

**Situation.** My graduate student supervision is conducted in the Faculty of Science, although I have also co-supervised students in the Faculties of Medicine and Engineering. My research lies in the fields of Biochemistry, Biophysical Chemistry, Nanoscience and Microbiology. Students carry out research in my laboratory under the envelopes of my externally funded research programs, and this must be focused to meet the objectives stated in the grants.

**Beliefs.** The beliefs that underpin my philosophy of graduate student supervision are founded upon the responsibilities associated with the very personal professor-student relationship that typifies thesis-based graduate programs. This brings the responsibility of mentorship and the training of the whole person for future success – excellence in academic performance alone is insufficient for effective career development. Training graduate students entails assisting them to transition to becoming knowledge producers, which requires the nurturing their creative capabilities, because research is a creative process, driven by curiosity and fueled by passion. Effective supervision facilitates the forging of the leading scientists and idea generators of tomorrow by nurturing the inner fire that drives discovery. Providing students with the freedom to develop their own research directions fosters the opportunity to develop graduates who are equipped to take their place in the world as leaders and innovators, whether in academia, government, or industry.

My means of achieving success in supervision of the ‘whole person’ occurs through a staged approach. In this I provide my students with the opportunity to contextualize the broader societal implications of their research and I imbue in them the “soft skills” essential for communication and the translation of ideas. I believe that by being a positive role model for my students I can encourage them to develop a balanced approach to life – allowing creativity to be enhanced through keeping the mind, spirit/soul and body active and healthy. Thus, a focus on the whole person allows me to help each student to attain their own pinnacle through assessment of their individual strengths, shortcomings, and aptitudes. Within the confines of my overall approach to graduate supervision, the tailoring of my attentions in specific ways to each individual allows their potential for success to be enhanced.

My ultimate role as a supervisor is to encourage deep thinking because this leads to the development of focused research questions, which require creative insight. Done correctly, this leads to confidence and independence. I take considerable pride in having included marginalized and academically weaker students into my group. Most of these students had a steeper hill to climb yet ultimately became successful as a result of my personalized process. Those who were more straightforward to supervise were exposed to the same beliefs and practices and also became successful, but the true mettle of my approach especially evident with the more challenged group.

**Actions.** For early days, I interact with new students on a daily basis. As they attain confidence and I learn of their trait, I begin to wean them off such intense supervision, my overarching goal being to have them transition from the typical role of a student to that of a colleague and collaborator of high standing by the time they defend their thesis. During their first year I set 3 goals: to get them thinking deeply about their topic; to derive questions; to develop ideas to address them; and to hone their experimental skills and oral discussion skills. I veil the learning interaction by entering into ‘casual conversation’ with strategic questioning related to their statements and/or ask them to explain something further. They soon catch on to the deeper issues underlying my questions, thus broadening our discussions. I then take them through a manuscript that was published from my group and illustrate to them how we came up with ideas and approaches. This is a good way for them to learn the background material from my lab’s perspective, but through my directed questions they perceive other approaches, and this also helps them become comfortable questioning me and others. This builds their knowledge base and sharpen their critical thinking abilities. Within the context of discussions of experimental design and data analysis I introduce issues relating to morals and ethics of knowledge pursuits adding in the context of the pressures of publish or perish world or the capitalism and dollars of industry.

Finally the importance of the ‘post mortem’ reflection discussion between me and the now former student. The open honest discussion of the project, the experience, and my supervision is crucial.