10 Tips for PhD Research
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Tip Number 1 – Research Practice Always Comes First

A PhD program is an apprenticeship for research. It is a means by which a student can learn to undertake research in a systematic, impartial and analytical manner, and to expose that work to peer review as a means of validating the process and outcomes. The research project, which is the subject of the PhD, is the vehicle through which the student learns the process of research – it should not become the end of itself.

One of the most common problems in tackling PhD programs is that students become infatuated with the research project – because it is generally in an area of interest to them – and neglect the core objective of the PhD, which is to learn the process of research.

It is also commonly the case that research students view a PhD program as an opportunity to change the world – by making some significant advancement in their chosen field. For the bulk of PhD students, this is not a realistic objective. Firstly, no advancement that a student can put forward will have significance unless the underlying processes can be demonstrated – to a group of expert peers (either through publication or viva) – to have been conducted in a systematic and impartial manner. Secondly, there are time constraints on a PhD program – the process is not open-ended and it is generally not realistic for a student to learn the rigors of research and achieve a major knowledge breakthrough at the same time.

The basic elements of research apprenticeship involve learning

- The process and rigors of literature review
- The development of a hypothesis and methodology based upon the review
- Design of experiments and assessment instruments
- Ethics including basic animal/human procedures as well as general research ethics
- Laboratory documentation techniques
- Professional writing skills as they pertain to reports, research papers and lengthy theses
- The processes, strengths, limitations and pitfalls of the peer review system.

These are the most important learning outcomes from the program and mastering them needs to be a first order priority. The actual project needs to fit in with the need to train a student in these areas.