 July 2007).

Gibbs G, Coffey M. 2004. The impact of training university teachers on their teaching skills, their approach to teaching and the approach to learning of their students. Ac Learn Higher Educ 5(1):87–100.

Gibbs T. 2006. 'Built to last?': the long-term sustainability of educational programmes. Med Teach 25(8):673–674.

Glassick CE. 2000. Boyer's expanded definitions of scholarship, the standards for assessing scholarship, and the elusiveness of the scholarship of teaching. Acad Med 75(9):877–890.

Glassick CE, Huber MT, Maeroff G. 1997. *Scholarship Assessed: Evaluation of the Professoriate* (San Francisco, Jossey-Bass).

Goldie J. 2006. AMEE Education Guide No. 29: Evaluating educational programmes. Med Teach 28(3):210–224.

Gorman PJ, Meier AH, Rawn C, Krummel TM. 2000. The future of medical education is no longer blood and guts, it is bits and bytes. Am J Surgery 180:353–356.

Gray K, Radloff A. 2006. Quality management of academic development work: implementation issues and challenges. Int J Acad Devel 11(2):79–90.

Gruppen LD, Simpson D, Searle NS, Robins L, Irby DM, Mullan PB. 2006. Educational fellowship programs: common themes and overarching issues. Acad Med 81(11):990–994.

Guskey TR. 2003. What makes professional development effective? Phi Delta Kappan 84:748–750.

Hamilton JD. 2000. International standards of medical education: a global responsibility. Med Teach 22(6):547–548.

Harden RM. 1999. Stress, pressure and burnout in teachers: is the swan exhausted? Med Teach 21(3):245–247.

Harden RM. 2000. Evolution or revolution and the future of medical education: replacing the oak tree. Med Teach 22(5):435–442.

Harden RM. 2006. International medical education and future directions: a global perspective. Acad Med 81(12):S22–S29.

Harden RM, Crosby J. 2000. AMEE Education Guide No. 20: The good teacher is more than a lecturer: the twelve roles of the teacher. Med Teach 22(4):334–347.

Harden RM, Hart IR. 2002. An international virtual medical school (IVIMEDS): the future for medical education? Med Teach 24(3):261–271.

Harden R, Crosby JR, Davis MH. 1999. AMEE Guide No. 14: Outcomes-based Education: Part 1 – An introduction to outcome-based education. Med Teach 21(1):7–14.

Harris DL, Krause KC, Parish DC, Smith MU. 2007. Academic competencies for medical faculty. Fam Med 39(5):343–350.

Hawthorne L, Minas H, Singh B. 2004. A case study in the globalization of medical education: assisting overseas-born students at the University of Melbourne. Med Teach 26(2):150–159.

Healey M. 2000. Developing the scholarship of teaching in Higher Education: a discipline-based approach. Higher Educ Res Devel 19:169–189.

HPCSA (Health Professions Council of South Africa). 2004. *Standards for the Accreditation of Undergraduate Medical Education in South Africa* (Pretoria, HPCSA).

Hesketh EA, Bagnall G, Buckley EG, Friedman M, Goodall E, Harden RM, Laidlaw JM, Leighton-Beck L, McKinley P, Newton R, Oughton R. 2001. A framework for developing excellence as a clinical educator. Med Educ 35(6):555–564.

Higgs J, McAllister L. 2007a. Educating clinical educators: using a model of the experience of being a clinical educator. Med Teach 29(2):e51–e57.

Higgs J, McAllister L. 2007b. Being a clinical educator. Adv Health Sciences Educ 12:187–199.

HEA (Higher Education Academy). 2006. Available online at: http://www.heacademy.ac.uk/curwork/policy/framework.

Hill F, Stephens C. 2004. Negotiating strategic direction for education staff development: the Southampton experience. Med Teach 26(7):645–649.

Hitchcock MA, Stritter FT, Bland CJ. 1993. Faculty development in the health professions: conclusions and recommendations. Med Teach 14(4):295–309.

Holman H. 2004. Chronic disease: the need for a new clinical education. J Am Med Ass 292(9):1057–1059.

Houston TK, Ferenchick GS, Clark JM, Bowen JL, Branch WT, Alguire P, Esham RH, Clayton CP, Kern DE. 2004. Comparing community-based and hospital-based internal medicine teachers. J Gen Int Med 19:375–379.

Irby DM, Wilkerson L. 2003. Educational innovations in academic medicine and environmental trends. J Gen Int Med 18:370–376.

Karle H. 2006. Global standards and accreditation in medical education: a view from the WFME. Acad Med 81(12):S43–S48.

Kaufman DM, Hodder I, Ryan K. 1999. A study of the educationally influential physician. J Cont Educ Health Prof 19:152–162.

Kember D. 1997. A reconceptualisatiuon of research into university academic conceptions of teaching. Learn Instruct 7(3):255–275.

Kent A, Gibbs T. 2004. Health science in South Africa. Med Educ 38:119–124.

Kern DE, Thomas PA, Howard DM, Bass EB. 1998. *Curriculum Development for Medical Education: A Six-Step Approach* (Baltimore, Johns Hopkins University Press).

Kirkpatrick DL. 1994. *Evaluating Training Programs: The Four Levels* (San Francisco, Berrett-Koehler Publishers).

Knight AM, Carrese JA, Wright SM. 2007. Qualitative assessment of the long-term impact of a faculty development programme in teaching skills. Med Educ 41:592–600.

Knight PT, Trowler PR. 2000. Department-level cultures and the improvement of learning and teaching. Stud Higher Educ 25(1):69–83.

Knowles MS. 1975. *Self Directed Learning: A Guide for Learners and Teachers* (New York, Association Press).

Knowles MS. 1980. *The Modern Practice of Adult Education: From Pedagogy to Andragogy* (Englewood Cliffs, NJ, Prentice Hall Reagents).

Koehn PH, Swick HM. 2006. Medical education for a changing world: moving beyond cultural competence into transnational competence. Acad Med 81(6):548–556.

Kolb DA. 1984. *Experiential Learning: Experience as a Source of Learning and Development* (New Jersey, Prentice Hall).

Kreber C, Brook P. 2001. Impact evaluation of educational development programmes. Int J Acad Devel 6(2):96–108.

Lave J. 1988. *Cognition in Practice: Mind, Mathematics, and Culture in Everyday Life* (Cambridge, Cambridge University Press).

Leeder SR. 2007. Preparing interns for practice in the 21st century. Med J Aust 186(7):S6–S8.

Leinster SJ. 2003. Medical education in the real world. Med Educ 37(5):397–398.

Levinson D, Darrow C, Klein E, Levinson M, McKee B. 1978. *The Seasons of a Man's Life* (New York, Knopf).

Lilley PM, Harden RM. 2003. Standards and medical education. Med Teach 25(4):349–351.

Litzelman DK, Cottingham AH. 2007. The new formal competency-based curriculum and informal curriculum at Indiana University School of Medicine: overview and five-year analysis. Acad Med 82(4):410–419.

Lueddeke GR. 2003. Professionalising teaching practice in Higher Education: a study of disciplinary variation and teaching-scholarship. Stud Higher Educ 28(2):213–228.

Mann KV. 2002. Thinking about learning: implications for principle-based professional education. J Contin Educ Health Prof 22:69–76.

Maslow A. 1970. *Motivation and Personality*, 2nd edn (New York, Harper & Row).

McLeod PJ, Meagher T, Steinert Y, Schuwirth L, McLeod AH. 1997. Clinical teachers tacit knowledge of basic pedagogic principles. Med Teach 26(1):23–27.

Murray K, MacDonald R. 1997. The disjunction between lecturers' conceptions of teaching and their claimed teaching practice. Higher Educ 33:331–349.

Neumann R. 2001. Disciplinary differences and university teaching. Stud Higher Educ Admin Quart 26(2):135–146.

Norton L, Richardson JTE, Hartley J, Newstead S, Mayes J. 2005. Teachers' beliefs and intentions concerning teaching in higher education. Higher Educ 50:537–571.

Otto AK, Novielli K, Morahan PS. 2006. Implementing the logic model for measuring the value of faculty affairs activities. Acad Med 81(3):280–285.

Parsell G, Bligh J. 1999. The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). Med Educ 33:95–100.

Pololi LH, Frankel RM. 2005. Humanising medical education through faculty development: linking self-awareness and teaching skills. Med Educ 39:154–162.

Pololi L, Clay MC, Lipkin M, Hewson M, Kaplan C, Frankel RM. 2001. Reflections of integrating theories of adult education into a medical school faculty development course. Med Teach 23(3):276–283.

Pololi LH, Knight SM, Dennis K, Frankel RM. 2002. Helping medical school faculty realize their dreams: an innovative, collaborative mentoring program. Acad Med 77(5):377–384.

Prebble T, Hargraves H, Leach L, Naidoo K, Suddaby G, Zepke N. 2004. *Impact of Student Support Services and Academic Development Programmes on Student Outcomes in Undergraduate Tertiary Study: A Synthesis of the Research* (New Zealand, Ministry of Education).

Pritchard L. 2004. Changing course. Med Educ 38:582–586.

Prosser M, Trigwell K. 1993. Development of an Approaches to Teaching questionnaire. Res Devel Higher Educ 15:468–473.

Prosser M, Trigwell K. 1997. Relations between perceptions of the teaching environment and approaches to teaching. Br J Educ Psychol 67:25–35.

Prosser M, Trigwell K. 1999. *Understanding Learning and Teaching: The Experience in Higher Education* (Buckingham, Open University Press).

Purcell N, Lloyd-Jones G. 2003. Standards for medical educators. Med Educ 37(2):149–154.

Ramani S. 2006. Twelve tips to promote excellence in medical teaching. Med Teach 28(1):19–23.

Ramsden P, Margetson D, Martin E, Clarke S. 1995. *Recognising and Rewarding Good Teaching* (Canberra, Australian Government Publishing Service).

Regehr G, Norman GR. 1996. Issues in cognitive psychology: implications for professional education. Acad Med 71(9):988–1001.

Rennie S. 2000. The medical student in the year 2020. Med Teach 22(5):532–535.

Richardson JTE. 2005. Students' approaches to learning and teachers' approaches to teaching in Higher Education. Educ Psychol 25(6):673–668.

Riley J. 1993. *The Process of Developing as an Educator* (London, King's Centre Fund).

Rogers CE. 1969. *Freedom to Learn* (Columbus, Ohio, Merrill Publishing Company).

Rogers J. 2005. Aspiring to leadership – identifying teacher-leaders. Med Teach 27(7):629–633.

Rust G, Taylor V, Herbert-Carter J, Smith QT, Earles K, Kondwani K. 2006. The Morehouse faculty development program: evolving methods and 10-year outcomes. Fam Med 38(1):43–49.

Sawa RJ, Phelan A, Myrick F, Barlow C, Hurlock D, Rogers G. 2006. The anatomy and physiology of conflict in medical education; a doorway to diagnosing the health of medical education systems. Med Teach 28(8):e204–e213.

Schön DA. 1987. *Educating the Reflective Practitioner: Towards a New Design for Teaching and Learning in the Profession* (San Francisco, Jossey Bass).

Schön DA. 1991. *The Reflective Practitioner: How Professionals Think in Action* (London, Arena).

Schuwirth LWT, van der Vleuten CPM. 2006. Challenges for educationalists. Br Med J 333:544–546.

Sheets KJ, Schwenk TL. 1990. Faculty development for family medicine educators: an agenda for future activities. Teach & Learn Med 2:141–148.

Simpson JG, Furnace J, Crosby J, Cumming AD, Evans PA, Friedman Ben David M, *et al*. 2002. The Scottish doctor – learning outcomes for the medical undergraduate in Scotland: a foundation for competent and reflective practitioners. Med Teach 24(2):136–143.

Simpson D, Marcdante K, Morzinski J, Meurer L, McLaughlin C, Lamb G, Janik T, Currey L. 2006. Medical education fellowships – fifteen years of aligning faculty development with primary care clinician-educator roles and academic advancement at the Medical College of Wisconsin. Acad Med 81(11):945–953.

Skeff KM, Stratos GA, Bergen M, Sampson K, Deutsch S. 1999. Regional teaching improvement programs for community-based teachers. Am J Med 106:76–80.

Skeff K, Stratos G, Mount J. 2007. Faculty development: a field in evolution. Teach & Teach Educ 23(3):280–285.

Skeff KM, Stratos GA, Mygdal WK, DeWitt TG, Manfred LM, Quirk ME, Roberts KB, Greenberg LW. 1997a. Clinical teaching improvement: past and future for faculty development. Fam Med 29(4):252–257.

Skeff K, Stratos GA, Mygdal WK, DeWitt TA, Manfred L, Quirk M, Roberts K, Greenberg L, Bland CJ. 1997b. Faculty development. A resource for clinical teachers. J Gen Int Med 12(2):S56–S63.

Skelton AM. 2003. Promoting 'teaching excellence' through fellowship schemes: three important issues to consider. Med Educ 37:188–189.

Smith KL, Petersen DJ, Soriano R, Friedman E, Bensinger LD. 2007a. Training tomorrow's teachers today: a national medical student teaching and leadership retreat. Med Teach 29:328–334.

Smith SR, Cookson J, Mckend J, Harden RM. 2007b. Patient-centred learning-back to the future. Med Teach 29:33–37.

Snell L, Tallett S, Haist S, Hays R, Norcini J, Prince K, Rothman A, Rowe R. 2000. A review of the evaluation of clinical teaching: new perspectives and challenges. Med Educ 34:862–870.

SCOPME (Standing Committee on Postgraduate Medical Education). 1992. Teaching Hospital Doctors and Dentists to Teach: Its Role in Creating a Better Learning Environment. SCOPME report (London, SCOPME).

Stein L. 1981. The effectiveness of medical education: eight research reports. J Med Educ 56:103–110.

Steinert Y. 2000. Faculty development in the new millenium: key challenges and future directions. Med Teach 22(1):44–50.

Steinert Y. 2005. Staff development, in: JA Dent & RM Harden (Eds), *A Practical Guide for Medical Teacher*, pp. 390–399 (London, Elsevier, Churchill Livingston).

Steinert Y, Mann K, Centeno A, Dolmans D, Spencer J, Gelula M, Prideaux D. 2006. A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME Guide No. 8. Med Teach 28(6):497–526.

Steinert Y, Nasmith L, McLeod P, Conochie L. 2003. A teaching scholars program to develop leaders in medical education. Acad Med 78(2):142–149.

Stern DT, Friedman Ben-David M, de Champlain A, Hodges B, Wojtczak A, Schwarz RM. 2005. Ensuring global standards for medical graduates: a pilot study of international standards-setting. Med Teach 27(3):207–213.

Stern DT, Wojtczak A, Schwarz MR. 2003. The assessment of global minimum essential requirements in medical education. Med Teach 25(6):589–595.

Stritter FT. 1983. Faculty evaluation and development, in: CH McGuire, RP Foley, A Gorr & RW Richards (Eds), *Handbook of Health Professions Education*, pp. 294–318 (San Francisco, Jossey-Bass).

Taylor EW, Tisdell EJ, Gusic ME. 2007. Teaching beliefs of medical educators: perspectives on clinical teaching in pediatricians. Med Teach 24(4):371–376.

Tedesco L, Martin M, Banday N, Clarke M, DeChamplain R, Fazekas A, Giuliani M, Guglielmotti MB, Kotowic W, Martinez C, Nakata M, Robinson PJ, Radnai M, Saporito R, Stenvik A, Tansay M. 2002. 3.1. Scholarship and the university. Eur J Dental Educ 6(Suppl 3):86–96.

Tian JT, Atkinson NL, Portnoy B, Gold RS. 2007. A systematic review of evaluation in formal continuing medical education. J Cont Educ Health prof 27(1):16–27.

Trigwell K. 1995. Increasing faculty understanding of teaching, in: WA Wright (Ed.) *Teaching Improvement Practices: Successful Strategies for Higher Education* (Bolton, Anker Publishing Co).

Viggiano TR, Shub C, Giere RW. 2000. The Mayo Clinic's clinician-educator award. Acad Med 75:940–943.

Vygotsky LS. 1978. *Mind in Society* (Cambridge, MA, Harvard University Press).

Waldman JD, Kelly F, Arora S, Smith HL. 2004. The shocking cost of turnover in health care. Health Care Manag Rev 29(1):2–7.

Weimer M, Lenze LF. 1997. Instructional interventions: A review of the literature on efforts to improve instruction, in: KR Perry & CJ Smart (Eds), *Effective Teaching in Higher Education: Research and Practice*, pp. 205–240 (New York, Agathon Press).

Whitcomb M. 2003. The medical school's faculty is its most important asset. Acad Med 78(2):117–118.

Wilkerson L, Irby DM. 1998. Strategies for improving teaching practices: a comprehensive approach to faculty development. Acad Med 73(4):387–396.

Williams BC, Weber V, Babbott SF, Kirk LM, Heflim MT, O'toole E, Schapira MM, Eckstrom E, Tulsky A, Wolf AM, Landefeld S. 2007. Faculty development for the 21st century: lessons from the Society of General Internal Medicine-Hartford Collaborative Centers for the Care of Older Adults. J Geriatric Soc 55:941–947.

Williams GC, Saizow RB, Ryan RM. 1999. The importance of self-determination theory for medical education. Acad Med 74:992–995.

Wong JG, Agisheva K. 2007. Developing teaching skills for medical educators in Russia: a cross-cultural faculty development project. Med Educ 41:318–324.

WFME (World Federation for Medical Education). 2003. *Basic Medical Education. Global Standards for Quality Improvement* (Denmark, University of Copenhagen).