

## **A Degree Requires The Right Attitude And Approach**

When we wrote the first draft of this book and asked colleagues to read it and give us feedback, a universal comment was "What about a chapter on dealing with your supervisor?". We think this says something about the quality of research supervision when most people consider that coping with your supervisor(s) deserves a chapter!

Realistically though, getting the most out of your graduate school experience involves more than just your research supervisor(s).

### **You ...**

#### **First And Foremost, You Need To Take Responsibility For Your Learning.**

It is up to *you* to ensure that you get what you need from the graduate school experience. Be proactive and take the initiative whenever possible. Cultivate an attitude of being a "paying customer". Regardless of whether you receive a stipend as a research or teaching assistant, you are almost certainly paying tuition as well and that tuition entitles you to expect a certain level of "service" from your postgraduate institution (or graduate school in North America). Treat your postgraduate time like an apprenticeship – you are obtaining valuable on-the-job training. Remember, you are learning how to do research more generally, not only the specifics and details of a particular field.

#### **Choose Your Research Supervisor Carefully.**

This is a complex process and we are not going to claim to have a crystal ball for making *that* decision. But it is important to remember, you are "shopping" for them as much as they are "shopping" for postgraduates. Your supervisor(s) will have a tremendous impact on the direction of your early career. Make this decision carefully and try to make the best choice for **you**, not what someone else says is the best choice.

Obviously you will need to decide on research area in which you would like to work. This will most often be in the same field as your undergraduate degree but you should not feel trapped by this. It is just as valid to move into adjacent fields if your interests and general aptitudes warrant it. Depending on the discipline, it may also be possible to make a more radical jump on moving to postgraduate work. However, be prepared to do a fair bit of remedial work and study to get yourself to where others started out in that discipline.

Once you have decided which research area to focus upon, you will need to look into the reputation of researchers in the chosen field who are willing to take on postgraduates. You will need to decide whether you want to work with someone who is just starting out or someone who is well established. A younger faculty member will likely have enthusiasm and new ideas but may still struggle, themselves, with some of the concepts covered in this book. An established

researcher will have had many years to learn and perfect their skills, but may have lost their enthusiasm and/or may be resistant to new ideas or ways of doing things.

You need to evaluate the size of the research group. A large group often means someone fairly prestigious – someone well-funded and successful can afford to maintain large groups. There is a certain caché or status that comes from working in such groups, but be prepared, there are associated costs too. If the group is large, how much time do you think the supervisor will have for you? This will necessarily mean less one-to-one interaction with you but could mean that you have the opportunity to work with and learn from others in the group. A smaller group will mean more direct access to the supervisor and the opportunity for one-to-one learning. When looking for a supervisor, talk to the people in the group (if possible) and try to find out the dynamics of the group and the management style of the supervisor. Will these work for you?

In addition, you will have to factor in basics like geographic location (are you able to relocate?) and whether you will be able to do your degree full-time or do it part-time while earning money to support yourself. You will need to find both a program and a supervisor who is amenable to your needs.

### **Actively Seek And Develop The Additional Skills That Will Support Your Career.**

It is dangerous to assume that you will absorb and develop these skills as you go along. We don't learn to drive or play tennis by simply watching TV or reading books, we learn by practising a lot and challenging ourselves. The same reasoning would apply to making presentations, writing papers, planning a research project, etc.

### **Manage Your Time And Tasks.**

Time and task management could be a book in itself and we will only touch the surface of it here. Depending on the program, there may be subject-specific course work, your research, some amount of teaching assistance and supplemental skills-development.

The course work is clearly related to learning the theory and fundamentals of your chosen speciality at the beginning of your postgraduate research degree. It will probably involve lectures, assignments and tests/exams.

The research itself is obviously important to both you and your supervisor(s). It forms the basis of your thesis and any other publications that come out of your postgraduate experience. As well as the research you do on your own, this will involve regular meetings with your supervisor(s) and networking with the larger research community.

Teaching assistance, helping more junior students, is also extremely valuable because it helps to develop teaching skills which will be of use if you pursue an academic career and lead a group of your own. It also can help you to learn and sharpen your communication skills. Learning to explain things to a novice so that they understand requires you to not only know your subject well but to be able to present it clearly and concisely.

The development of supplemental skills will help your research and contribute to your future employability. These supporting skills might include presentation skills, writing skills, IT skills, creative thinking, problem solving and so on. Realistically assess your strengths and weaknesses and then look for courses/workshops that will develop your weak areas.

During your postgraduate degree, you will have numerous demands upon your time (course-work, research, teaching assistance, supplemental skills-development, personal commitments, ... ). You must recognise that you have a fixed amount of time available. You will need to actively and deliberately choose how you distribute your time among the various activities.

Completing your postgraduate degree requires consistency and discipline. Regular work beats crash efforts. Think of it more like a marathon rather than a series of sprints. You get a degree for original and valuable research. Lots of trivial results or simply being "busy" is not enough to get a degree.

Work or results that won't appear in your thesis or contribute to your career should be strenuously avoided. Ask yourself, and if necessary ask your supervisor(s), the following questions:

- How is doing this relevant/useful to answering my research question?
- How does this contribute towards my thesis?
- How does this contribute to my career?

In your postgraduate experience and throughout your career in fact, you will encounter a variety of tasks which are:

- unimportant and not urgent;
- unimportant but urgent;
- important but not urgent; and
- important and urgent.

The first and the last one in this list are easy decisions about whether or not they get done. The two in the middle cause the most difficulty. Unimportant but urgent tasks **do not** become worth doing simply because someone thinks they are urgent. Urgency simply means the deadline is close and not that it is necessarily important. And of course, the important but not urgent tasks **do not lose** their importance just because there is no specific deadline for getting them done. Important tasks like writing papers can fall into this category! No one can deny how important they are to your future career, but unless there is a specific deadline for perhaps a special journal issue, it is easy to let the writing of the paper slide to tomorrow or next week or next month. If you are not careful, you'll find yourself "scooped" and someone else will publish your idea first. And when you come to look for your next position, you won't have as many publications to your credit as other candidates.

One approach to making time for the important but not urgent tasks is to "Salami Slice" them into such small pieces that it becomes easy to fit each little piece into your day. Each day you do one small bit that may take as little as 5 or 10 minutes. Overtime, the little bits add up, often surprisingly quickly! For example,

if you wanted to write a paper for publication, then you might spend 5 to 10 minutes each day doing one of the following:

- Get the "Guidelines for Authors" from the journal website.
- Collect your notes and research materials into one pile.
- Review your data and analyses.
- Work on structuring a logical case to support your conclusion(s).
- Prepare one diagram or one table.
- Write one paragraph.

This book was written using the Salami Slice approach over a period of eighteen months. It may have taken that long but it got done!

### **Network! Network! Network!**

While doing research can be largely independent endeavour, it is not without its social element. It is essential to be able to communicate the results of your research to a wider audience. You need to be known for doing good work. This is essential not only because it contributes to the knowledge of your particular field but also for more individually relevant reasons: future collaborations, possible job offers and future funding.

Get your supervisor to introduce you to everyone! You never know when someone you meet might offer you a job. You never know when you will meet a new colleague and form a new collaboration.

Try to participate in a collaboration of some kind during your postgraduate experience. Even if it is simply someone in your own university or department but outside your own research area or group. This broadens your horizons, can be beneficial to both parties, and looks good on a résumé. A lot of very interesting work goes on in overlapping regions of different fields.

Meet people from other departments! Discussing your research with people from outside your speciality is extremely useful. Never, never underestimate the power of "stupid" questions from people "who don't know"! And when people outside your field can understand what you are doing and why it is important, then you know you are explaining it well. Finally, there have been numerous times we've seen someone with a research problem discover that someone in another field has already solved that kind of problem, which means you don't need to reinvent the wheel.

Social media are becoming more important and you should definitely explore what they have to offer. However spending several hours a day on *Facebook*, *Twitter* or even *LinkedIn* is a poor substitute for actually doing your research. So far, there aren't any degrees awarded for time spent on *Facebook*, *Twitter* or *LinkedIn*!

## **Manage Your Online Professional Image/Reputation**

In addition to networking, it is essential that you manage your online presence because it will be too late to "fix" it when it is time to look for a job. Never post (or if necessary remove) anything that does not contribute to a professional impression. Consider your internet presence as if it was going to be a matter of permanent and public record.

- There are sites that archive older versions of websites and let you see how they looked 5 or 10 years ago!
- Material can be copied from one website by another website, often without the first website's knowledge or permission.

Anything you post on the web can come back to haunt you many years later. Look at your internet presence (web-pages and/or social networking) with the eyes of potential employers. What conclusions would strangers draw, based upon what you have presented?

The more serious the position you are applying for, the more thoroughly the employer will explore your past. For example:

- security-sensitive positions (government, police, security services);
- reputation-sensitive positions (legal firms, banks);
- ethically-sensitive positions (schools, charities).

If your web presence indicates signs of:

- poor judgement;
- illegal behaviour (under-age drinking, drug-use);
- indiscreet or unprofessional behaviour;

then you probably won't be invited for an interview.

I know of one young lady whose *Facebook* page consisted of 300+ photos of her at parties. If you were an employer, then what would be your impression of this applicant?

## **... And Your Supervisor(s)**

### **They Are Human Beings, Not Gods.**

Probably one of the biggest roadblocks to learning effectively in the early stages stems from dysfunctional relationships with supervisors. Many beginning students have an unhealthy fear of their supervisors. Firstly, supervisors are human beings, not gods. They have knowledge and skills, but they aren't perfect. They can make mistakes or jump to the wrong conclusion like anyone else. Secondly, they learned their "trade" 10, 20 or 30 years ago and the research environment has changed since they began. Unfortunately, some of them haven't kept up. You will need to learn from their strengths, and we hope, cope with or manage their weaknesses. Bear in mind that it is also possible to learn from their weaknesses; if nothing else you can see what doesn't work! You can learn from others how to do the things that your supervisor does not do well.

Moreover, they were typically hired for their research ability, not their teaching or supervisory skills. Many institutions have little or poor training in teaching and/or supervision and some schools don't even require new academic staff to take any teaching courses. They are essentially being expected to perform tasks for which they have little specific training or experience. Sure, they went through graduate school too ... observing how to teach from folks who also were not taught how to teach ... it is a never-ending cycle. We once heard it said that if you had two good teachers during your graduate school experience then you should count yourself lucky!

The supervisor-student relationship is like any other, trust needs to be developed. They need to know that you will do your best and ask questions when needed. You need to know that they will actually teach you how to do research and not just let you flounder. You are a student working towards an examinable degree! You are not an employee who must do whatever the boss says. And remember, it is a partnership – they need graduate students and graduate students need supervisors.

### **Interacting With Your Supervisor(s)**

Try to have regular and frequent meeting times with your supervisor(s). This will ultimately depend upon their workload but nothing takes the place of actual "face-to-face" time. Remember that their time is valuable, so be as concise and organised as you can be and plan ahead to avoid wasting your time and theirs. Believe us, this will be appreciated. Cultivate an efficient approach to meeting with your supervisor(s). For example, prepare notes to make sure all the topics get covered and you proceed quickly. It is a good idea to start off with a brief status check:

- What have you done since the last meeting?
- What worked as expected?
- What hasn't worked?
  - What steps did you take to remedy matters?
  - Is it working now?
  - What is your contingency plan?
- What do you have planned next and why those items?
- Are there any areas where you need assistance?

This format efficiently gets you "on the same page" and provides an opportunity to check your reasoning and understanding. Make sure that you give them a true status check – they need to know both the good and the bad. It benefits neither you nor your supervisor to only talk about the good. If you are having a problem with some area, they may have the answer or an idea of what to check next. Learning how to work independently is extremely important but "spinning your wheels" is counter-productive. It may be that you aren't doing anything wrong. It may be that the anticipated result is just not happening the way it was expected. Many beautiful theories have been sacrificed on the altar of empirical evidence.

Also, if your supervisor doesn't suggest it, ask to meet from time to time away from his or her office – in the laboratory or wherever else you do most of your actual research. Some of the best supervisors we have known routinely spend time in the lab, observing their team while they are doing research. This doesn't have to be an ordeal, just a change of venue and an informal discussion of the day-to-day activities. This gives the opportunity to keep the supervisor aware of how long the research is taking (something that tends to be forgotten once the researcher steps away from hands-on research to run a research group) and it allows a check on how the data is being collected as well as technique. Additionally it can be an opportunity to learn new "tricks" from your supervisor who has more experience in that field.

Remember to ask your supervisor to explain their reasoning. That way you will learn how they think about research and you can check if their reasoning is logical and defensible. Always explain your reasoning to others so that they can check your logic and evidence and either confirm that you have a strong case or give you corrective feedback before you go too far off-course.

Be sceptical until there is a logical case plus sufficient evidence. This is actually, in many ways, part of your ultimate job description – healthy scepticism. Research is all about gathering proof that addresses your particular question, interpreting (without bias!) that data into meaningful conclusions and communicating your case to others.

### **When It's Time To Move On ...**

There is variation between countries and disciplines in terms of how long a degree should take. You will need to check what is usual for your discipline, institution and country. For example, in the UK, a PhD is "officially" 3 years (paid) however a substantial proportion of postgraduates find themselves spending an additional year (unpaid) in order to complete their PhD. In the US and Canada, PhDs are more open-ended in terms of length but at least you still get paid while you are working on it. In these cases it will involve negotiating with your supervisor/principal investigator about when enough is enough. They will often want you to continue working on your degree because you will be producing results at a relatively low cost to them. However, at some point you will need to leave the nest – both to pursue your independent research goals and also to start making a better salary – because let's face it, postgraduates don't get paid much! (Not that any of us went into research to get rich!) It's a good thing that research can be so interesting. Enjoy it as much as you can!