Getting the most out of Research Supervision

Tips for students and supervisors

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Director of Telethon Kids Institute

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Research Supervision

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Government of Western Australia
Child and Adolescent Health Service

RESEARCH SKILLS SEMINAR SERIES 2019
Research Education Program

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Research Skills Seminar Series | Research Education Program
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Overview

- What do we mean by research supervision?
- Why take on or seek research supervision?
- Supervisor and Trainee Responsibilities
- Supervisory styles
- Stages of research supervision
- Additional resources

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This will cover…

- Formal and informal research supervision
- Research 'trainees' as well as enrolled postgraduate students
- Supervisor and student perspectives

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What do we mean by Research Supervision?

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What do we mean by Supervision?

"A critical watching and directing (as of activities or a course of action)"
merriam-webster.com

"Care, charge, guidance, surveillance, protection, tutelage"
thesaurus.com

Does this cover what we mean by research supervision?

Supervisor may evolve to become a mentor, adviser, collaborator

If we knew what it was we were doing, it would not be called research, would it?
Albert Einstein

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Why take on or seek research supervision?

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Why take on research as a student/trainee?

Possibilities:

- Research career:
  - Undergrad → Postgrad research → Early career research fellow → Independent researcher → Professor
- Incorporating research into another career
  - E.g. practitioner / policy maker / business
- Understanding research and evidence
- Because you want to do your job better
- Because you have a question that needs an answer
- Because you want to

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Why take on or seek research supervision?

- Making a difference
- Inspiring new researchers
- Because you have a question you want to answer
- Because it is good for you own career
- To start up new collaborations and explore new disciplines
- Practicality
  - Completing a project (with limited resources)
  - Publications, grants
  - (Students may have more ownership than employed staff)
- Because it comes with some funding

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Why do I supervise students/trainees?

- The most enjoyable part of my job
- Guiding and developing the future workforce
- Producing great research
- An opportunity to think, focus, discuss, "chew the fat"
- An opportunity to hang around younger people…

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Learn from your own experiences

- As supervisor, as supervisee
- What to do, what not to do
- Very important for small projects by "trainees"
  - Resources, time, skills, experience on both sides
    - —If not good, can turn people off research

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Some great supervisory experiences of mine

PhD by a later career well-known clinician who "always wanted to do a PhD"
Several PhDs by rising stars who now are great collaborators, and established stars
PhD by a paediatrician trainee who completed while having 3 babies
Masters by a young med student who published a pivotal paper and is now doing a PhD, about a decade later after completing specialty training
2x PhDs by students who had great trouble with academic thinking and writing, but who ended up submitting and passing with flying colours

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Some not so great supervisor experiences that are all avoidable:

The PhD that never gets finished
The clash between supervisor and supervisee, requiring mediation
The student who doesn't understand at the start what it takes to complete their project/thesis
The project that begins without the available resources
The supervisor who doesn't know research well and doesn't seek assistance
The student who learns bad research practices (e.g. around ownership of data and IP, around protecting rather than sharing, around lack of generosity and collaboration…)
The student who is put off research forever because of their bad experience
The supervisor who avoids taking on new students because of their bad experience (e.g. deciding that it is more effort than it is worth)

The PhD Discussion – Full Time or Part Time?

- Full-time:
  - Most likely to get completed
  - Most fulfilling experience
  - Not necessarily compatible with existing work, financial and family commitments
- Part-time:
  - Most flexible
  - Often most stressful because of competing priorities
  - The world is littered with part time PhDs that were never completed…

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Supervisor and Trainee Responsibilities

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Responsibilities – Supervisors

Australian Code Section 3[1]

"…Researchers and supervisors must ensure that the role model they provide to junior colleagues is positive and conducive to a research culture of excellence, integrity, professionalism and mutual respect…."

Specific Supervisor responsibilities include:

- 3.3 Ensure training
- 3.4 Mentor and provide support
- 3.5 Ensure valid and accurate research
- 3.6 Ensure appropriate attribution

[1]NHMRC/ARC/UA (2007). Australian Code for the Responsible Conduct of Research, Section 3, page 3.1 & 3.2. Australian Government, Canberra.

Responsibilities - Supervisors

Australian Code Section Responsibilities of Institutions[1]

"provide ongoing training and education that promotes and supports responsible research conduct for all researchers and those in other relevant roles"

"Ensure supervisors of research trainees have the appropriate skills, qualifications and resources."

[1]NHMRC/ARC/UA (2018). Australian Code for the Responsible Conduct of Research, Section Responsibilities of Institutions, page 3 R4 and R5. Australian Government, Canberra.

Responsibilities - Supervisors

Australian Code Section Responsibilities of Researchers[1]

"provide guidance and mentorship on responsible research conduct to other researchers or research trainees under their supervision and, where appropriate, monitor their conduct."

"Undertake and promote education and training in responsible research conduct."

[1]*NHMRC/ARC/UA (2018). Australian Code for the Responsible Conduct of Research, Section Responsibilities of Researchers, page 4 R15 and R16. Australian Government, Canberra.*

Responsibilities – Supervisors

The Supervisor is still responsible for ethical and legal requirements

- Responsibility cannot be delegated to the student/trainee
- Ensure the student meets training requirements
  - HREC reporting
  - GCP training
  - Clinical handling
  - GMO regulations
  - Biological safety etc.

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Responsibilities – Trainees

"…In return, research trainees must understand that in undertaking research they are joining an endeavour that requires dedication and accountability…"

Specific Trainee responsibilities include:

- **3.7 Seek Guidance:** A research trainee must demonstrate a professional attitude towards the research. Frequent sessions with the supervisor are important, requiring the cooperation of both parties. The trainee should not wait until approached by the supervisor but should play an active part in maintaining an appropriate schedule of meetings.
- **3.8 Undertake induction and training:** A research trainee should complete all induction and training courses as soon as practical after starting research in an institution.

NHMRC/ARC/UA (2007). Australian Code for the Responsible Conduct of Research, Section 3, page 3.2. Australian Government, Canberra

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Supervisory Styles

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Supervisory Styles

1. **Functional**
   - Establish tasks, set milestones and timelines
2. **Critical Thinking**
   - E.g. Journal club
3. **Enculturation or Apprenticeship**
   - Networking, publications, grants
4. **Mentoring**

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Key to great supervisor-supervisee relationships

- **Check each other out**
  - Style, personality, skill set
- **Clarity right from the start:**
  - Motivation
  - Expectation
  - Responsibilities
  - Operational
  - Non-research plans (e.g. part-time job on the side)
- **Understand other people in the mix**
  - panel, mentor

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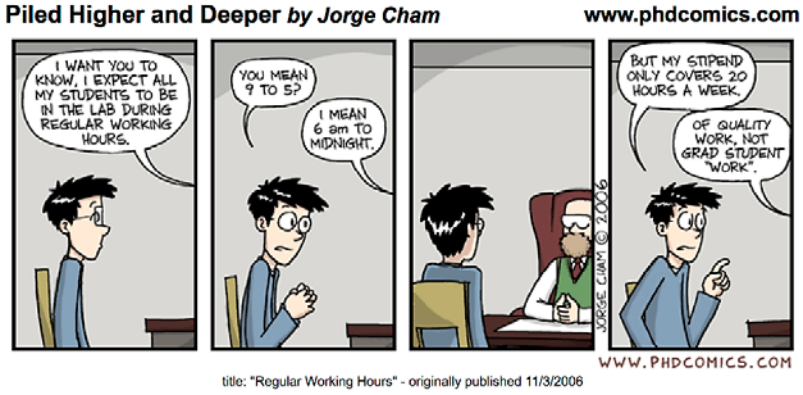
Deciding to proceed or not



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Deciding to proceed or not

Schedule an initial meeting to discuss proposed research opportunity

Reference checking:

- **Supervisor:** talk to previous supervisors/referees
- **Trainees:** talk to other students and the research team

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Deciding to proceed or not

After the initial meeting…

Supervisor:

- Do you think the prospective student is suitable?
- Do they still want to proceed?
- For HDRs: Aware of the 1-4 year commitment?

Student:

- Why am I doing this?
- Am I up for it?
- Is this the right supervisor?
- Is this the right environment?

Can be easier to say 'no' to the opportunity (from either side) rather than change things mid-stream

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After supervision agreed: Aligning Expectations

- **Clear communications of expectations**
  - Student
  - Supervisor
  - Supervisory team
- **Time commitment required**
- **Frequency of meetings and how feedback will be provided**
  - Deadlines?
- **Specific project requirements**
- **How will outputs be evaluated?**

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Remote Supervision

"We're playing teleconference."

Remote Supervision

Brings some additional challenges:

- Achievable, especially with current technology
- Requires more commitment
  - Structure and organisation to monitor progress and skills development
  - Highly dependent on both student's and supervisor's working styles
  - Ideally they have a local mentor/supervisor to check in, but not essential
- Recommend regular F2F meetings where possible
  - Formal enrolments may require first 6 months on same campus

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Stages of Research Supervision

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Stages of Supervision: Early Stage

Ground work

- For HDR
  - Supervision team/panel: Relevant expertise in different areas
- Reviewing the literature
- Planning the project
- Approvals and training
- Availability of resources
  - Supervisor time, access to equipment, funding
- Feedback on early writing milestones

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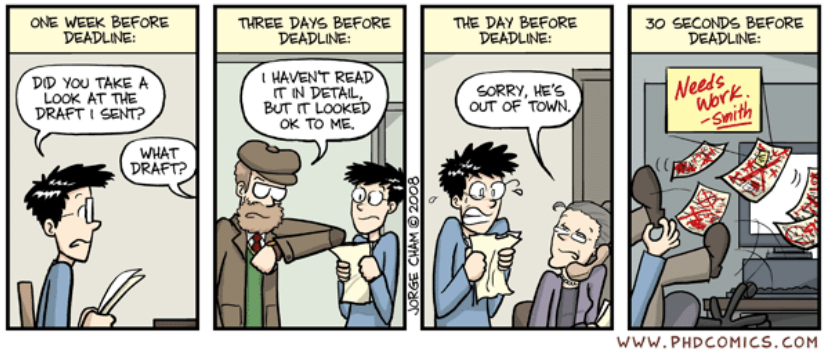
The biggest challenge in my experience…

Writing



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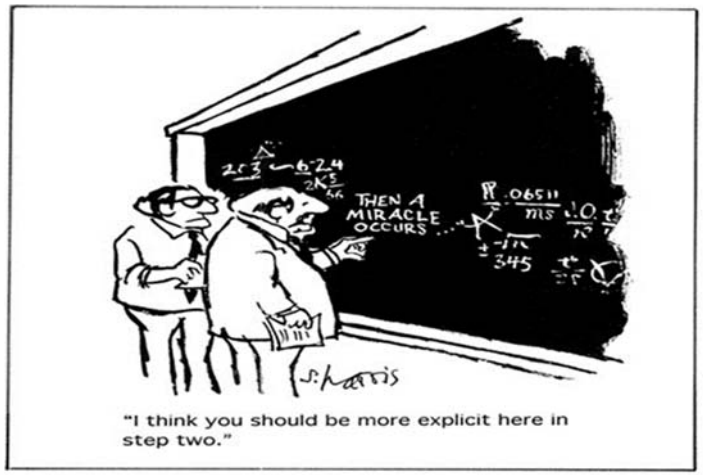
Stages of Supervision: Middle Stages

Practical

- Participant recruitment, data collection & analysis
- Critical review, oral presentation and defence of initial findings, more feedback on writing skills
- Monitor progress



"I think you should be more explicit here in step two."

Stages of Supervision: Final Stages

Final Stages

- Statistical analysis
- Write up
  - Thesis/dissertation, report, **journal paper**
    - **Always aim for a paper – most theses and reports get read by 2-3 people only!**
- Examination or peer review
- Oral presentation/defence
- Can be the most intensive period
  - Feedback, emotional support

Throughout all stages of Supervision

- **Additional formal learning/training**
  - Workshops/courses/secondments
    - Not just around the research, but also preparing for life afterwards (e.g. commercial/policy environments)
  - Additional supervisors
- **Changing roles and commitments**
  - Time requirements and availability
  - Engage/include junior staff in supervisory capacity
    - Another form of training/mentorship/apprenticeship

What if things go wrong?

"That's usually not a good sign."

What if things go wrong?

- Original project may no longer be feasible
- Change in student or supervisor circumstances or availability
- Discuss and address issues early!
  - Alterations in project outcomes and methods
  - Additional or alternative supervision
  - Extension of timelines
  - Mediation/facilitation

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Summary

- Supervision is perhaps the most important part of research
- If done well
  - Good research outcomes
  - Supervisee happy and keen to do more research
- Plan, prepare, avoid ad-hoc arrangements

Additional Workshops/Resources

THE UNIVERSITY OF WESTERN AUSTRALIA

UWA workshops

- Ensure you are on the UWA Register of Supervisors
  www.postgraduate.uwa.edu.au/staff/supervisors/supervisor-register
- For supervisors
  www.postgraduate.uwa.edu.au/supervisors/workshops
- For students
  www.postgraduate.uwa.edu.au/students/resources/workshops

Funding for trainee / student projects

- Fellowships – CAHS PGME (Karen Stevens - 6456 0503)
- PCH Foundation Research Grants *(closed March 2019)*

Perth Children's Hospital Foundation

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2 RESEARCH SUPERVISION – ADDITIONAL NOTES AND RESOURCES

2.1 ADDITIONAL READING

1. NHMRC/ARC/UA (2007). Australian Code for the Responsible Conduct of Research, Section 3 'Supervision of Research Trainees'. Australian Government, Canberra. https://www.nhmrc.gov.au/guidelines-publications/r39

2. Nicholas Steneck (2007). Introduction to the responsible conduct of research, Section 7 'Mentor and Trainee Responsibilities' (pages 103-113). http://ori.hhs.gov/sites/default/files/rcrintro.pdf

3. National Academies Press (2009). On Being a Scientist: A Guide to Responsible Conduct in Research (3rd ed), Section 2 'Advising and Mentoring' (pages 4-7). http://www.nap.edu/catalog/12192/on-being-a-scientist-a-guide-to-responsible-conduct-in

4. Anne Lee (2012). Successful research supervision: advising students doing research. Routledge, London and New York.

5. A.M. Lee. Developing effective supervisors: Concepts of research supervision. SAJHE 2007; 21:680-93.

6. Hugh Kearns and Maria Gardiner (2013). Planning your PhD: All the tools and advice you need to finish your PhD in three years. ThinkWell, Adelaide, South Australia.

2.2 PROFESSIONAL DEVELOPMENT

1. UWA Research Supervision Professional Development Program. GRS Supervision Workshops available include:
    - **Finding the Right Student – 17 June 2019**
    - **Role of the Graduate Research Coordinator – 19 June 2019**
    - **Research Students and Mental Health – 13 November 2019**

http://www.postgraduate.uwa.edu.au/staff/supervisors/workshops

2. Guidelines for Graduate Research Supervisors:
http://www.postgraduate.uwa.edu.au/students/policies/supervisors

3. UWA Register of Supervisors Procedures:
http://www.postgraduate.uwa.edu.au/staff/supervisors/supervisor-register

4. Supervisor Induction Module
http://www.postgraduate.uwa.edu.au/__data/assets/pdf_file/0008/3023000/SvisorInductionModule_FINAL_JE220218.pdf

5. Supervisor Refresher Module
   http://www.postgraduate.uwa.edu.au/__data/assets/pdf_file/0007/2989177/SvisorRefreshMeModule_FINAL_060917_updatedlinks.pdf

6. Thinkwell
   https://www.ithinkwell.com.au/
   https://www.ithinkwell.com.au/resources

Please contact Ben.Andrews@telethonkids.org.au if you'd like to attend any of the Telethon Kids Institute workshops. All of the workshops will take place in the Telethon Kids Institute Seminar Room.

2.3 Student Resources

UWA Postgraduate:

www.postgraduate.uwa.edu.au/students/resources/workshops

Graduate Research School Events Calendar
http://www.postgraduate.uwa.edu.au/students/resources/events

Funding For trainee/student projects

- Fellowships – CAHS Postgraduate Medical Education (PGME)
  (Karen.Stevens2@health.wa.gov.au)

- PCH Foundation Research Grants
  (Internal Site)
  https://cahs-healthpoint.hdwa.health.wa.gov.au/directory/research/researchers/Pages/Funding-Opportunities.aspx

Good PhD Supervision Practices

Tips from Institute Supervisors of the Year

Graham Hall, Sarra Jamieson, Hannah Moore, Monique Robinson, Deb Strickland.

Getting the right student

- Spend the time to evaluate if the student will be a good fit for the team, communicates well with supervisors/team members, and is self-motivated. It is critical you assess their ability to write. This is time well spent. Further information on 'Ideas for selecting a PhD student ' can be found at https://telethonkids.sharepoint.com/WorkingAtTheInstitute/DevelopingOurPeople/Pages/StudentSupervisors.aspx
- This process should be as thorough as employing a staff member

Getting off to a good start – clear communication of expectations

- The supervisory team – It is a team that needs careful consideration of personalities and expertise. Ideally 3 supervisors. Supervisors should discuss and identify what each supervisor's role is and what expectations they have of the student and each other. Every supervisor usually has different expertise and years of experience with the 'Primary' supervisor taking the scientific lead. Not the same workload for all. Consideration should be given to a supervisor from a different research background. Their feedback and input helps to fine tune communication.
- The student and the supervisory team – Expectations of supervisors and student, discuss and compare so all on the same page. Identify clear boundaries eg process to get timely feedback and frequency of meetings.
- The student and the wider research team – Encourage involvement with team members, not just isolated to their PhD project. Important to learn from others, gain and give support, identify potential future collaborations and involvement in networks.

Regular meetings and feedback

- The student should be responsible for writing meeting notes and sending to all supervisors. Action items should clearly identify who is responsible for completing the task and by what date.
- Feedback to the student on written work– Two ways of doing this are
    - The Primary supervisor collects feedback from all supervisors and then collates to give one set of feedback to the student or
    - Use a staggered approach – eg send certain sections to certain supervisors based on their expertise, or submit to the more junior supervisors first, the student then makes changes and submits to the principal supervisor for final feedback.

    - Don’t do it for them, no line editing. Give general comments and they have to re-write.
- Document in meeting notes the time supervisor/student are away and how this may affect expected timelines
- Focus on track record and career development from day 1 – show NHMRC ECF criteria early on in PhD, planning for conferences, awards, publications, introductions to networks. Discussion regarding potential careers outside research.
- Regularly review the students CV, to ensure they will be competitive and are planning career opportunities eg experience in writing travel awards, involvement in ethics, international presentations and visits to collaborators, community engagement, peer reviewing, grant writing, exposure to different work environments etc
- The Institute Student Advisory Panel process is extremely helpful to the student and the supervisors and should be done right throughout the Phd not just up to when the proposal is submitted. Further information can be found at https://telethonkids.sharepoint.com/WorkingAtTheInstitute/DevelopingOurPeople/Pages/StudentSupervisors.aspx

Other

- Be strategic about when the student submits their PhD – important to know dates of funding guidelines eg when does the Postdoc clock start? Is it the date of conferment or the date of the completion letter from the uni. Other relevant dates eg NHMRC ECR submission date
- Towards end of third year, give students the opportunity to write in a quiet place with minimal disturbance
- Support the student’s involvement in Institute Student Circle activities eg Two day annual student development program, Student Symposium, Student Circle meeting and other student activities
- In writing literature review and conclusions it is really important that the student drafts an outline so supervisors can let them know whether they are on the right track prior to spending too much time and effort writing a complete draft.
- Ask for regular written sections eg background section, methods for analysis, results and findings to ensure that writing is not all done at the end of the thesis.
- Where possible encourage the thesis to be done as a series of connected papers. Papers are required for getting post-doc funding as proof of track record and also papers are achievable pieces towards the larger thesis.

Ideas for selecting a PhD Student

1. Allowing time to assess the student's ability and research group fit will save you a lot of time in the future. Here are some suggestions from a discussion on this topic held at a supervisor workshop.

EVIDENCE REQUIRED	HOW TO OBTAIN THE EVIDENCE
Track record of achievement	• Academic record • Honours or equivalent • Summer Projects • Examples of report/paper written
Previous relevant work experience	• Check with referees • Check with previous supervisor • Evidence of problem solving ability • Evidence of working with children and parents
Life experience/circumstances	• Personal connection to the project • What support networks do they have in place while doing a PhD?
Commitment, determination to complete PhD	• Why do they want to do a PhD? • What do they see as the difference between Hons and a PhD? • Discussion of supervisor and student expectations • "Walk around the Institute" informal chat with student • Set tasks, and see if student follows through
Ability to write, explain, summarise	• Half page summary of research topic - from Pubmed • Half page summary of their understanding of what the project involves
Ability to listen and respond to feedback	• Give feedback on summary to student and see how they respond
Communication skills	• Discuss relationship/philosophy of PhD • What skills/qualities do they bring to the research group?
Vision	• Long term plan for their career
Problem solving ability	• Logical puzzle scenario

2. What **student qualities** are you looking for?
    - Passion about the project – Motivation, commitment, loyalty, Initiative
    - Research qualities - Good critical thinking, attention to detail, good work ethic
    - Establish if they are a good team player/ team fit - Communication skills

Other ideas

- Would the student like to speak to one of your current students?

ResearchEducationProgram.org

ReserachEducationProgram@health.wa.gov.au