Open Forum

Mentoring

Applications for the Practice of Radiology

LORI L. BARR, MD,* KAY SHAFFER, MD,† KATHLEEN VALLEY, PhD,‡ AND BRUCE J. HILLMAN, MD§

In ancient Greece, Odysseus entrusted the education of his son, Telemachus, to a friend. This trusted and wise friend, Mentor, became the counselor, guide, tutor, coach, and sponsor for his protege, Telemachus. Legend has it that Mentor's direction went beyond teaching, covering personal, professional, and civic development. Today, "mentoring" still implies introducing a neophyte to "the establishment." While formal mentoring is common in the business world, the advantages of mentoring have not been formally addressed in the field of radiology. The purpose of this article is to define mentoring and identify the roles of radiologists as both mentors and proteges. A second purpose is to encourage readers to consider how to improve the field of radiology by establishing mentoring programs in their own departments, studying the effects of mentoring on the development of radiologists' careers, and creating innovations to improve mentoring skills.

What Is Mentoring?

Mentoring is nothing less than the means by which we can best perpetuate and improve our specialty. Mentoring is pertinent to all aspects of radiology—clinical activities, teaching, research, service, and administration—in both private and academic practice. Unfortunately, there are few objective data about how to mentor most effectively.

Mentoring is a complex relationship which, ideally, has a predictable time course and outcome. It is one of the most intense, psychologically and emotionally charged professional relationships an individual can experience. A simple definition of a mentor is a person with higher career status who, by mutual consent, takes active interest in the career of a junior colleague.¹⁻³ Mentors can broaden the knowledge of the junior colleague in career and psychosocial development. The mentor also acts as a guide or counselor and eventually, as a peer. The mentor-protege relationship involves all of these relationships and more.

Identification of the key elements to successful mentoring is helpful in assessing ongoing relationships and in planning mentoring experiences. One such element is coaching. A mentor who teaches career success and pitfalls avoidance techniques which have proven useful in the mentor's own career is coaching.¹ Coaching can keep the protege focused on tasks that will lead to career advancement and provide protection from unnecessary and unproductive tasks.

As the protege succeeds with small tasks, the mentor provides assignments with increasing responsibility and importance. These assignments often result in exposure and
visibility, since the mentor may send the protege instead of making a personal appearance. At public gatherings, the mentor makes clear his or her sponsorship of the protege.

The mentor serves as a role model and a counselor. The protege observes the behaviors and customs of the mentor in a variety of circumstances. The relationship should allow both positive and negative feedback for the protege, even concerning personal issues. As a counselor, the mentor is willing to offer feedback early, while negative behaviors can be modified before irreparable damage to the protege’s career has occurred. The mentor is the major source of positive performance feedback early on, thus boosting the protege’s self-confidence.

**What Chronologic Steps Occur during the Mentoring Process?**

Students of the mentor-protege relationship have found that once the participants have identified each other, mentoring proceeds in four consecutive stages. The first is the initiation stage, which lasts from 6 to 12 months. During this time, the relationship and goals are defined. In addition, any shortcomings of the relationship become obvious. The next phase of the relationship is the protege stage, which lasts from 2 to 5 years. During this phase, the multifaceted role of the mentor works to the protege’s greatest advantage. Others perceive that the protege’s good work stems from the mentor. Gradually, as the relationship advances, work increasingly will be attributed to the protege. Eventually, the protege begins to feel uncomfortable in the protege role. This results in the third phase of the relationship: the break-up. This stage of variable duration is a period of re-defining roles. In most cases, the break-up phase leads to a final phase of lasting friendship and a strong peer-peer relationship. In some cases, the final phase is explosive with the development of animosity and strife, resulting in the dissolution of the relationship.

**The Protege’s Goals and Perspective**

No matter if one is at the beginning of radiology training or has decided to focus on a different subspecialty, a basic insight into the mentoring process is useful when considering oneself as a protege. Pitfalls that may lead to career mediocrity for the young scientific professional include a short-term focus with no long-range planning, feeling that one does not fit the mold for a particular subspecialty, or having an unclear self-perception. The last factor may lead to poor management of the time available for activities that might advance a young radiologist’s career. Before one can enter into a successful mentoring relationship, it is important to prioritize professional and personal goals. This may require careful consideration of one’s lifelong ambitions, selecting harmonious professional goals and prioritizing one’s life to achieve these goals. Using irreplaceable resources, such as time, responsibly, and careful consideration of interactions with others improves self-discipline.

Professional education often occurs in an environment with ambiguous standards concerning dress and manners. Very little instruction is given to the neophyte concerning these important factors, which serve as first impressions when a new acquaintance is made. The way one acts in the work place, at professional gatherings and in less-formal settings influences others’ initial impressions of the protege. The feedback from others helps to mold self-perception. A quick self-assessment (Table 1) may provide the protege with an objective view of external perceptions. If a conscious effort is not made to project a professional image—by dress, mannerisms, and speech patterns—the protege may encounter difficulty later when wishing to seem professional both in and out of the work place. These same perceptions or misperceptions may hamper the development of useful mentoring relationships.

Mentoring is the continuum of events leading to professional success for the protege. Most medical mentoring takes place in the hospital or work environment and is considered formal mentoring. An example of formal mentoring would be a chairman who nominates a resident for participation in the RSNA-AUR-ARRS Introduction to Research Program. Informal mentoring may occur outside of the work place and helps integrate the protege into the field. It is a socialization process, for example, when a senior radiologist takes a younger colleague aside at a cocktail party and informs him or her that he or she is about to meet some of the “great minds in radiology.”

**Selecting a Mentor**

There are certain things a young radiologist can do to influence a prospective mentor to take him or her on as a protege. The first step in this process requires the protege to consciously determine his or her goals. Often, the decision to enter a particular subspecialty will limit potential mentors. In addition, the practice environment will narrow the selection further. For example, if one wishes to practice in a highly acclaimed university setting, one might choose an academic radiologist with significant research experience as a potential mentor. In addition, one should carefully review the career record of each potential mentor before pursuing the mentoring relationship (Table 2). In reviewing the achievements of a potential mentor, it is important to consider factors other than whether or not the mentor has a “good eye.” If an academic mentor is considered, what is

<table>
<thead>
<tr>
<th>TABLE 1. A View of Yourself from Outside</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kind of image do you project?</td>
</tr>
<tr>
<td>Is the image consistent in all walks of life?</td>
</tr>
<tr>
<td>Do you limit nonprofessional activities in the work place?</td>
</tr>
<tr>
<td>Do you use your unstructured work time wisely or for what seniors may consider “frivolous pursuits”?</td>
</tr>
</tbody>
</table>
TABLE 2. Potential Mentor Considerations

<table>
<thead>
<tr>
<th>What is the achievement record of the mentor in a variety of areas?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How has the mentor determined his or her standard of excellence, and are these standards high?</td>
</tr>
<tr>
<td>Is the mentor respected as a key player in various networks throughout the department, regionally, nationally, and internationally?</td>
</tr>
<tr>
<td>Does the mentor have enough faith in me to provide wholehearted support?</td>
</tr>
<tr>
<td>Does the mentor understand my needs and goals, both personal and professional?</td>
</tr>
<tr>
<td>Is the mentor perceptive and honest enough to recognize when he or she cannot provide me with the information I need?</td>
</tr>
<tr>
<td>If the latter is the case, will the mentor help me find someone who will provide the missing elements?</td>
</tr>
</tbody>
</table>

his or her publication record, grant and awards, service record on local committees, and service record to organized medicine? Has the mentor had previous mentoring successes, and does the mentor influence and change the discipline itself? Unfortunately, the movers and shapers are not always able to communicate the how’s and why’s of moving and shaping. That is why an assessment of the communication skills between the protege and the mentor is critical. Proteges without prior formal mentoring experience tend to expect more from the first mentor than those who have had several mentors.6 This is an important consideration in matching the aptitudes and attitudes of protege and mentor.

Once a multifaceted mentoring relationship is established, the benefits for the protege are numerous.7 These include individual encouragement, honest criticism, advice on setting priorities and balancing responsibilities, knowledge of the informal rules for career advancement, proper behavior in a variety of professional settings, the channels for establishing ties with the authorities in the various subspecialties, and a perspective on long-term career goals. In addition, the protege will begin to form a foundation of friends and acquaintances that will serve as a network to support the progress of his or her career.

Barriers to Mentoring

Unfortunately, there are some factors that may hinder the choice or success of mentoring relationships. Mentors tend to choose proteges who remind them of themselves.8 If the two differ by race, creed, or sex, the protege may need to work harder to point out common interests to the potential mentor. Any combination of factors that increase the uniqueness of the protege and thus their visibility also increases the risk to the mentor if the protege is a failure. Relative newcomers to a group who have not attained partnership, or lower-ranking academicians, may not yet view themselves as mentors. They may allocate the small amount of free time they are afforded to being proteges themselves. They may be reluctant to mentor because of self-doubt about their ability to fulfill the protege’s needs. Age also may have an adverse effect. Two people of similar age may establish a peer relationship and those differing greatly in age may form parental relationships. Although both of these relationships are valuable, they do not fulfill all of the functions of mentoring.

Environment also may be a hindrance to mentoring. Overworked professionals are less willing to invest the amount of time necessary for the relationship to succeed. Some practice choices may foster isolation of the protege who must then work harder to establish a long-distance relationship. For example, establishing a solo practice in a rural community may place physical distance between the protege and potential mentors. Choosing to be the lone minority or female in a practice may lead to isolation and a lack of camaraderie from which other members benefit. Choosing to pursue basic science research in a clinically oriented department also may lead to mentoring barriers because suitable mentors may not be available, and colleagues may envy the unstructured time necessary to complete laboratory experiments.

The Mentor’s Responsibilities and Resources

The successful radiology mentor is multifaceted, serving as teacher, advisor, and role model. In these roles, the mentor passes on to the protege the technical and intellectual aspects of what it means to be a radiologist. The protege learns not simply by what he or she is told, but by observing how the mentor interacts with patients, referring physicians, other trainees, and technical personnel. The protege also observes the attitudes portrayed by the mentor and the degree of career satisfaction the mentor enjoys. Beyond this, the mentor imparts to the protege “the ropes”—how to be more efficient, how to gather necessary resources, and how to interact most successfully with administration. Finally, the teaching role assumes the imparting of appropriate ethics. In this regard, the observed actions of the mentor are more effective than what is verbally imparted. In these times of constrained resources and clinically burdened departments, formal training in the ethics of clinical practice, the importance of service to the department and radiologic community, and particularly the conduct of ethical research is virtually nonexistent.

The mentor also must serve as an advocate. Especially in large departments, trainees and new faculty are often disregarded in the distribution of resources necessary to the development of a successful career. The mentor must ensure that this does not occur by making the department chairman and other decision makers aware of the potential of the protege and what time and resources will be necessary to improve the protege’s chances for success. Important resources include a favorable philosophical bent supportive of the protege’s goals, time and facilities necessary for accomplishment, educational opportunities, and appro-
ropriate rewards for success. The mentor also must be vigilant for potential situations favorable to the protege and sponsor the protege in availing him- or herself of these opportunities. Finally, even if the protege is very talented and hardworking, radiology is both a social and political career. To advance, mentors must introduce their young proteges to more established radiologists, locally and nationally, who can provide a network of support and future opportunities. The mentor can facilitate this process through his or her own contacts.

Ideally, the protege should recognize the mentor as both a friend and confidant. In this role, the mentor provides recognition for the protege’s achievements and ameliorates the hard feelings associated with setbacks by timely encouragement. When appropriate, the mentor also must gently indicate to the protege when he or she has performed sub-optimally and how that performance could be improved. In the most successful mentor–protege relationships, all of these functions are engendered by trust and the personal support and security both individuals find in the relationship.

The Rewards of Mentoring

One common reason why effective mentoring is not more prevalent is that there are too few tangible rewards in contrast to the effort required. Indeed, serious mentoring does place significant temporal and emotional demands on the mentor. However, depending on the practice situation and the viewpoint of the mentor, the rewards also may be considerable. This is important, because the mentor’s feeling that “there is too little in it for me” may bring hard feelings that will make a mentor–protege relationship unsuccessful.

To a large extent, the rewards of mentoring are internal. The successful mentor can take personal pride in the accomplishments of the protege. This is a reward that can last a lifetime and is likely to be more heartfelt with increasing years. In addition, recognizing the importance of new, well-trained, talented individuals to radiology, the mentor can appreciate his or her own role in the advancement of the specialty. More tangibly, experiences with talented, younger individuals bring new enthusiasm to the mentor’s work—new ideas and enjoyment of his or her career. Successful proteges bring recognition to the mentor. Rightly or not, especially the early accomplishments of the protege often are attributed to the mentor. As such, being a successful mentor enhances the mentor’s level of recognition within radiology.

Potential Problems during the Relationship

Occasionally, a protege may find him- or herself with a mentor whose ideas dominate the productivity of the protege to the exclusion of his or her own ideas. Jealousy between proteges and between multiple mentors may cause stress. One may be perceived as not being a “part of the team” anymore. Even the rumor of sexual misconduct may be detrimental to the careers of both the mentor and the protege. Often sexual issues can be avoided by maintaining a professional demeanor, meeting in places that do not foster sexual intimacy, being sensitive to the insecurities of others, confronting sexual feelings, and avoiding sexual innuendos or jokes. Departments can positively intervene in these problems by sponsoring gatherings that promote informal discussion between mentors and proteges.

The protege’s actions and behavior are important in making the mentor feel that he or she is recognized as performing an important and appreciated role. The protege should be respectful of the needs and goals of the mentor and of the level of commitment required. The protege should be responsible in fulfilling his or her role, meeting deadlines, working hard, and sustaining a high level of performance. The protege should be loyal. Often, the special relationship shared by a mentor and protege may be envied by others. This can generate hard feelings in the work place and set up an unpleasant dynamic that both the mentor and protege may have to confront. In all such circumstances, the mentor will require the support of the protege in making certain that the environment does not become so hostile as to endanger either individual’s career.

Improving Mentoring

There certainly are outstanding teachers and clinicians generally available to young radiologists and trainees whose greater involvement in mentoring might enhance the success of their proteges. Departments can become more proactive in encouraging mentoring. They can develop cadres of mentors within their departments, train them in mentoring techniques, and assign “advisors” to individuals entering the department until they can develop their own, presumably more efficacious, relationships. Part of the mentor training should include desensitization to sexual and racial differences, and an overall awareness of departmental goals. Departments could generate so-called “paper mentors”—published materials that can assume some of the less personal roles of mentoring. Topics amenable to a published format include: departmental expectations of the neophyte and lists of local experts in the various sub-specialties and in other areas such as grant writing, manuscript writing, practice/risk management, contract negotiations, and public relations. Division heads should ensure adequate facilities, resources, and protected time for career development. Informal events should be planned to allow cross-gender mentor–protege interaction without the fear of sexual innuendo. Finally, departments could provide better philosophical support and improved rewards for mentoring. Specifically, consistent with department goals, department chairmen might consider providing financial rewards for successful mentoring based on the successes of the protege, and offer
individuals the additional time and resources necessary to teach and serve as mentors.

However, regarding research, relatively few academic departments have enough individuals who are themselves sufficiently trained to fulfill all of the mentoring roles. In such circumstances, departments should seek creative means to provide the resources necessary for the development of young researchers. This is particularly important for radiology, because the dearth of young investigators in radiology and the importance of their development to the future well being of the specialty have been well documented.\(^9\)\(^10\) Departments should consider improving research relationships among their own basic researchers and clinicians, establishing relationships for their young researchers with clinician–researchers in other medical school departments, and exploring opportunities that may exist at other universities or at the National Institutes of Health.

The development of research careers is particularly important for women who enter academic radiology more frequently than men, yet remain an under-used resource with respect to research. Women publish only half to three quarters as frequently as men.\(^11\)\(^12\) This may, in part, be related to the fact that women have less access to mentors, as well as to virtually all other support structures that appear to encourage the development of successful research careers, both in training and in academic practice.\(^11\)\(^13\) Women, generally, are reluctant to take an assertive approach in identifying appropriate mentors and establishing mentor–protege relationships.\(^14\)\(^15\) Women desirous of research careers would certainly benefit from improved mentoring if they are to be successful.\(^15\)

Conclusions

As noted at the outset, few objective data are available about the effects of mentoring on the development of radiology careers. However, what research is available and overwhelming anecdotal evidence indicates the importance of mentoring to radiology. Mentor–protege relationships are beneficial to the mentor, the protege, and the profession. Other areas of medicine are encouraging the development of mentoring relationships to strengthen their specialties. Radiology should not lag behind in taking advantage of this opportunity to use some of the best minds in medicine to the benefit of the individuals, the specialty, and medicine as a whole.

References