Promoting Responsible Conduct in Research through “Survival Skills” Workshops: Some Mentoring Is Best Done in a Crowd

Beth A. Fischer and Michael J. Zigmond
University of Pittsburgh, Pittsburgh, PA, USA

Keywords: graduate training, education, responsible conduct, research ethics, professional development.

ABSTRACT: For graduate students to succeed as professionals, they must develop a set of general “survival skills”. These include writing research articles, making oral presentations, obtaining employment and funding, supervising, and teaching. Traditionally, graduate programs have offered little training in many of these skills. Our educational model provides individuals with formal instruction in each area, including their ethical dimensions. Infusion of research ethics throughout a professional skills curriculum helps to emphasize that responsible conduct is integral to succeeding as a researcher. It also leads to the consideration of ethical dimensions of professional life not covered in traditional ethics courses.

I. Background

“Survival Skills”: The missing component of graduate education
If our trainees are to develop into successful researchers, they must acquire a variety of skills. Of course, it is essential that these individuals understand the broad fundamentals of their discipline, gain some depth in the details of a particular sub-area, and obtain practical experience in research, including experimental design, methodology, and data analysis. However, they also need to develop a set of general professional skills. For example, they must be able to present their results at scientific meetings and prepare written reports. They may need to obtain grants to fund their research, hire and supervise technical staff, and teach classes and mentor.

An earlier version of this paper was presented at a National Science Foundation sponsored conference on Mentoring and Research Values: Students as Vital Human Resources, Chicago, USA, March 1995.

Address for correspondence: Beth A. Fischer, University of Pittsburgh, Survival Skills and Ethics Program, 4K26 Posvar Hall, Pittsburgh, PA 15260, USA; bfischer@pitt.edu (email).
1353-3452 © 2001 Opragen Publications, POB 54, Guildford GU1 2YF, UK. http://www.opragen.co.uk
Because of their importance to an individual’s success as a professional, we have termed this set of abilities “survival skills”. We are concerned that, whereas most graduate programs provide excellent training with regard to the theoretical and practical details of a discipline, they often do little to provide their students with formal instruction in these and other survival skills. Not surprisingly, therefore, many professionals (and many employers!) complain that advanced training programs do not prepare graduates for the realities of the tasks to be performed in professional life.

Because survival skills are typically not taught in graduate school, individuals traditionally acquire them in one of three alternate ways: through trial and error, instruction from one’s mentor, or courses run by faculty in the discipline from which the skill derives. However, each of these methods has its limitations.

**Trial and error** does not require that faculty or institutions commit resources to providing survival skills training. Rather, it places the burden of developing these skills on the students themselves. Although trial and error can be a very effective teacher, it is quite stressful, and can involve a great deal of time, energy, and anxiety. For students already struggling with their graduate studies, such experiences may be detrimental, even lethal to their intended career. Moreover, many students may not even recognize the need to develop such abilities until they are faced with an imminent need for a given skill. Students who have not received adequate mentoring prior to graduate school are particularly at high risk in this regard, as are individuals without access to a mentor. A disproportionately large number of these individuals are women, members of minority groups, international students, and students who represent the first generation of their families to seek advanced higher education.

**Individual mentoring** can provide highly individualized training over a period of time. However, there is no guarantee that the advisors themselves have a fully developed set of survival skills. For example, most faculty have little or no experience in issues such as careers outside of academia. Moreover, even if an advisor is proficient in all of the necessary skills, the realities of professional life make it unlikely that they have the time necessary to implement individualized training in all skills for each of their students. Indeed, many students report that although they have an advisor, they do not have a mentor. As in the case of learning by “trial and error”, the negative impact may be particularly strong on individuals outside of the majority.

**Formal courses** in specific survival skills may be provided through departments or schools that focus on a given skill-related discipline – a course in oral communication in a Department of Communications, technical writing in a Department of English, teaching in a School of Education, and so forth. However, despite the richness of such courses, this instruction may not be properly focused so as to be relevant to the specific needs of emerging