Strategies for Improving Teaching Practice: A Comprehensive Approach to Faculty Development

Abstract

Medical school faculty members are being asked to assume new academic duties for which they have received no formal training. These include time-efficient ambulatory care teaching, case-based tutorials, and new computer-based instructional programs. In order to succeed at these new teaching tasks, faculty development is essential. It is a tool for improving the educational vitality of academic institutions through attention to the competencies needed by individual teachers, and to the institutional policies required to promote academic excellence.

Over the past three decades, strategies to improve teaching have been influenced by the prevailing theories of learning and research on instruction, which are described. Research on these strategies suggests that workshops and students' ratings of instruction, coupled with consultation and intensive fellowships, are effective strategies for changing teachers' actions.

A comprehensive faculty development program should be built upon (1) professional development (new faculty members should be oriented to the university and to their various faculty roles); (2) instructional development (all faculty members should have access to teaching improvement workshops, peer coaching, mentoring, and/or consultations); (3) leadership development (academic programs depend upon effective leaders and well-designed curricula; these leaders should develop the skills of scholarship to effectively evaluate and advance medical education); (4) organizational development (empowering faculty members to excel in their roles so educators require organizational policies and procedures that encourage and reward teaching and continual learning).

Comprehensive faculty development, which is more important today than ever before, empowers faculty members to excel as educators and to create vibrant academic communities that value teaching and learning.

teach. Thus, the primary mechanisms for enhancing teaching were academic leaves, sabbaticals, research funding, and travel to professional meetings.1

Over time, teaching has come to be recognized as a skill associated with, but separate from, content expertise. Most faculty members learn to teach not from learning their content but from observing it being taught. In the first study of this question, by Jason,2 most of the medical school faculty members responding reported that they had experienced no formal preparation as teachers. When Irby3 asked distinguished clinical teachers in medicine that question a decade later, they all reported that their primary source of knowledge about teaching had been observing teachers when they were learners. This apprenticeship of observation resulted in their emulating teaching practices that were helpful while rejecting ones that were not. They also reported learning to teach by experimenting with new methods and reflecting on what worked for them.

Learning to teach from experience alone can be a slow and painful process. Faculty development programs were begun to reduce the time required to learn to teach and to provide guidance for teaching improvement. In 1975, Gaff4 conceptualized faculty development in higher education as those activities that help teachers improve their instructional skills, design better curricula, and/or improve the organizational climate for education. By the time of the first reviews of the literature on faculty development programs in the health professions, by Stritter,5 typical programmatic activities included individual consultation on teaching skills, curriculum design, collaborative educational research, workshops and seminars on teaching of varying intensities and lengths, and teaching assessment practices. Faculty development has also been defined more recently to mean programs for training physicians in all aspects of their academic careers,6,7 generally at the postgraduate level, or for developing credentials for scientific productivity and academic promotion.8 Since in this article we are focusing on teaching and learning, we define faculty development as a tool for improving the educational vitality of our institutions through attention to the competencies needed by individual teachers and to the institutional policies required to promote academic excellence.

A variety of approaches to teaching improvement have emerged, generally in association with changing theories of learning.9 We describe the development of teaching-improvement practices in higher education and medical education through the decades of the 1970s, 1980s, and 1990s.

Each of these decades is characterized by a predominant learning theory (behavioral, cognitive, and social) that guided research and teaching practices. We also describe these theories and review the results of empirical investigations of faculty development practices. Based on the review, we conclude by proposing a comprehensive faculty development model for promoting academic excellence.

**The 1970s: Behavioral Theories and Teaching Improvement**

Teaching-improvement strategies created in the 1970s were strongly influenced by behavioral approaches to teaching and learning.10 Learning was defined as a change in behavior and was believed to be facilitated by providing instruction in small, linear steps through drill, practice, and feedback, and by reinforcing correct responses. To facilitate learning, essential teaching skills included writing measurable behavioral objectives, delivering well-organized and sequenced educational materials designed to accomplish the objectives, providing practice opportunities coupled with immediate feedback, and evaluating the learner's behavior based upon the objectives. Faculty development practices included the behavioral description of best teaching practices, the writing of behavioral objectives, the use of micro-teaching with videotape review, professional consultation, and feedback.4 Faculty were taught that good teaching involved clearly defined skills such as creating an instructional set with objectives, providing learners with practice opportunities and feedback, increasing wait time after asking questions, and using various techniques for enhancing enthusiasm and motivation.

Students' ratings of teaching were instituted nationally to increase feedback to faculty members for the purpose of improving instruction. By providing written feedback to instructors, we assumed that they would automatically know how to improve. Feedback, a central tenet of the prevailing behaviorist learning theories, was the essential ingredient.11 Studies in the early 1970s by Centra12,13 in higher education suggested that feedback from students' ratings alone was ineffective in modifying instructional behaviors. Teachers were more likely to change when provided with individual consultation on the interpretation of rating results and suggestions for improvement.

At the University of Massachusetts, The Clinic to Improve University Teaching developed a consultation model for improving teaching skills, based on a medical model with a variety of tools for the diagnosis and treatment of teaching
problems. Skeff developed a similar consultation model in medical education. In his intensive feedback method, a facilitator helps the clinical teacher review feedback on teaching performance, offers a framework for analyzing teaching using clearly defined criteria, and plans for improvements that are then assessed through subsequent videotaping and students' ratings. Specific behaviors are clustered under seven categories of effective teaching: establishing a positive learning climate, controlling the teaching session, communicating educational goals, promoting understanding and retention, evaluating learners, providing feedback, and promoting self-directed learning.

These behavioral models of faculty development, conducted mainly through workshops and consultation, were the norm in the 1970s and continue today. By 1977, 72 medical schools had established medical education units with some capacity to provide faculty development. However, a survey of medical school faculty members during that period indicated that few faculty members had participated in programs on teaching offered by these offices and fewer still had taken formal courses on education.

THE 1980S: COGNITIVE THEORIES AND TEACHING IMPROVEMENT

Cognitive theories of learning began to compete with behavioral theories in psychology during the 1970s and entered the classroom in the 1980s. In this new paradigm, learning involved the active construction of meaning. Mental processes and conceptual constructs rather than overt behaviors became the focus of interest. Essential instructional strategies included identifying learners' preconceptions, building new knowledge upon prior knowledge, providing advanced organizers and conceptual scaffolding for new content, embedding content in relevant context, promoting active learner engagement with content, and teaching learners how to learn (i.e., the executive monitoring and control functions of metacognition).

In the 1980s, as cognitive learning theories grew in influence, teachers' practical knowledge and reasoning skills became the focus of teaching-improvement programs. In a report on a teacher-change research project in the mid-1980s, Richardson concluded that the literature on learning to teach "suggests that classroom actions are of less importance as a focus of change than the practical knowledge that drives or is a part of those classroom actions. Practical knowledge allows a teacher to quickly judge a situation or context and take action on the basis of knowledge gained from similar situations in the past." Becoming a better teacher was viewed as more than mastering a set of specific teaching behaviors. Better teaching involved learning practical knowledge and skills for teaching and knowing how to translate content expertise into terms and activities that were meaningful to specific students. Shulman termed this "pedagogical content knowledge" and Irby named the same special form of teacher knowledge of clinicians "case-based teaching scripts." Teaching requires an understanding of how students learn and the ability to craft instructional activities in the classroom and the clinic to maximize learning. Changing teachers' beliefs about learning was viewed as an essential precursor to the acquisition of new teaching skills.

Workshops and consultations, the emerging mainstays of teaching-improvement programs, began to couple skill-training activities with discussions meant to assist faculty members in developing a conceptual understanding of the learning principles underlying various teaching behaviors. In medical education, Skeff et al. developed a seminar method to improve clinical teaching, in which clinical faculty members viewed videotaped examples of clinical teaching encounters as a stimulus for the discussion of educational concepts. Participants were asked to assess their own use of these concepts and to identify desirable changes in teaching practices. Questionnaires completed by participants indicated a change in attitude toward clinical teaching and a willingness to implement new teaching approaches.

THE 1990S: SOCIAL LEARNING THEORIES AND TEACHING IMPROVEMENT

Efforts to improve teaching in higher education have continued into the 1990s with a growing emphasis upon improving the status of teaching and teachers in academic institutions, broadening the definition of scholarship to include teaching, promoting reflective teaching practices, and developing collegial arrangements for learning from the experience of teaching. These approaches grew out of a changing view of learning as the social construction of meaning.

In the social constructivist view, learning is defined as socialization into a new knowledge community. This process occurs through the student's active participation in the community and the internalization of socially constructed meaning. Major sources of learning include socializing experiences, role models that new members seek to emulate, collaborative learning with peers, and direct engagement with the beliefs, roles, power, and culture of the learning environment.

In spite of increasing access to workshops and consultations on teaching, the majority of university and medical school faculty members continue to learn the most about teaching from their "on the job" experiences. In the midst of teaching, a problem or possibility attracts the attention of the teacher. For example, a faculty member might wonder.
why students appear to be confused and might begin to experiment with various ways of reducing that confusion. Teachers differ in their ability to use what Shoen terms "reflection on action" as the basis for the ongoing examination of professional improvement. Teaching-improvement activities designed to increase the reflective capacity of teachers have emerged in the 1990s.

Killen describes the use of reflective partnerships for purposes of improving teaching. The partnership involves two faculty members in observing one another's teaching and using educational, technical, and ethical criteria for analyzing and discussing what they observe. In a study by Korthagen and Wubbels, faculty members involved in reflective partnerships reported better interpersonal relationships with students, greater job satisfaction, and stronger feelings of security and self-efficacy, and demonstrated a greater likelihood to allow students to learn by investigating and structuring for themselves. The American Association for Higher Education has identified the best practices for peer review of teaching, to either improve the teaching or evaluate it. Most of the practices involve direct observation and the discussion of teaching acts and the teacher's beliefs.

Peer coaching for teaching improvement involves faculty members in collaborative arrangements with one another in the formative discussion of teaching, just as one might take a research paper or grant to a colleague for purposes of garnering new insights. Heckelman and her colleagues begin their peer coaching with a series of workshops, videotaped teaching, feedback sessions, and readings designed to increase the faculty partners' attention to the process and content of teaching.

Other teaching-improvement activities designed to increase collaborative and reflective teaching practices include the use of case studies in workshops, the preparation of reflective statements for teaching portfolios used in promotion decisions, and involvement of faculty members in classroom research.

We define faculty development as a tool for improving the educational vitality of our institutions through attention to the competencies needed by individual teachers and to the institutional policies required to promote academic excellence.

Workshops

Workshops that are two days long or longer, involve more than one type of intervention, and are followed up with practice, feedback, and reminders have demonstrated effects on teachers' knowledge, attitudes, and skills. This conclusion is similar to that reached by Davis and colleagues in a meta-analysis of continuing medical education programs intended to change the practice, knowledge, attitudes, and skills of physicians. The number of studies in higher education and medical education that have used measures other than participants' satisfaction in evaluating the impact of workshops appears to be relatively small. Retrospective pre-post evaluation developed by Skeff et al. has been used to demonstrate self-perceived changes in teaching practices.

One study in higher education is of interest for its use of students' learning as an outcome measure. Friedman and Stomper taught a 15-week course, four hours a week, using discussion of educational research, analysis of videotaped examples, discussion of ethnic and cultural differences of students, and weekly self-assessment of video recordings. Students in the classes of the five experimental-group teachers achieved significantly higher final examination scores and pass rates than did those in the six control-group classes. Pre-post videotape analysis of the experimental group showed that 13 of the 14 behaviors analyzed increased in fre-
quency; eight of the differences were significant at the $p = .05$ level or greater.

**Teaching Evaluations with Consultation**

Evaluations of teaching by students can lead to changes in teaching behaviors, particularly if accompanied by individualized consultation in which the instructor is provided assistance in interpreting results and devising changes in teaching practice in a nonthreatening environment. Studies comparing feedback from ratings alone with feedback from ratings coupled with consultation have consistently demonstrated the power of feedback plus consultation to improve students' ratings from the middle to the end of a term and across terms. In a 14-year retrospective study, Stevens and Aleamoni found that faculty members who had participated in a consultation-plus-ratings process showed an increase in the level of students' ratings that was maintained seven and 14 years later. Those who had received ratings alone did not demonstrate consistent increases.

Three recent studies in clinical education reinforce the importance of individualized advice in reporting ratings. A prospective, randomized trial of the effect of feedback on clinical teaching by Schum and Yindra suggests that individual feedback (consisting of computer-generated summaries of mean ratings of ten teaching skills for the individual faculty members and the department as a whole, plus consultants' comments on the teacher's strengths and weaknesses with suggestions for improvement) was associated with higher ratings on four skills and larger pre–post differences among participants than among controls. This improvement was greater for those faculty members in the experimental group whose ratings were below the departmental mean. Litelman, Stratos, and Skeff provided experimental-group attending physicians with numerical ratings summaries and personalized teaching guidelines at the beginning, middle, and end of a four-week medicine clerkship. At mid-month, these physicians were rated significantly higher by students on four of the seven categories than were the controls. On the other hand, Bing-You and colleagues compared residents over three rotations who either received or did not receive ratings plus comments from students. Neither group received suggestions for improvement. The residents in the experimental groups showed steady improvement over the three terms, but no significant differences were found between the groups on six out of eight skills items. Without specific consultation, either written or verbal, the impact of ratings feedback was limited. In a similar study in higher education, Wilson found that rating "items on which the greatest number of faculty showed statistically important change were those for which the suggestions were most concrete, specific, and behavioral."

In line with behavioral theory, low-inference items and specific suggestions for improving teaching may be both easier to implement and more susceptible to measurement.

Although Skeff did not find differences in students' ratings that were attributable to participation in an intensive teaching consultation program, he found evidence of improved teaching in the blinded analysis of videotapes of pre- and post-teaching performances. This was true for those clinical faculty members in the intensive-feedback group but not for those in the three comparison groups, who took part in only one aspect of the program.

**Faculty Development Fellowship Programs**

Faculty development fellowship programs have emerged in recent years as a more in-depth and comprehensive mechanism for strengthening the instructional skills and scholarly abilities of faculty members. These often take the form of one- to two-year programs of part-time or full-time study. Such fellowships, offered nationally and locally, provide benefits of a longitudinal educational experience with a cohort of peers, and sufficient time to learn, practice, and (in some instances) publish research. Follow-up studies of these programs indicate that two years are required to improve the research skills and productivity of fellows, while one-year programs increase their job satisfaction and improve their instructional skills.

**A Comprehensive Program of Faculty Development**

Faculty development programs need to address the several levels of faculty involvement in the educational enterprise. At the entry level, all faculty members should possess basic teaching skills and be oriented to the academic values, norms, and expectations of the institution. More advanced instructional knowledge and skill would be expected of those who carry major teaching responsibilities. Opportunities to reflect upon their teaching practices, a subset of teaching faculty will develop into teachers with more pedagogic content knowledge, which integrates knowledge of content, learners, teaching skills, context, and, in medicine, patients. This second level occurs as a result of more advanced teaching experience, guided reflection, and broader exposure to educational theory and practice. Such teachers are sought out by learners and often assume major teaching responsibilities.

At a third level, there are those faculty members who provide leadership to educational programs, serving as directors of clerkship and residency programs, as chairs of course and curriculum committees, and as mentors to junior colleagues interested in teaching. A small group of faculty members
constitutes a fourth level—teacher-scholars, who approach education with questions about the process and outcomes of teaching and the curriculum. These teacher-scholars stimulate continual discussion about what needs to be taught, why, and in what way. Both curricular leaders and teacher-scholars are involved in determining the institution’s vision for education. Finally, schools have a group of faculty members and administrators who are committed to and capable of creating policies, procedures, and organizational structures that encourage meaningful participation in and improvement of education.71

In order to develop and sustain the work of these various types of educators, faculty development programs should include a range of activities: professional development to promote scholarship and academic success; instructional development to promote teaching improvement opportunities; leadership development to enhance skills for curricular planning and change; and organizational development to influence policies, procedures, and the culture for education in the institution. Each of these activities should include intensive courses and workshops coupled with a teaching assessment system and individual consultation to improve teaching and develop courses. Organizational vitality depends upon the commitment of resources to the ongoing development of those persons on whom the educational mission of the institution depends—the faculty members and the trainees bound for careers in academic medicine.5,7,22,37 In the following paragraphs, we elaborate and provide examples of these types of activities.

Professional Development: Joining the Academy

As new members of the academic community, faculty members need to be socialized into the academic profession. Benor and Mahler stress the importance of “enhancing the identification of the individual teacher with the institution, its philosophy, and its educational approaches.”51, p.250 A comprehensive faculty development program includes professional development activities that assist new faculty members to understand the full range of academic responsibilities and the expectations for promotion. Issues to be addressed for new faculty members include the values, norms, and expectations of the faculty, particularly as teachers; the skills of scholarship as defined by the institution; the establishment of a network of experienced and knowledgeable colleagues; and knowledge of the steps for academic advancement, including how to document accomplishments as a teacher. This is often accomplished in the context of a new-faculty orientation program where these topics are explored.71

Instructional Development

Initial teaching skills. Faculty development should include opportunities for all faculty members to master basic teaching skills. Such skills should be connected to the instructional roles that faculty members are asked to perform in the curriculum51,52,54,74 and provided to all beginning faculty members.71 According to Gliessman and colleagues, the principal outcome of training, no matter what its form, should be possession by the trainee of clearly delineated concepts by which he or she can monitor his or her use of the referent behaviors or skills.35, p.40 Basic knowledge and skills for novice teachers include presentation and discussion facilitation skills; strategies for teaching during patient care; instructional planning and reflection skills; evaluation, feedback, and grading skills; and information technology skills. Examples of basic teaching skills workshops offered at the University of California, San Francisco, include Interactive Teaching in the Ambulatory Setting, Preparation and Delivery of Dynamic Presentations, Asking Questions and Giving Feedback, Becoming a Problem-based Tutor, and Evaluating Learner Clinical Performance.

Connecting teaching and learning. After several years of teaching, faculty members often begin to wonder why certain teaching methods work while others do not. They may also begin to focus more on the learners and less on themselves as teachers. This is the best time to introduce them to the literature on teaching and learning, and to engage them in the process of connecting learning theory to teaching practices. Reflective educational practices involve faculty members in learning from their experiences of teaching. Through discussion of their practical knowledge and beliefs about teaching, and review of research on learning, more experienced teachers can begin to construct a personal set of principles to guide decisions59 about how to teach specific content to particular learners in distinct situations.31,18,19,21

Changes in the curriculum and new educational methods may drive the learning needs of some of these teachers.72 For example, they may become involved in converting a tradi-
tional course or clerkship into a problem-based format, or designing an interactive computer instructional program, or developing a new ambulatory care clerkship. A comprehensive program to foster advanced teaching skills includes opportunities for these faculty members to develop expertise in a variety of educational domains. For example, at the University of California, Los Angeles, course directors hold a one-day workshop and monthly preview sessions each year for those faculty members who serve as problem-based tutors in the Doctoring Curriculum. In these sessions, faculty members have a chance to review content that may be new to them, discuss what students should be expected to learn about this content, and improve various aspects of tutorial facilitation and feedback.

Leadership Development

Curriculum development and leadership in medical education. Educational programs need effective leaders who are capable of reframing the thinking of those whom they guide and of encouraging change as an essential component of institutional vitality. In taking on formal educational leadership roles, faculty members exert significant influence over who is admitted to medical schools and residency programs, what the curriculum entails, what professional standards are expected of graduating students and residents, and how institutional resources for education are deployed. As informal leaders, their opinions are heard throughout the institution, and their values help to determine the importance of education at department and institutional levels. Both types of leaders, formal and informal, need to understand different leadership styles and how to use them. They need skills in curriculum planning, stimulating, and managing curricular change, including the ability to articulate a captivating vision and promote shared values. They need to know how to use the tools of continuous quality improvement, such as multidisciplinary teams and consensus-building strategies. Finally, they need to understand how to assist their colleagues in developing as teachers.

The Teaching Scholars Program at the University of Washington is a part-time, year-long certificate program for faculty members in the school of medicine who have a passion for teaching. The program addresses all of the components of a comprehensive faculty development program. The leadership and institutional change issues are addressed through a graduate course called Leadership in Academic Medicine and through an integrative seminar where the scholars meet and interview the leaders of the school of medicine. This gives them not only new insights into institutional change and leadership skills but a network of contacts within the school.

Instructional scholarship. Educational leaders, as teacher-scholars, are responsible for evaluating the quality and outcomes of the teaching programs that they direct. Skills in the design and implementation of program evaluation are essential to the success of continuous quality improvement. For some educational leaders, the study of teaching and learning in medicine becomes their area of academic scholarship. Whether for purposes of program evaluation or basic educational research, these teacher-scholars need skills in designing educational research studies, collecting and analyzing social science data, drawing sound conclusions, writing and presenting results, and developing sound habits of scholarship such as protecting time for reading and writing. At the Medical College of Wisconsin, a two-year advanced faculty development program is available to faculty members who have completed basic academic skills fellowships. The primary goal is to increase the scholarly products of participants in order to promote academic success in one of three tracks: research, administration, or education. Participants meet four hours a month. All participants in the education track to date have submitted an In Progress article to Academic Medicine, and 83% have submitted a paper to a peer-reviewed journal.

On a national level, the Fellowship in Medical Education Research (FMER) sponsored by the Association of American Medical Colleges (AAMC), is a two-year program for faculty members nominated by their institutions as educational leaders and scholars. The AAMC fellowship includes four day-long seminars on educational research, and participation in annual and regional meetings of the AAMC Group on Educational Affairs. Each faculty fellow, guided by a mentor, designs and completes an appropriate research or evaluation study. During the seminars, fellows present their works-in-progress to group members, who serve as consultants to improve the study question, the study design, data-collection instruments, or data-analysis procedures. At the final seminar, the fellows present their study results and discuss preparation of final articles for submission as papers or presentations.

Organizational Development: Educational Policies and Procedures

The goal of faculty development is to empower faculty members to excel in their role as educators and in so doing, to create organizations that encourage and reward continual learning. Educational leaders and professional faculty developers share the responsibility for creating and promoting a shared educational mission and shared values, for actively involving the faculty in decision making related to education, for providing opportunities for teaching improvement, and for shaping the systems for evaluating and rewarding teaching.
Faculty members and administrators can create an organizational climate that values education and the process of continual learning. For example, a teaching-evaluation system\(^{82,83}\) with established procedures for reporting educational contributions of faculty members such as the educator's portfolio\(^{81}\) can carry important messages about how teaching is valued and how faculty members should allocate their time. The commitment of resources to a formal mentoring program for new teachers demonstrates the importance of the educational mission of the department or institution.\(^{82}\) Faculty development programs need to include efforts to formulate the policies and procedures that shape educational programs and guide faculty behaviors. A number of medical schools have developed specific policies concerning teaching contributions by faculty members and have directly linked the amount or quality of teaching to departmental funding in order to clarify educational responsibilities and to promote attention to excellence.\(^{81-86}\)

## The Key to Academic Vitality

Faculty development targeted to the several roles of faculty members is the key to academic vitality.\(^{89,70,71,87}\) Strategies demonstrated to improve faculty teaching include workshops, student ratings with consultations, and faculty development fellowships. A comprehensive faculty development program includes professional development, instructional development, educational scholarship and leadership, and organizational development. Such activities are essential to the creation of a collegial learning community that values inquiry and innovation, that provides for both personal growth and corporate leadership, and that creates organizational vitality and success. These activities may be harder to achieve in the cost-conscious era that academic medicine has entered, but they must not be neglected if the core values of our institutions are to continue and flourish.

## References


