

MENTORSHIP AND TRAINEE RESPONSIBILITIES

6.1 MENTORSHIP

Background

Mentoring the next generation of scientists is a shared responsibility of all current scientists. A mentor should have a willingness to share his experiences with trainees and assists the trainee in understanding and adhering to the standards of conduct within their profession. In this way, senior investigators pass on the informal and possibly unwritten standards from one generation of scientists to the next. Within a small research group, this mentoring may readily occur. However, many current research groups are too large or competitive and regardless of whether or not this has changed the extent to which new scientists become aware of prevailing standards of conduct, it appears that issues of responsible conduct are not discussed frequently.

Significance of the Mentor-Trainee Relationship

Some commentators on this subject emphasize the personal nature of the mentor trainee relationship. Others caution that boundaries are important. In either case, no two mentors will behave in exactly the same way – each brings to the task his own strengths and preferences. However, every good mentor will act from a sense of responsibility and a commitment to the future of the trainee.

6.2 ROLES

Role of Institutions

Institutions must ensure that each research trainee, whether part of the institution or from overseas or elsewhere, has an appropriately qualified and trained supervisor by setting standards for supervision and mentorship. For effective intellectual interaction, the ratio of research trainees to supervisors must be appropriately low.

Induction for trainees

To ensure that research trainees understand the importance of responsible research conduct, the institution should:

- Provide induction and training for all research trainees. Technical matters appropriate to the discipline, research ethics, occupational health and safety and environmental protection should be covered in the training.
- Maintaining key documents on the responsible conduct of research, institutional guidelines and policies on the conduct of research, NHG DSRB requirements for research involving humans, privacy and confidentiality and institution's guideline or policies for dispute resolution should be made readily available.

Researchers and Mentors

- Ensure training – Researchers and Mentors should ensure that training commence as soon as possible for a trainee. Training should encompass discipline-based research methods and other relevant skills, including the ability to interact with the industry and work with diverse communities and disciplines.
- Provide support – The mentor should guide the professional development of a trainee and provide guidance in all matters relating to research conduct and oversee all stages of the research process. This includes identifying the research objectives, obtaining NHG DSRB and HSA, approvals, if applicable, obtaining grant approvals and fundings, conducting the research, and reporting the research outcomes in the annual report forms as required by NHG DSRB, HSA or other relevant funding bodies, where applicable.
- Ensuring the validity and accuracy of research – Supervision of trainees includes having an oversight of their research outcomes. The researchers or mentor must be satisfied that the research methods and outcomes by the trainees are appropriate and valid.
- Ensure appropriate attribution – Supervisors or mentors should ensure that appropriate credit is given to trainees for their work and or contribution.

Trainees

- Seek guidance – A trainee must demonstrate a professional attitude towards the research. Frequent open communication with the mentor or supervisor is pertinent. This will require the cooperation of both parties. The trainee should not wait until approached by the mentor or supervisor or a problem arises, but should be engaged actively in maintaining an appropriate schedule of meetings.
- Undertake induction program and training – A trainee should complete all induction and relevant training courses as soon as possible after commencing in an institution.

The Role of the Mentor

Although the role of the research advisor or supervisor can lead to mentoring opportunities, the mentor's role is different from that of a supervisor or adviser. The essence of mentoring has been described as being an adviser, teacher, role model, and friend. In many cases, the mentor is ideally an advocate for trainees. The role of the mentor is often complex and takes on many forms. A true mentor is typically someone who possesses:

- Experience with the research and challenges that trainees face.

- The ability and willingness to communicate that experience.
- Special interests in helping another person develop into a successful professional.

A mentor might be a departmental adviser or another colleague, a project leader, a fellow student, a wise friend, or simply another person with experience. A trainee or protégé in the research setting could be anyone in a junior or apprentice position, such as an undergraduate or graduate student, a postdoctoral fellow, or a junior research staff member. To appreciate potential contributions of mentors it is helpful to consider the wide range of needs to be met:

- Mentors in the sciences should help trainees develop as capable researchers. A mentor can contribute to the trainee's technical development in many dimensions of research, including methods, directions, creative thinking, completing academic or professional requirements, and communication skills.
- Trainees also need support for career development and preparation for the job market. Mentors can help by providing suggestions on the current job market, create opportunities to make contacts with leaders in the trainee's field of research, facilitate introductions to people working in his or her discipline, or networking," and making aware of the range of career options. A mentor also can help a new scientist win grants by providing guidance on the grants to apply for and tips on writing a strong proposal.
- Another focus of mentoring is the socialization of trainees. Such socialization should include guiding ethical development, fostering an understanding of the political, economic, and social elements of interacting within the academic community, and instilling a sense of collegiality. This approach to mentoring includes promotion of skills for teaching, communication, working in teams, and leadership. It also encompasses management of people, interacting with others, listening, expressing ideas, administration and planning, and budget management.
- A particularly important mentoring role is that of an advocate. There are times when the mentor has to step forward and defend or advocate for the trainee where it is appropriate.

6.3 RESPONSIBILITIES

Responsibilities of Mentors

Scientists have a complementary responsibility to be mentors just as trainees in science have a responsibility to seek mentors. Taking an active role in helping to train the next

generation should be part of the definition of a scientist. For this reason, the enterprise of science depends on effective communication not only with regard to scientific concepts and principles, but also about the practice of science, standards of conduct, and ethical and social responsibility. This obligation extends to all members of the community, not just senior researchers. For example, a newly arrived undergraduate student will benefit from the mentoring of a graduate student, technician, or a more senior undergraduate.

a) Be Available

At the core of mentoring responsibilities is the simple admonition of availing oneself. However, some researchers make the mistake of thinking that mentoring will somehow take over their professional lives and leave no time for their research responsibilities. It doesn't have to be this way, nor should it. In the span of a few minutes, a mentor can effectively assist her trainees by being attentive to a few key elements, through careful listening and keeping in touch.

b) Listen Carefully

Listen carefully, focus away from the nuances of word emphasis and body language. Through careful response and a few well-placed questions, clear communication can proceed and support and encouragement provided for trainees.

c) Keep in Touch

Communicating regularly with trainees is essential. The mentor should try to give at least a few minutes to trainees every other day or so. These short exchanges could help the mentor stay aware of what is going on and anticipate problems.

d) Allow for Differences

Successful mentoring, as with any close personal relationship, depends on the personalities of the parties involved. Some trainees learn readily with a minimum of nurturing or guidance, or at least believe that they require a minimum of help. In such cases, frequent and probing discussion initiated by a mentor may be perceived as invasive and micro managerial. Other trainees may require the reassurance of being closely monitored with frequent feedback – both positive and negative. Some mentors are uncomfortable with offering advice or initiating discussions unless first asked, whilst others will readily volunteer information and advice.

e) Let Trainees Make Decisions

The role of the mentor is to provide advice, help, and encouragement. However, the trainee should not be bound to follow suggestions made by the mentor. Ultimately, the trainee must act responsibly in the context of his or her own values, goals, and experience

f) Teach by Words and Example

If a mentor argues for rigorous authorship criteria, but fails to follow his or her own advice, the trainee may have the perception that the mentor is an unreliable source of information and that the standards of conduct in research are poorly defined. It is critically important that mentors explain their actions clearly, because the rationale for even the most exemplary behavior may be esoteric to the uninformed observer, especially for those of different cultural backgrounds.

g) Keep Learning about Effective Mentoring

Responsible mentors should strive to continue learning about effective mentoring, through experience and through the available resources on mentoring. It is also suggested that a discussion about and comparison of mentoring techniques be added to faculty meeting agendas or other faculty events, such as retreats.

Responsibilities of Trainees

Most young or aspiring scientists have at least a modest idea of their ultimate career goals and may have internalized the usual worries that accompany those dreams. The obvious solution is to seek out more senior scientists, and sometimes peers; who have the experience that is lacking. Finding someone who will be an effective mentor should primarily be the responsibility of the trainee.

a) Identify Career Plans

In seeking a mentor; the first step for a trainee is to identify their particular needs. Trainees should assess their skills, talents, and interests, and seek advice from someone who is knowledgeable about suitable career options. Someone who can help with this initial look at career plans may be, or may become, a mentor, but this is not essential. An Individual Development or Career Plan could help in this regard.

b) Locate Prospective Mentors

A trainee should seek prospective mentors; individuals who have succeeded in their own careers on a path the trainee aspire to follow. For example, for some women it would be invaluable to seek the help of women scientists who have met the challenges that they, as trainees, are likely to face. For other women, as well as men, the topical or research experience of a mentor may be more critical.

Qualities to look for in potential mentors include:

- Experience in areas relevant to the trainee's personal and career development,
- An interest in the trainee and his or her career,
- A willingness to make time to meet with the trainee, and
- An ability to provide the trainee with useful advice.

An ideal mentoring relationship depends to a great degree on personal compatibility. Assessing the interpersonal skills of the prospective mentor is much more difficult than gauging his or her success as a researcher. However, because research is defined by

personal as well as professional relationships, personal qualities are as important as any other criteria in identifying a supervisor, thesis adviser, or mentor.

Here are some practical suggestions that new graduate students may consider as they begin a career in research:

- Talk to as many Principal Investigators (PIs) or lab heads as possible.
- Obtain information on the lab from other students in the department. Find yourself a mentor whom you respect and trust. This doesn't have to be set up formally; it should simply be someone you can talk to. It can be a PI, post-doctorate graduate, or a senior graduate student.
- Talk to as many lab members as possible to get information about a lab. Contact previous grad students. Ask candid questions such as:

“What is the PI's mentoring style? Hands on or hands off? High pressure or laid back? What is the male-female ratio in the lab, and, if the ratio is skewed, is there a significant reason for it?”

c) Distinguish between Supervisors and Mentors

Not everyone has the qualities of a good mentor. While the terms "mentor," "thesis adviser," and "research supervisor" frequently are used interchangeably, thesis advisers and research supervisors are not necessarily mentors. Thesis advisers are responsible for ensuring that students fulfill departmental and institutional requirements for the graduate degree and for giving advice about research directions, methods, and publication. Mentors provide information that is essential for professional success, such as how to obtain funding, manage a research lab or group, use time effectively, and understand departmental politics and institutional committees.

d) Be Clear about Needs and Expectations

A mentoring relationship should not be a passive one. The trainee must take an active role in identifying and communicating his or her needs and expectations as a professional-in-training. Although a mentor can provide a unique and invaluable perspective, the mentor's advice should not be accepted without reflection. The trainee must evaluate the mentor's advice in light of his or her own values, goals, and experience.

e) Keep Learning about Effective Mentoring

Trainees should seek to continue learning about the mentoring process to optimize their own experience and to prepare to be effective mentors themselves. Furthermore, faculty and graduate students might encourage one's program or department head to add mentoring as a topic for seminars or colloquia.

Dealing with Problems in the Mentor-Trainee Relationship

The best approach to addressing problems between mentors and trainees is based on an understanding of existing procedures and guidelines in advance of encountering problems. When graduate students and postdoctoral fellows are asked what would improve their dilemma, many request written guidelines. They want to know what to expect and how to deal with problems. Many academic institutions, graduate schools, and individual departments have developed written strategies for dealing with problems, concerns, and conflicts. These might range from "Speak first to your immediate supervisor or the faculty member involved" to "The department graduate adviser is the person with whom you should consult."

6.4 REFERENCES & ACKNOWLEDGMENT: MENTOR AND TRAINEE RESPONSIBILITIES

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