A medical educator has needs that are specific to educators and needs that are common to all medical faculty members. An educator needs time to perform educational duties; space to carry out educational activities; and money to buy time, space, and other resources. Just as important as time, space, and money are to the success of an educator is having an infrastructure that supports the educator and the educational mission. Such an infrastructure includes a system that provides educational leadership opportunities, institutional support for medical education, opportunities and funding for medical education research, students, feedback from students and peers, faculty development and mentoring, national societal support for education, and an institutional agenda that values education to the degree that it values patient care and investigative research.

Key Words: Radiology educator, educator needs, educational infrastructure

INTRODUCTION

A medical educator has needs that are specific to educators and needs that are common to all medical faculty members. In this review, an educator is defined as a person who engages in educational scholarship. Many radiologists are teachers, but not all are educational scholars. For teaching to be considered scholarship, it must be public, susceptible to critical review, and accessible for exchange and use by other scholars [1]. An educator requires a different set of resources compared with those of a teacher. This is particularly true for an educator whose promotion in academic radiology is based on educational scholarship. A junior radiologist who is contemplating a career in education or a position in educational administration has much to consider before making such a decision. Knowing what resources will be needed at the outset will facilitate discussions and negotiations with the department chair or chief and influence ultimate career success.

An educator needs time to perform educational duties; space to carry out educational activities; and money to buy time, space, and other resources. Just as important as time, space, and money are to the success of an educator is having an infrastructure that supports the educator and the educational mission. Such an infrastructure includes a system that provides educational leadership opportunities, institutional support for medical education, opportunities and funding for medical education research, an adequate number and variety of students, feedback from students and peers, faculty development and mentoring, national societal support for education, and an institutional agenda that values education to the degree that it values patient care and investigative research. This paper provides a brief review of the resources that are needed to be a successful radiology educator and applies to education at all levels (ie, undergraduate, graduate, and continuing medical education [CME]).

TIME, SPACE, AND MONEY

The basic needs of an educator or any professional in the health sciences can be summed up as time, space, and money. All three are limited commodities. Clinical work, research, and education all require dedicated time. However, time is linked to money. Time is needed to generate money, and money buys academic time. Radiologists’ salaries are generated in large part from clinical revenue. When radiologists are engaged in educational activities, the clinical revenue they generate decreases. Jamadar et al [2] found that the informal teaching of radiology residents (ie, at the monitor) significantly reduced clinical throughput, examination volume, relative value units earned, and dollars billed by approximately half. Educational activities are predominantly funded through departmental clinical revenue and to a lesser extent from grants or money from other sources (ie, departmental endowments, medical schools, or hospitals). Limited revenue is generated by undergraduate, graduate, and CME programs. To my knowledge, the total income from all radiology CME activities has not been reported. However, the Accreditation Council for Continuing Medical Education (ACCME) [3] reported a total of 8172 directly sponsored CME activities by
Money buys educators dedicated time to develop curricula, prepare educational activities (e.g., lectures, journal clubs, etc.), chair or serve on educational committees, mentor students, provide faculty development, write grants, perform education research, participate in the educational mission of national societies, and participate in their own continuing professional development as educators. In addition to buying time, money buys educational materials (e.g., books, journals, computers, electronic teaching aids), registration and other costs associated with attending educational meetings, membership dues to belong to educational societies, secretarial support (e.g., residency coordinator, medical student clerkship coordinator), and costs associated with educational training (e.g., degree-granting educational programs or courses in leadership or faculty development).

Many radiology departments are strapped for clinical and research space and challenged to find dedicated space for educational activities. There are examples of departments with expansive conference rooms, meeting areas, libraries, physician offices, resident offices, and call rooms. However, some educators work in departments with cramped conference space, resident offices that are nonexistent or no larger than bathrooms, and libraries that are inconveniently located in the far end of the hospital away from the department. Space allocation is influenced by politics and confers importance and legitimizes the activities of the persons for whom the space is allocated.

BEYOND TIME, SPACE, AND MONEY

Just as important to the success of an educator as time, space, and money is an infrastructure that supports the educator and the educational mission. Fincher et al. [6] described the structural, human resource, political, and symbolic features of departments, medical schools, and professional organizations needed to support scholarship in teaching. Structural support refers to having educational leadership positions that are equivalent to leadership positions in research or clinical practice (e.g., vice chair of education, equivalent to vice chair of research or vice chair of operations, or course director, residency program director, or director of faculty development as equivalent to research director). Such leadership positions serve to organize and legitimize the work of educators and ensure that someone is responsible for establishing and carrying out the educational mission.

Many medical schools have offices of medical education charged with providing support for medical student courses and clerkships, residency and CME programs, and faculty members who participate in such programs, as well as promoting and fostering medical education research. The Society of Directors of Research in Medical
Education [7] is an organization dedicated to enhancing the quality of education in medical schools. It is composed of directors of units, often called “offices of medical education.” In addition to promoting medical education programs and educators at all levels, the society serves as an advocate for education research and development in medicine and seeks to influence national research policy. On January 3, 2005, the Society of Directors of Research in Medical Education’s Web site listed 49 members, each representing a different institution. Recent publications have reported on the development and success of select offices of medical education and how they have functioned to support medical education research [8-15]. Having a central office that supports medical education research provides the local structural support that educators need to carry out collaborative educational research. Such research is necessary to advance the science of medical education, with the ultimate outcome being well-trained physicians providing the most effective patient care. Some offices of medical education provide startup funds for educational research, similar to seed money provided for new investigators performing research in other areas.

At a national level, professional societies provide structural support for medical education through educational committees, the peer evaluation of educational abstracts, conference presentations and publications, and the publication of peer-reviewed educational articles. In addition to radiology-specific societies that provide this support, there are several national societies open to radiologists. Many are listed on the Society of Directors of Research in Medical Education’s Web site. The American Educational Research Association is the most prominent international professional organization with the primary goal of advancing educational research and its practical application [16]. Its 20,000 members are educators; administrators; directors of research, testing, or evaluation in federal, state, and local agencies; counselors; evaluators; graduate students; and behavioral scientists. The Harvard Macy Institute, initially established in 1994 through a grant from the Josiah Macy Jr Foundation, is a collaborative effort of faculty members from Harvard Medical School, the Harvard Graduate School of Education, and the Harvard Graduate School of Business Administration [17]. The goal of the institute is to create and foster a worldwide community of scholars working on innovative change in medical education at the undergraduate, graduate, and continuing-professional-development levels. Over 900 scholars from around the world, including radiologists, have participated in the institute’s programs.

Among all its resources, human resources are often cited as an institution’s most valuable. For this reason, some institutions invest a great deal in orientation programs for new faculty members, new course or clerkship directors, new residency program directors, new members of education committees, and new promotion and tenure committee members. Many radiology societies provide faculty development and other related educational courses at their annual meetings. For the past 3 years, the Radiological Society of North America has offered a 1-day faculty development workshop for faculty members making presentations at its annual meeting. Some of the workshop topics have included principles of adult learning, writing goals and objectives, developing handouts, developing lecture content, developing presentations, presentation skills, and use of the audience response system.

Politics, or the art of influencing others, is an important part of the educational infrastructure. From a political perspective, educators must use their power if they are to make progress within organizations that will support scholarship in teaching. This power stems from educators’ essential contributions to the educational mission of the institution. Educators need avenues to affect change, such as through participation on promotion and tenure committees and search committees for department chairs and deans, and through service as chairs or members of key faculty committees (especially those with budgetary resources). Group advocacy can result in a powerful unified political voice, such as with coalitions of residency program directors (the Association of Program Directors in Radiology) or medical student directors (the Alliance of Medical Student Educators in Radiology). Such coalitions can serve to influence policy-making organizations, such as the American Board of Radiology or the Accreditation Council for Graduate Medical Education.

Symbolic activities contribute to the “hidden agenda” in an organization. Activities such as including education as an agenda item for faculty meetings, recognizing faculty members’ educational accomplishments at faculty meetings and through e-mail notices, and making education the focus of key departmental and institutional conferences reflect the values of the organization. They promote individual educators and the educational mission. The adage, “It’s not what you know but who you know,” describes how many important institutional decisions are made. This is intimately tied to effective mentoring. Successful educators share this in common: they’ve had one or more mentoring relationships with individuals who have the skills, political influence and desire to promote the career of the protégé. The mentor can be a senior educator or administrator from the protégé’s department or from a different department or institution. A discussion of developing successful mentoring relationships is beyond the scope of this review, but
such relationships are as important to educators as they are to any other academic radiologist.

The promotion of educators requires an infrastructure that supports career advancement on the basis of scholarly educational activity. This includes a system that is set up to promote such individuals and guide educators through the promotion process. Educators need early career guidance regarding the types of activities and outcomes that are needed to document scholarship of teaching. They need to know about and begin to build early in their careers educator’s portfolios, which are templates to guide junior faculty members, faculty mentors, department chairs, and members of promotion committees in the design and evaluation of educators’ promotion packages [18].

STUDENTS

It seems intuitive that an educator would require access to students. But the range of opportunities for teaching may not be so obvious. Additionally, the number and variety of students available to an educator to interact with greatly influences the amount and type of educational activities and research in which an educator can engage. This is analogous to patient populations influencing a radiologist’s clinical practice and research. In addition to teaching local medical students, residents, and faculty members, educators can teach similar cohorts at other institutions as a visiting professor or as faculty member at outside educational courses. Students can be from within radiology or in other specialties related to the educator’s expertise (eg, a thoracic imager teaching pulmonary fellows and faculty members). Other potential student groups include nursing students, nurse practitioner students, physician assistant students, and radiology technology students.

FEEDBACK

Feedback can come in many forms and have many different origins. Just as clinicians improve their practices through formal and informal quality improvement activities, and clinical and basic science researchers improve the quality of their research and publications through peer-review processes, a successful educator requires feedback regarding his or her performance as an educator. Feedback not only helps improve the quality of education but formalizes the work of the educator and provides a means to compare the performance of educators.

The accrediting bodies for undergraduate (medical student) and graduate (residency) training programs require regular documented evaluations of faculty members by students. Traditionally, these evaluations have been in the form of written surveys. More and more, institutions are adopting electronic evaluation systems that are used not only by students to evaluate faculty members but by faculty members to evaluate students and for both students and faculty members to evaluate educational programs. Student evaluations, both formal and informal, provide an important, but only one form of feedback to educators. Peer evaluation, or the evaluation of an educator’s teaching, curriculum, and innovative teaching materials by another faculty member (preferably someone familiar with teaching scholarship), provides another level of evaluation.

Medical student course directors or residency program directors have a responsibility to prepare and submit documentation to accrediting bodies before course or program reviews. In residency programs, for example, the Accreditation Council for Graduate Medical Education performs site visits and prepares a lengthy report as to whether the program is in substantial compliance with the council’s requirements. The Radiology Residency Review Committee reviews this report and other documentation and determines whether to accredit the residency program. The outcome from the program review and the feedback that is provided to the program director and the institution is a reflection of the program director’s effectiveness as an educator and administrator.

The ACCME accredits organizations that grant CME credits to individuals who participate in approved educational activities. Although individual faculty member evaluation is not required by the ACCME, an overall evaluation of the effectiveness of the educational programs is. Some CME sponsors do solicit individual faculty member evaluations and share the evaluations with faculty members [19]. The accreditation status of an institution reflects the work of the CME director, who is responsible for oversight of CME programs and ensuring that the implementation of these programs is in substantial compliance with the ACCME standards. Reviews from the ACCME provide objective and formal feedback to the CME director.

SUMMARY

The needs of educators are both general and specific. For example, a survey of residency program directors found that program directors needed more protected time (to perform their administrative duties), more support staff members, expertise in curriculum development, and evaluation and funding for resources other than personnel [20]. Educators without administrative responsibilities need time to teach and prepare teaching activities and materials. They need resources for faculty development [21], and they need to work within a system that supports educational programs and educators. The needs of an
educator include but are not limited to time, space, and money.

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